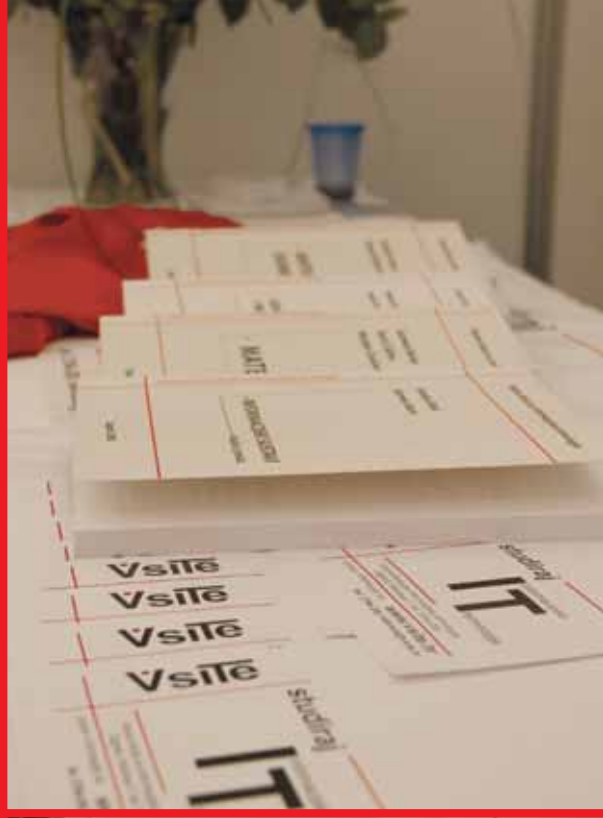
College for Information Technologies


VsiTe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A Word from the Dean

Dear colleagues, honorable friends, The aim of the booklet that you have in your hands is to introduce you to the College for Information Technology (VSITE), especially with the key aspects of life and work at the college through which you can get a clearer picture of what is it that distinguishes us from the others and why we believe that enrolling in VSITE, due to the quality of teaching as well as our dedication to each individual, is our key advantage.

Knowledge and the application of knowledge, along with any possible doubt we may witness, present the fundamental difference between the rich and the poor, the developed and the underdeveloped, those with prospects and certain forms of affluence and those burdened with uncertainty, fear, envy, and ultimately, malice.

All the lists of most wanted professions or those that are easiest to find employment with, include IT sector professions. In the future, IT sector professions will be particularly in demand. By joining the European Union the borders of employment have opened for Croatia which means that due to the lack of local IT professionals, the EU will be reaching for the Croatian experts. Given that Croatia considerably lags behind the EU countries when it comes to highly educated professionals in the IT sector (the ratio being 1:67), and that today in the Croatian IT sector according to some studies, 40% of employees have received only secondary education, we believe it will not be difficult to find employment after completing the studies.

VSITE implements the Bologna Process – 3 plus 2 years, which means that vertical alignment in education is ensured, including the possibility of transfer to our specialist graduate professional study in information technology from another related professional study. Both correspond with the programs of the world's most prestigious universities, and the methods we use in knowledge transfer should be a base for success and security following the study, regardless where it will be applied. This level of knowledge is a prerequisite of our lives in the future.

Professional and scientific challenges do not imply that an individual is an exclusive basis. One is important because of the unique features that each of us brings into every relationship. Therefore, in VSITE we prepare students for coordinated teamwork as a precondition for the success of both individuals and organizations in which they will work, as well as the society as a whole.

VSITE has given its contribution to the global education through a large number of recorded lectures to which the response was more than favorable.

Special attention is paid to the quality system. Two years ago VSITE obtained the ISO 9001 certificate and now we are in the process of certification for the ISO 27001 standard. External evaluation as a specific form of Quality Management encompasses life and work at the College of Information Technology. This is a key area in VSITE 2016 Development Strategy.

Everything that has been done at the College of Information Technology, partially covered in this booklet, has been done for students. The focus of all activities is for students to gain knowledge and competencies. They have provided us with significant support in this effort and we would like to take this opportunity to thank them.

We are confident that having completed our studies at VSITE, the students will have a successful business career.

MSc Milorad Nikitović, senior lecturer
Dean

Core Values

The students are VSITE's most important value.

Students are in the focus of both the mission and vision and all VSITE activities. Their success in the studies and after completing the studies is our main common goal. That is why the fundamental principles of students', teachers' and staff activities at VSITE are the care for others, confidence and competence.

Everyone who belongs to VSITE selflessly cares about others: for the home, family, colleagues, friends, school, for the project team, for their own organization, country and community. The school can only grow if it supports the growth of knowledge and the personal development of its students. The caring attitude of students and teachers towards constant improvement and the teachers' care for the students' growth are the main forces for achieving excellence of the school and its students.

The student cannot be self-sufficient. Without community, one is not safe and cannot persist in a world of ruthless competition in the ICT market. Community in learning and practice at VSITE enables achieving the necessary competences and strengthens confidence. The foundation of confidence is high-quality teaching and other processes which constantly improve the quality of teachers and teaching, and strengthens confidence in VSITE as a reliable partner in the career development of students and their organizations, and their effectiveness in the development and application of top information technology.

Competence is the foundation for the development and application of information technology. Competence combines the workings of the mind and the hands. Competence in the ICT sector is successful only if it is innovative and creative. It is the basis of confidence for students and lecturers.

Competence opposes control that suppresses innovation and creation.

Friendship fosters competence which fosters giving.

Spreading knowledge relies on giving, and giving is based on care.

The harmony of caring, confidence and competence are essential for accomplishing the mission and vision of VSITE.

Mission

VSITE's mission is to educate and train students for a successful and comprehensive application of information technology for the benefit of the economy and society as a whole.

Through the process of teaching and involvement in professional project design and scientific research, VSITE offers students the necessary skills and competencies for successful work, directing them towards innovation and training them for active participation in the economic transformation and development of strategic industrial sectors, the digital economy and the society.

VSITE coordinates curricula according to the development of information technologies and the changing needs and demands of the economy and society, anticipating the future needs of the labor market and the prospects for successful recruitment of students and their lifelong learning, while supporting their interests and prospects for self-employment, entrepreneurship and transformation of their innovations into viable business solutions.

The specialist studies at VSITE enable students to transform practical experience and acquire new skills and competencies. These will be applied in solving the most complex problems in the implementation and application of top information technology and searching for answers to new technological challenges, managing IT projects and providing advisory services in the field of ICT, development and maintenance of information systems and the management of the IT function.

Teachers and part-time associates of VSITE, through professional project design and scientific research and collaboration with other higher education and research institutions and industries, acquire, create, apply and share new theoretical and practical knowledge and skills, and they acquire and apply new top information technology in the development of new and recognizable products and services, processes and business models. On these foundations, they continuously improve existing and introduce new educational programs anticipating the needs and demands of the students' future employment and lifelong learning in the ICT sector.

Vision

VSITE is a private College for Information Technology, which monitors the development of cutting-edge technologies and transfers high quality expertise and specialist knowledge to their students, to small and medium enterprises, to large technical and business systems through their degree programs, lifelong learning programs and other formal and informal forms of higher education; the innovation and development center, and contributes to the development of the economy, the digital economy and the digital society through professional and scientific projects involving their students, teachers and their partners from home and abroad. VSITE is partnering up with other domestic and foreign universities and research institutions, and thereby improving the mobility of students and teachers at VSITE and expanding their knowledge and competence in the further development and implementation of new cutting-edge technologies.

Because of the quality and relevant programs of study, VSITE students acquire knowledge and skills which increase their prospects of (self-) employment in the fast-growing ICT areas. The knowledge and competencies of VSITE students in resolving technical and specialist issues, their innovation and contribution to the design, development and maintenance of information systems and completing complex IT operations, consulting skills, effective work in project teams, their ability to manage projects and their entrepreneurship make VSITE a recognizable higher institution in the Croatian educational and research community according to the strictest criteria of uniqueness and excellence.

In the long-term VSITE is growing out of a higher education institution and professional and specialist study of information technology into a higher college for information technology which strongly supports the development of the economy, the digital economy and the digitization of society.

Vice-dean for Academic Affairs

„Do not try to understand everything, lest you become ignorant of everything.“
(Democritus)

The establishment and introduction of professional studies has created a new attitude towards higher education. Professional studies train students for a direct entry into the labour market with an emphasis on the development of specialized skills, at the same time not putting aside the fundamental knowledge. The College for Information Technologies has found its place in educating professional Bachelors and Masters of Information Technologies. Lecturers at VSITE are eager to include students in cutting-edge technologies and actions of the IT business world. A large number of our lecturers also work in the economy sector. Their experience adds another dimension to the curriculum.

The Knowledge Triangle, one of the most known concepts today, links education, innovation and research. In this context, it is of great importance to actualize the cooperation with the economy, in order to enable the students to have a direct contact with the real products of the course content they study. Due to this fact, the College for Information Technologies realizes cooperation with renowned Croatian companies, so that the educational process would continue in a live system.

The basic duty of the Vice-dean for Academic Affairs is the concern about the quality of the educational process according to the defined educational plan and program. The fundamental part of the quality of the educational process is an active follow-up of the work of departments, lecturers and students, while continuously analysing the success of the study programs. The information technology studies offer students the knowledge in accordance to the learning outcomes of the whole study programme, which are defined with the purpose of creating capable engineers of the modern information society.

Darija Pešut, lecturer
Vice-Dean for Academic Affairs

Vice Dean for Development and Economy

Since its establishment, the College for Information Technology has been focused on continuous improvement of the quality of the educational process, which includes meeting the students' needs in terms of excellence, continuous harmonization of the study programs with the development of information technology, meeting the needs of the Croatian ICT market for competent IT professionals and their training for inventive application of new information technologies, the development of innovative software products, digital devices and new IT services.

The Innovation and Development Center has been founded and contracts signed with about twenty companies from different industries. We have initiated workshops which involve 40% of the students as extracurricular activities. The preparation of new workshops is underway for students and company employees in the fields which are interesting to students in order to acquire new knowledge, as well as for companies which are introducing emerging technologies which imply demanding information support.

The students' response to the workshops has shown which areas of IT are most interesting to them. We have found that one of the areas is image and film processing, specifically, it is important to have detailed and practical knowledge of the tools for graphic and visual design like the software from Adobe. Students were most satisfied when they managed to successfully design the project they had envisaged and, when by doing so, they were able to demonstrate their creativity. Students express interest in practical individual and creative work. In VSITE Development Strategy we have outlined two more areas that are considered important in the application of IT technology in the classroom.

The first area is the processing of large amounts of information in the virtual world or in "cloud technology". We held the first "cloud workshop". From commercial elements we built the VSITE private cloud. On that system we conducted a verification of theoretical knowledge through practical exercises and measurement of different variables in different operating configurations.

Another important field is robotics and microcontrollers.

We organized a digital workshop where students were examining the possibility of applying RFID controllers and they designed their own device. The theoretical knowledge from the full-time studies of programming was applied to specific operating conditions of RFID controllers.

The workshop on microcontrollers designed its own hardware for operating and controlling the microcontroller. Students are familiar with practical technologies in laboratory conditions, and with the standards of the subroutine for controlling the microcontroller.

The incentive for this orientation are the changes in our civilization which is becoming an information civilization.

Such a civilization is focused on the present. The past and the future no longer occupy our thoughts. We are a civilization oriented towards the "now".

In the information age we are present everywhere, immediately, and now. In the present, we want to encompass a multitude of available information and understand the changes that preoccupy us every day and which we have to overcome. An instrument, the computer, is what enables us to operate in such an environment (the "cloud", servers and local area networks, workstations, notebooks, smartphones and robots) and not the machine or the plough as it used to be in the past.

Workers, and there are still plenty of them, become scientific workers. The reason is technology. It reaches their jobs and serves them information, gathers information and helps them in their work. A process is taking place in which all employees are becoming scientific workers or knowledge workers. Cooperation with the economy is a journey in which we want to understand how to improve schools and the economy and to become knowledge workers in the information age.

Scientific workers create new values by the work of their hands and the designs of their minds. That is the upcoming reality. That is what we are focusing on at VSITE. The basic method for a new era is the progress of education which is both theoretical and practical. It puts its focus on those who wish to advance themselves by learning and discovering. The students.

MSc Mihael Buković, lecturer
Vice Dean for Development and Economy

Student Administration

When someone opts for the College for Information Technology, as an institution of higher education where they wish to continue their education, the first thing to do is knock on the door of the Student's Office.

The Student's Office is the place where everyone who is interested will receive answers to questions starting with how to apply for college, what to do if you are transferring from another institution of higher education, whether to study full-time or part-time, and so on. We try to explain the differences and point out the advantages of being a full-time student for candidates who have recently completed high school. Likewise, VSITE has already been acknowledged as an institution of higher education that enables students who have completed their secondary education several years ago and are already employed, to have a reduced workload compared to the full-time study, and can therefore successfully complete their studies. Courses are being held in the afternoon for them, and the Student's Office tries to customize the schedule of classes according to each student.

The Student's Office hours are adjusted to the time that students spend at VSITE.

In short, the following items can be settled in the Student's Office:

- an individual interview in which the future student is being introduced to their rights, duties, and details related to the Bologna Process
- administrative tasks related to registration, withdrawals, performing professional practice, etc.
- issuing various certificates, grade transcripts and documents of graduation,
- accepting students' petitions and complaints,
- conducting various analyses and statistical reports,
- issuing matriculation books and student IDs, and
- other administrative tasks within the SCAD information system.

The doors of the VSITE Student's Office are always open for counselling, assistance, or just conversation.

Quality Management System

VSITE has introduced a quality management system in accordance with the international standard ISO 9001:2008 and the Standards and Guidelines for Quality Assurance in the European Higher Education Area. The certification to hold professional studies in information technology according to ISO 9001 was conducted by QS Zurich AG on 9 June 2011, and preparations are underway for the certification of the specialist studies in accordance with ISO 9001 and the introduction of an information security system according to the ISO 27001 standard.

The quality management system covers all business processes **management** (planning, organizing and human resources management, control), **basic processes** (organization and implementation of teaching and examinations, scientific research and professional activities, publishing, mobility and international cooperation) **and support processes** (Student Administration Office, procurement, library and course materials bookshop, administration and IT support, outsourced infrastructure maintenance services). VSITE regularly performs internal and external audits to monitor and evaluate the level of achievement in terms of the quality policy, the objectives and plans for quality and constant improvements of the quality management system. The overall quality management system is set up so that the focus is on the **student** and fulfilling the demands and needs of students and other stakeholders (employers who have hired or will hire our students, the economy, Ministry of Science, Education and Sports, as well as the business and social community). The Committee for Quality has five members (three teachers, one student and one employee of the College administration).

In 2012 and 2013 Quality Assurance Manual was implemented, which in accordance with the Standards and Guidelines for Quality Assurance in the European Higher Education Area, quality objectives and good practices, provides rules and procedures for

- securing and improving the quality systems,
- approval, control and periodical performance appraisal of the academic programs,
- evaluation of student work, student assessment and protection of student rights,
- learning resource management and student support,
- ensuring the quality of teachers,
- scientific research,
- professional activities (professional project work)
- international cooperation and mobility,
- management of resources for education, scientific research and professional activities
- information systems, and
- public briefing and public action.

In accordance with this manual, nearly 30 procedures and work instructions were identified which closely regulate the implementation of quality assurance activities in those areas. Thanks to such an established quality management system VSITE is recording continuous organizational growth, more dynamic execution of the established VSITE development strategy and more thorough fulfillment of the requirements of the Ministry of Science, Education and Sports and The Agency for Higher Education, which will enable further strengthening of the reputation of VSITE students with their employers, and adherence to the criteria of excellence and quality education in the field of information technology.

Studying

Studying at the College for Information Technology is carried out in two segments:

- Professional Studies in Information Technology and
- Specialist Graduate Professional Studies in Information Technology

In this way the College for Information Technology ensures vertical mobility in education for students taking Professional Studies in IT and an opportunity for students from related undergraduate university professional studies to attend the Specialist Graduate program.

Professional Study of Information Technology

The three-year undergraduate program of information technology provides students with practical expertise, necessary to fit into the work environment with greatest possible efficiency.

The professional study of information technology is organized for full-time and part-time students in two modes of study.

Full-time students study for three years with full annual requirements of approximately 60 ECTS credits.

Part-time students study for four and a half years, three of which require approximately 40 ECTS credits, and a fourth year requiring 50 ECTS credits, after that they have to complete professional practice and write a final paper for 8 ECTS credits.

Reduced annual workload allows part-time students to successfully study while working.

Upon completing the program the student can achieve a minimum of 180 ECTS credits, and receive the academic title of a Bachelor of Information Technology.

Four areas of specialization are provided through elective courses:

a. **designing user software support,** includes generating and testing parts of the program using program interpreters and application generators,
b. **integration and maintenance of computer systems and networks,** includes operations in stages of installation, usage and expansion of computer equipment and system software support, designing computer networks according to the principles of structured cabling and workgroups, constructing and testing networks, connecting the network to the Internet, and connecting individual computers to the network,
c. **designing databases and web sites,** includes designing, generating and testing parts of the database and the data access system using the database program and web scripting languages that are processed on the client or on the server computer, and
d. **designing and use of information systems,** includes the development cycle of an information system using the techniques of system modeling and CASE tools.

The specialization in **programming** combines a number of subjects through which students acquire the skills necessary for independent software development.

The classes cover most of the currently leading programming languages (Visual Basic, Java, C, C++, C#, JavaScript) but even greater emphasis is given to adopting the basic principles and concepts of software engineering.

In working with the students the emphasis is on individual work, the students acquire the necessary skills to develop advanced software solutions through exercises and seminars.

As a result, our students have been recognized in the labor market, and they now form the backbone of the internal developers' teams in many of our large companies.

The database, being the most convenient way to organize data in conventional computer systems, is a central element of any information system. We access databases every day, when we use ATMs, read the news on web portals, discuss on message boards or use business applications. With this specialization students will gain practical knowledge of designing, programming and administering multi-user databases. They will learn when and how to use transactions, procedures, triggers and cursors and how to protect the database in multi-user operation by controlling parallel approach, assigning permissions, creating users view, as well as ways to restore the database in the event of destruction. They will also learn how to design a complete web application with both the server and the client part, which both look good and work, and this involves applying multimedia formats into web applications and customizing the website to run equally well in different browsers and resolutions. Students will be able to develop dynamic web applications. Technologies, tools and standards which the students will come across and work on are as follows: MS SQL Server, ADO.NET, AJAX, XML, JSON, HTML5, XHTML, CSS, JavaScript, SMTP, POP, SSH, IMAP, FTP, ASP.NET.

Every organizational system has its own information system. Information systems need to be developed and continuously maintained by adjusting and upgrading.

Students of this specialization will acquire advanced knowledge of the development of information systems and the application of modern techniques of designing information systems, which, among other things, includes understanding the role of the user, defining user requirements, designing the process model and the data model and learning the prototyping method. Students will acquire thorough insight into the issues accompanying the implementation of information technology into companies, and they will learn about the programming tools for office work management. They will also be able to identify future trends in information technology operations like virtual organizations, virtual reality, virtual scenes, virtual networking, virtual people, technology integration such as call centers and multimedia systems. The students will learn in detail about all the steps necessary for establishing an e-business system. This includes knowledge about everything that is necessary for electronic commerce, as well as knowledge of how trading works on a mobile device. This specialization teaches students about the relationship between the information systems and the environment, the laws, the regulations, the standards, and about the interaction of information systems, particularly in relation to social information systems in the broadest sense. Students will gain

insights into the problem area of the ERP concept as the dominant philosophy of the computerization of production, and identify the key factors for the success of implementing ERP solutions into manufacturing companies.

Computer systems and networks specialization is designed to introduce students to the world of network communication. We have divided this continuously fastest growing branch of the computer industry into six courses. Since it is the infrastructural foundation of all other branches of the computer world and it is constantly evolving, **Computer systems and networks** require students to have a broad insight into the matter, knowledge of the history of the development of computers and networks, and the ability of lifelong learning. This specialization is balanced in a way to offer students all of the above, with lots of hours of practical training.

Computer systems and networks undoubtedly create the most dispersed need for qualified staff in the industry, from artisans for system maintenance or installation of network infrastructure, through system administrators and network planners, to the most advanced computer forensics experts on cyber-crime or *cloud* architecture.

We should also not lose sight of the fact that the high complexity and dynamics of the industry requires commercial professionals, as well as business people who have to have an excellent grasp of matters regarding computer systems and networks in order to be able to work in such a business environment. This specialization provides those with an affinity for *business* a basis for successful development.

Professional Study of Information Technology – Study Program

1st Semester	Teaching hrs.	ECTS
Linear Algebra	30+30	5
Physics	45+30	6
Fundamentals of Electrical Engineering	30+45	6
Digital and Microprocessor Technique	45+45	7
Computer and Program Usage	15+30	3
English Language 1	30+0	2
TOTAL:	**195+180**	**29**

2nd Semester	Teaching hrs.	ECTS
Mathematical Analysis 1	30+45	6
Fundamentals of Electronics	30+45	6
Architecture and Organization of Digital Computers	45+45	7
Introduction to Computer Programming	45+60	8
Business Ethics	30+0	3
English Language 2	30+0	2
TOTAL:	210+195	32

3rd Semester	Teaching hrs.	ECTS
Applied and Numerical Mathematics	45+30	6
Programming Methods and Abstractions	45+60	8
Databases	30+45	6
Information Systems	60+0	6
English for Engineers	45+0	3
TOTAL:	**225+135**	**29**

4th Semester	Teaching hrs.	ECTS
Operating Systems	30+30	5
Computer Networks	30+30	5
Elective course of the chosen Major	30+30	5
Elective course of the chosen Major	30+30	5
Elective course (from other Majors)	30+30	5
Elective course (from other Majors)	30+30	5
TOTAL:	**180+180**	**30**

Elective Courses – Software Development	Teaching hrs.	ECTS
Data Structures and Algorithms	30+30	5

Object-Oriented Programming	30+30	5
Elective Courses – Database and Web Design	**Teaching hrs.**	**ECTS**
Database Design	30+30	5
Network Services and Programming	30+30	5
Elective Courses – Computer Systems and Networks	**Teaching hrs.**	**ECTS**
Personal Computer Architecture	30+30	5
Computer Networks Design and Management	30+30	5
Elective Courses – Information Systems	**Teaching hrs.**	**ECTS**
Information Systems Design	30+30	5
Informatization of Management	30+30	5

5th Semester	**Teaching hrs.**	**ECTS**
Company Organization and Economics	30+0	3
Mathematical Analysis 2	45+30	6
Elective Course of the 5th Semester	30+30	5
Elective Course of the 5th Semester	30+30	5
Elective Course of the 5th Semester	30+30	5
Elective Course of the 5th Semester	30+30	5
TOTAL:	**195+150**	**29**

6th Semester	**Teaching hrs.**	**ECTS**
Discrete Mathematics	45+30	6
Elective Course of the 6th Semester	30+30	5
Elective Course of the 6th Semester	30+30	5
Elective Course of the 6th Semester	30+30	5
Elective Course of the 6th Semester	30+30	5
Industrial Traineeship	0+0	0
Final Paper	0+0	8
TOTAL:	**165+150**	**34**

Elective Courses – 5th and 6th Semester	**Teaching hrs.**	**ECTS**
Server Computer Architecture	30+30	5
Server Management	30+30	5
Computer and Data Security	30+30	5
Multimedia Networks and Systems	30+30	5
UNIX Programming Tools	30+30	5
Advanced Windows Programming	30+30	5
Java Programming	30+30	5
C# Programming	30+30	5
Project Management and Documentation	30+30	5
Object-Oriented Modelling	30+30	5
Distributed Object Programming	30+30	5
Internet Programming	30+30	5
Web Design	30+30	5
E-Business	30+30	5
Public Information Systems	30+30	5
Informatization of Production	30+30	5

Professional Graduate Study of Information Technology

Specialist graduate professional study of information technology is divided into two groups of courses.

The first group consists of the core subjects (mathematics, languages, systems, social sciences) where the professional specialist information technology engineer achieves advanced knowledge that is necessary for continuously monitoring the advancement of engineering in the field of IT.

The second group consists of elective specialist courses, and their content is improved according to professional requirements, each generation of students is given the opportunity to master particular contemporary technology and to accomplish the possibility of joining the work process without additional training.

This dual approach is in line with the latest findings, which are aimed at training the professional specialist engineer to continuously monitor the progress of information technology.

This level also has two modes of study.

Full-time students study for two years with full annual requirements of 60 ECTS credits.

Part-time students study for three years and have an annual requirement of approximately 45 ECTS credits.

At the end of the study, the student acquires 120 ECTS credits, which means, in addition to the professional study credits, a total of 300 ECTS credits. At the end of the study the student receives the academic title: Specialist Engineer of Information Technology.

Students choose one of the three specializations of the study:

a. **designing user software support and information systems** is advanced from the level of professional study, which includes:
   - basic bachelor training in programming and program implementation, to the level of the specialist graduate study that trains the professional specialist engineer to independently apply the paradigms of software engineering, management of software projects and to independently perform complex tasks of implementing software systems, and
   - databases and web applications and information systems design, at the specialist level. Trains the professional specialist engineer for the implementation and management of complex information systems based on modern technologies and to actively advance the technology of information systems.

b. **integration and maintenance of computer systems and networks** is advanced from the level of the professional study, which provides knowledge which is important for work in stages of installation, usage and expansion of computer equipment and software support, and for designing and implementing computer networks, to the level of specialist studies that trains the professional specialist engineer for strategic computer security and efficiency management, and mastering the complex technologies of fine-tuning, monitoring and controlling computer systems,

c. **embedded and mobile computers** is a new specialization derived partly from Programming, and partly from the course Computer Systems, which trains professional specialist engineers for work on the increasingly important segment of small mobile and embedded

computers. Professional specialist engineers who choose to specialize in embedded computers will learn to design and implement software solutions for control systems and mobile computers, and to design dedicated connection hardware.

Professional Graduate Study of Information Technology – Study Program

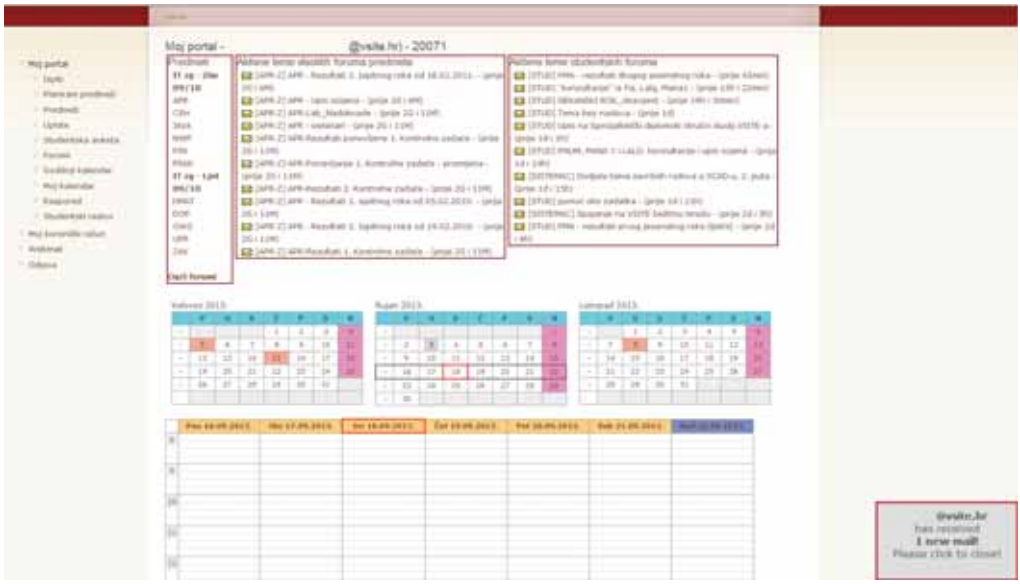
Elective courses – 1st Semester		
Course title	**Teaching hrs.**	**ECTS**
Elective Courses - Core		
Statistics	45+30	6
Discrete Mathematics	45+30	6
Elective Courses - Social		
Accounting Basics	30+15	4
Sociology of the Information Society	30+15	4
Elective Courses - Embedded and Mobile Computers		
Embedded and Mobile Systems	30+30	5
Basics of Robotics	30+30	5
Elective Courses - Software Engineering and Information Systems		
Advanced Algorithms and Data Structures	30+30	5
Principles of the Object Oriented Design	30+30	5
Database Programming	30+30	5
PHP Programming	30+30	5
Elective Courses – Computer Systems		
Computer Security Management	30+30	5
Information System Reliability	30+30	5

Elective Courses – 2nd Semester		
Course title	**Teaching hrs.**	**ECTS**
Elective Courses - Core		
Numeric Modelling	45+30	6
Automata and Languages	45+30	6
Elective Courses - Social		
Marketing Basics	30+15	4
Introduction to Research	30+15	4
Elective Courses - Embedded and Mobile Computers		
Digital Signal Processing	30+30	5
Digital Instrumentation	30+30	5
Elective Courses - Software Engineering and Information Systems		
Software Engineering	30+30	5
Advanced Java Programming	30+30	5
Reliable Software Design	30+30	5
Service Based Computing	30+30	5
Advanced .NET Programming	30+30	5
Elective Courses – Computer Systems		
Computer Networks Security	30+30	5
Server Computer Tuning	30+30	5

Elective Courses – 3rd Semester		
Course title	**Teaching hrs.**	**ECTS**
Elective Courses - Core		
Operational Research	45+30	6
Mathematical Logic in Computer Science	45+30	6
Elective Courses - Social		
Ecology and Sustainable Development	30+15	4
Assistance Skills	30+15	4
Elective Courses - Embedded and Mobile Computers		
Digital System Design	30+30	5
Mobile Applications	30+30	5
Java and Mobile Platforms	30+30	5
Elective Courses - Software Engineering and Information Systems		
Computer Graphics	30+30	5
Dynamic Programming	30+30	5
Content Management Systems	30+30	5
Business Intelligence	30+30	5
Information Systems Integration	30+30	5
Elective Courses – Computer Systems		
Computer Forensics	30+30	5
Server Computer Virtualization	30+30	5

4th Semester		
Course title	**Teaching hrs.**	**ECTS**
Diploma Thesis	0+360	30
TOTAL:	**0+360**	**30**

SCAD – School Administration



The College for Information Technology has developed its own software solution for monitoring of all college activities. The primary intention was to monitor the teaching. Every student and teacher have their own profile where they can see only the segments that are relevant to them.

After several years of development, today the solution has over 20 modules important for the sustainability of the school. We shall take this opportunity to highlight a few of them. The Student Administration module with segments for the entrance exam, enrollment, and the initial database of each student. The Teachers' Module contains all the information about teachers, their election, their works, and their monitoring the courses that they teach. The Courses Module with syllabi in Croatian and English, as initially entered including the modifications made during the academic year. The Teaching Module includes data entries from lectures, auditory and laboratory exercises, as well as quizzes and exams.

From a technical point of view the whole system is based on Open Source technologies. Over half a million lines of code written in PHP on a MySQL database is running on a Drupal development environment on the latest Linux distribution, and the only thing users need for uninterrupted operation is a device with Internet access.

Teaching Worksite STORM

VSITE students who decide to take Server Architecture or Server Management as the courses of their choice, apart from having lecturers from the top of the profession – Vladimir Olujić, CEO and Director of STROM Computers – they get a chance to experience the real working environment using modern and professional equipment since the laboratory exercise of these courses are held at STORM Computer facilities, a company which has signed a cooperation agreement with VSITE.

The employees of the company, which was established in 1988 in Zagreb as a small workshop, offers students the skills which are directly applicable in their future professions. In this way the students gain a unique insight into the working environment and tasks which they could expect after completing their studies and are better prepared for future jobs.

STORM Computers today employs 60 people, it is a member of the STORM group and one of the leading system integrator in Croatia, with several subsidiaries at home and abroad. Shortly upon its establishment, the small workshop became a company offering software development solutions for small and medium-sized businesses. Since then, STORM computers has constantly been growing and expanding its range of activities - by the end of the century, it spread out of Zagreb, and established a network department, consequently increasing the scope of business. It became an authorized reseller and distributor of leading IT brands and an authorized partner of U.S. Robotics, 3COM, Philips, Siemens and others.

Since the year 2000, the business of the company has expanded into the area of telecommunications, security solutions and technologies for data storage. STORM Computers has also achieved the highest partner status with companies like Cisco Systems, Microsoft, Hewlett Packard, EMC2, and Oracle – SUN Microsystems.

Practical Training

Practical (industrial) training is done with the aim of introducing students to the work processes of a real working environment and acquiring the initial experience of teamwork on daily tasks. Students have the option of seeking practical training in businesses of their own interest, but if they are unable to do so, they will be assigned one. Due to VSITE's agreements with renowned companies in the Croatian economy, students can require to complete their practical training in one of these organizations. VSITE has established contact with the international agency GLOBALPLACEMENT.COM that assists students in finding and completing their practical training abroad.

International Relations

International Relations and Mobility Office

The basic purpose of the International Relations and Mobility Office is to encourage the development of international relations with partnering institutions around the world, and also to organize the mobility of students, teachers and non-teaching staff.

The office is involved in the following activities:

- Bilateral agreements
- Mobility
- International projects in the field of higher education
- Activities of higher educational institutions and international associations
- Informing

Cooperation with Foreign HEIs

College for Information Technologies (VSITE) and Banja Luka College (BLC) signed a science, academic, research and technology cooperation agreement on 27 May 2013.

International Organizations

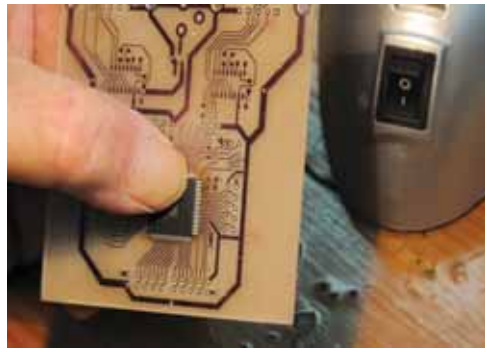
VSITE is an associate member of SEFI – The European Society for Engineering Education. As a member of this organization, VSITE connects its students and teachers with European institutions of engineering education, offering them insight to the latest developments in the field of the engineering profession.

Innovation and Development Center

The VSITE Innovation and Development Center (IRC) encourages professional and scientific research and innovation from teachers and students in applying new information technologies that contribute to economic and social development and to overall knowledge and technical development. It is a new organizational unit of VSITE which contributes to raising the quality of the scientific research and professional work of teachers and VSITE's associates, and enables teachers and students at VSITE to participate in scientific research and development projects in the field of information technologies which enhance VSITE teaching activities and contribute to the development and implementation of new information technology.

VSITE's IRC plans and executes the activities which enable teachers and students at VSITE to participate in international scientific research and development projects and to establish and maintain successful cooperation with related institutions in Croatia and other countries where VSITE has accomplished scientific and technical excellence, acknowledgment and recognition based on the results we have achieved. VSITE's IRC has enabled through its activities:

- applied research and development of innovations in the field of new information technologies,
- implementation of students' innovative ideas and student projects,
- student involvement in development projects,
- participation of teachers, associates and students in international projects and mobility programs,
- networking and cooperation with domestic and foreign universities, scientific research institutions, scientific and professional associations and businesses, through organization, participation and realization of joint scientific research and development projects aimed at the transfer of new information technologies,
- organization and implementation of the lifelong learning program in the field of information technology application, and
- VSITE's participation in competitions for funding scientific research and development projects from EU funds and obtaining government subsidies.

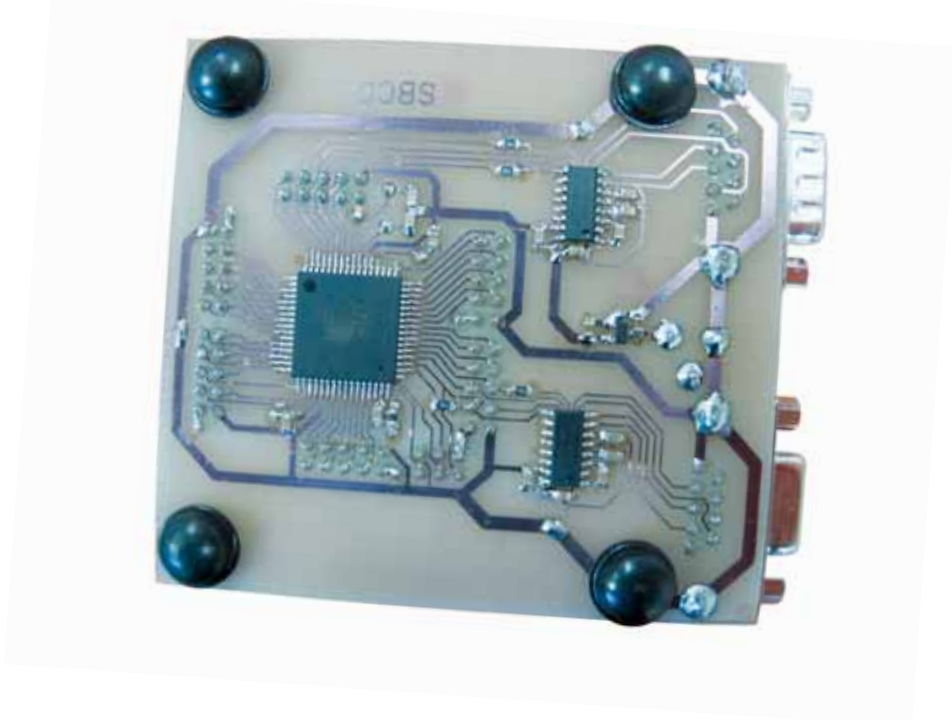


Proposing projects and project tasks is the right of all teachers, associates and model students at VSITE, physical and legal persons with whom VSITE has established relations regarding scientific research and business and technical cooperation. The project proposer can initiate a project that will, with the support and participation of VSITE's IRC, take part in tenders for financing projects through state incentives, from EU funds or other sources, if by doing so the objectives and tasks of the IRC and the VSITE's mission are achieved.

Cooperation Agreements With Renowned Companies

The purpose of agreements with renowned companies is to familiarize the school and its students with the issues in implementing IT facilities into the economy, to include the economy into the process of educational process in the field of IT technologies and into VSITE's professional and scientific projects involving implementing cutting-edge IT technologies into the economy.
This is achieved through joint actions and projects.
When it comes to actions, this entails professional practice, teaching sites, compiling final and diploma papers, preparing scientific and research papers, as well as lifelong learning.
When it comes to projects, the goal is to get students, assistants and lecturers to participate in projects that have the potential to develop new products for the market or to improve the existing product. It is also anticipated that companies and VSITE create common projects in accordance with EU requirements and participate in EU development funds and business advancement.

Such agreements have so far been signed, among many others, by the following companies:
Altus, Zagreb,
AVL, Zagreb,
City Center One, Zagreb,
CROZ, Zagreb,
Datalab, Pula,
Wood Industry Novoselec, Novoselec,
Electroda Zagreb, Zagreb,
Elektroprojekt, Zagreb,
Enerkon, Zagreb,
Filikon, Zagreb,
Infolab, Zagreb,
Lipovica, Popovača
Markoja, Zagreb,
QIQO, Pula,
PAB Akrapović, Buzet,
Ramtech, Zagreb,
Sinitech, Zagreb,
SPAN, Zagreb,
STORM Computers, Zagreb.



Workshops

VSITE organizes workshops that enable students to acquire additional knowledge and practical experience which full-time study programs do not provide. Workshops have proved to be an opportunity for accomplishing students' project ideas and a place where they are directed towards innovation and application of new information technologies. Such practical training enables fast integration into the labor market, increases the chances of (self-) employment and the transformation of their innovations into viable technical and business solutions.

VSITE provides the facilities, the workshop managers, the materials and other resources required for the successful operation of the workshops. The students suggested holding workshops on **Adobe Photoshop** and **After Effects** where they learned about these tools and designed their first projects. Their clips, which were published on Youtube, show not only that the participants of the workshops have mastered these tools, but that they are talented and capable to engage in more serious projects. VSITE will continue to organize such workshops and direct them towards improving students' education and the creative use of their free time, and towards training them to establish high-quality IT support for graphic design.

VSITE organizes workshops on the application of cloud technologies. The **Cloud computing** workshop introduces the students to the OpenNebula Cloud and prepares them for carrying out a number of projects about implementing the cloud in education and introducing private cloud services.

The **Digital Workshop** enables students to gain practical experience in the field of digital electronics. Participants of this workshop are introduced to the principles and good practice of designing digital devices, and based on this, with the support of the workshop organizers, they can actualize their project ideas. This year, the participants of the workshop independently developed **devices for RFID access control and LED lighting control.** Many ideas have not yet been realized and the students will get the chance to deal with them at later workshops.

All workshops last 30 hours. The **Microcontroller** workshop lasts 60 hours and is divided into two semesters. Participants of this workshop acquire not just theoretical and practical knowledge of microcontrollers, but they also receive free know-how and verified software solutions from the pioneer of digital engineering in Croatia, Stjenka Bojanić BE who is a staunch supporter of Open Source solutions in this area. In the next semester, the participants of the workshop will start implementing their own projects directed at the inventive application of microcontrollers in various fields.

VSITE organizes **workshops on intellectual property protection in the ICT sector,** where students learn about copyright protection and the protection of industrial property, Open Source and Free Software paradigms and issues regarding management of their own and other people's intellectual capital.

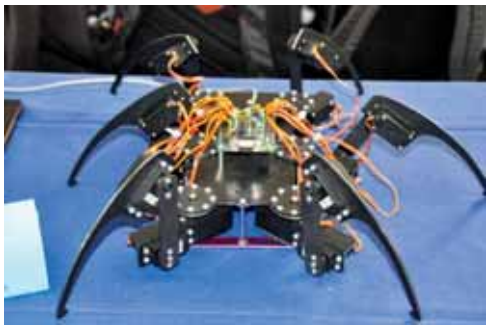
Since the students have shown considerable interest VSITE will continue to organize these workshops in the next academic year. New workshops are being prepared that add to and complement them and workshops in the informal and formal lifelong learning of information technology engineers who have graduated from VSITE and other experts in the field of information technology.

INOVA youth 2013

The participation of the College for Information Technology (VSITE) at INOVA youth 2013 is only a small part of the overall activities that take place at the VSITE Innovation and Development Center (IRC) and its workshops.

This year's INOVA youth was held at the Faculty of Mechanical Engineering and Naval Architecture, and VSITE presented three projects. Bruno Dunaj won the gold medal (mentor: lecturer Nenad Čaklović, BSE) with magnetic electric drums, the bronze medal went to Mislav Prohaska (mentor: lecturer Koča Vrančić, BSE) for the Heksapod, and Iztok Ramljak was awarded recognition for participation with his final paper titled *Algorithms in robotics* – A* algorithm (mentor: lecturer Gordan Krešic, BSE).

Drums by Bruno Dunaj



Hekaspod by Mislav Prohaska

Lego NXT 2.0 with A* algorith by Iztok Ramljak

The magnetic electric drums project by Bruno Dunaj was accomplished through the performance of software and hardware components. The technology used to create the software includes Windows API's, *DirectSound*, and the use of MCI (Media Control Interface). The software was created in the form of a graphical application that enables playing virtual drums using a computer keyboard, a computer mouse or actual electric drums. The application was designed in the programming language C++ and it can display drum strokes and reproduce drum beat sounds. The hardware components of the instrument include an interface for connecting the actual electric drums to the software, the drum frame, the pedals and the drumsticks.

The application can be expanded with a metronome ticking to measure the tempo while playing a particular composition and a lot of other options. Upgrading is one of the main features of today's applications because there are smart technologies that do not consume a lot of resources such as memory and computer processor time.

The "Heksapod" is a project idea by student Mislav Prohaska. It does not in itself carry anything revolutionary, however, in order for that digital insect to walk as expected, the modeling requires an excellent grasp of trigonometry, kinematics and dynamics. Each Heksapod leg has three joints which

are run independently: 6 legs, a total of 18 joints. Therefore, the motion of the Heksapod can be very complex. The position of each joint, mathematically speaking, is described with one coordinate. The Heksapod motion (e.g. motion along a straight line without changing the height) is determined by setting all joint coordinates at discrete points in time. These coordinates are obtained by solving a system of mathematical equations. The coordinates are then translated into commands for the engines in the joints of the Heksapod's legs and it proceeds to move in the desired manner.

The third project by Iztok Ramljak presents an A* algorithm for finding the shortest path between two points with obstacles on a map in the form of a matrix implemented on a Lego NXT 2.0 robot. The execution of the code for the A* algorithm, the functional robot parts (motors, sensors), but also the graphical interface of the NXT LCD screen are written in the programming language ROBOTC. ROBOTC is a language that is based on the better known C, but also on C++. ROBOTC is not standard ANSI C, but a hybrid blend of the two previously mentioned languages with certain standard options left out such as recursion and pointers. The interactive presentation application is made in C #.NET programming language to present the final project. Its main purpose is to make the application demonstrate everything that is happening with the robot while it is idle and during execution of the task. Above all, to "request" and present the robot's basic data, to operate it via Bluetooth, and download images in real time from a phone camera using TCP protocol. Part of the project dealing with construction of the robot describes the technical features of the components that were used to create it, and the problems of those features that were encountered while building the robot.

Alumni

VSITE Alumni was established by the first generation of bachelor graduates. The support of its members is significant to various work segments of the College for Information Technologies. The emphasis is on their contribution in periodical evaluations of our study programs and also on the involvement of the College for Information Technologies in EU projects.

List of graduates:

Srđan Alavanja
Kristijan Babić
Sanja Barbarić
Filip Baričević
Igor Besednik
Davor Bokorni
Hrvoje Brajčić
Nenad Brnjanec
Dario Bubanj
Goran Burtina
Vanja Cakol
Željko Čižić
Domagoj Čižmešija
Svjetlana Čolak
Siniša Dianić
Jakov Dolinić
Bruno Dunaj
Denis Eisenkohl
Igor Filipović
Marko Galić
Ninoslav Gorički
Svan Gradišar
Sebastijan Havrlišan
Suzana Heršak
Tomislav Horvatek
Darko Horvatinović
Boris Hruškar
Damir Hrženjak
Edis Jakupović
Damir Jambor
Jure Janković
Hana Jeličić
Vanja Jelkić
Kornelije Kazimir Josić
Saša Jovanovski
Jelena Juras
Robert Kanižaj
Igor Kanižaj
Igor Karačonji
Igor Kaučić
Karlo Keliš
Filip Keser
Nikola Klanfar
Renato Knežević
Filip Kobi
Vjeran Kokanović
Bruno Kovačević
Alen Kralj
Mirta Krivačić
Darko Kulfa
Marija Kundek
Matija Leskovar
Igor Loborec
Tomislav Lončarić
Mario Luheni
Borislav Lukić
Tomislav Maljković
Antonio Maly
Martino Mamić
Sanda Mamić
Dubravko Maras
Robert Mareš
Goran Mihalić
Venancije Mihaljević
Krešo Mihekovec
Romeo Mikulić
Anja Nikitović
Mario Novak
Nikola Paić

Renato Pasarić
Siniša Pavešić
Josip Pavetić
Domagoj Perišić
Mario Petrović
Siniša Pintarić
Krešimir Pirkl
Andrija Potočki
Branko Radulović
Iztok Ramljak
Josip Ricov
Mate Roca
Sonja Ružman
Ivan Sabljić
Martina Samac
Jozo Slejko
Stewen Šalković
Gordan Šamarinec
Mislav Šantek
Mladen Šimović
Josip Šimunec
Hrvoje Šoštarić
Josip Šterc
Dominik Šturlan
Siniša Tkalčec
Zlatko Tkalčić
Boris Tomašić
Davor Ukalović
Krešimir Vidaković
Matija Vuk
Goran Vukoja
Marin Zelić
Zoran Zoroe
Dario Zvonarević
Tihomir Žalig
Ivana Žic
Mario Žiljak
Dubravko Antonić
Kristijan Božić
Saša Dragić
Ivica Fadljević
Dalibor Haramінčić
Mario Hutinec
Marko Ivančić
Damir Kralj
Edmond Krusha
Željko Kudeljka
Milan Malinovski
Dragutin Markulin
Josip Marušić
Mario Poldrugač
Domagoj Puhača
David Saić
Marinko Vukoja
Neven Vuković

Council

The VSITE Council is an advisory body of the College for Information Technology which discusses VSITE's professional issues and offers suggestions and opinions regarding VSITE's field of activity.

The VSITE Council's mission as advisory body is:

- monitoring and proposing adjustments to the curriculum according to labor market trends and the development of information and communication technologies (ICTs) and their application,
- proposing and promoting development projects, innovation and application of cutting-edge ICTs in solving problems of the economy and society,
- proposing and promoting international cooperation and VSITE's mobility and its training for involvement in international projects and the transfer of top ICTs,
- proposing and promoting activities aimed at the further development of VSITE and raising its reputation in the academic, scientific and professional community and society at large,
- proposing and monitoring the lifelong learning process in the field of ICT aimed at the needs of the Croatian economy and society as a whole,
- helping create the conditions for students to acquire practical experience and to learn about the achievements of local ICT companies, of users of top ICTs and their domestic and international partners,
- encouraging excellence among students and teachers of VSITE, and
- discussing VSITE's professional issues and offering suggestions and opinions in VSITE's field of activity.

The VSITE Council members are:

Prof. **Slobodan Uzelac**, Ph.D Zagreb,

Vjekoslav Jadrešić, BSE, CROZ ltd Zagreb,

Mišo Jelovac, BSEE, Infodom Ltd. Zagreb,

Zoran Krivačić, BSEE, Ist Technical School Tesla Zagreb,

Hrvoje Leinert, BBA, Elektroda Zagreb,

Goran Mirković, BSEE, AVL-AST Ltd Zagreb,

Hrvoje Svetina, BSE DIP-Novoselec Novoselec, and

MSc **Milorad Nikitović**, senior lecturer, Dean of VSITE

Student Life

- The Student Council

The Student Council was established to support the quality of studying, and the quality of life within the student community. There are ten representatives elected in the Council by students among themselves, and their task is to be open to all questions and problems that might arise during the study.

- VISITER

VSITE students have started their own magazine with a lot of interesting topics and interviews with VSITE teachers. Everyone interested has the opportunity to add and expand the topics in our magazine with their contributions.

- Teachers - Student Mentors

In addition to the Student Council, students (full-time and part-time), have access to adequate student mentors who are responsible for providing basic information about getting around at the College, how to use the SCAD system and the VSITE portal, class attendance, studying, examination, selection of elective courses, performing practical training, writing and registering final papers.

- University Fair

Every year the VSITE students participate in the presentation of VSITE at the University Fair, besides the teachers, they can best describe the student community to prospective students. At the 2012 University Fair VSITE received recognition in the category of presentation of other participants.

- Sports

There is a forum only about sports, so you can find a physical activity such as basketball, bowling, athletics, skiing, and get to know your colleagues better. At the 2013 university bowling championship a VSITE student won the first place in the individual competition.

Books and Textbooks Published by VSITE Lecturers

- Čulina, Boris; Majstorović, Nikola. **Uvod u matematičku logiku i osnove matematike**, Velika gorica: Veleučilište Velika Gorica, 2012.
- Klarin, Karmen; Klasić, Ksenija. **Projektiranje informacijskih sustava**. Zagreb: Visoka škola za informacijske tehnologije, 2012.
- Nikitović, Milorad; Čulina, Dragana; Đurić, Jurica; Jelkić,Vanja; Paić, Nikola. **Korištenje računala i programa**. Zagreb: Visoka škola za informacijske tehnologije, 2012.
- Čulina, Boris; Čulina, Dragana. **Elementarna vjerojatnost i statistika uz pomoć Excela**. Velika gorica: Veleučilište Velika Gorica, 2011.
- Žuljević, Teo. **Uvod u programiranje**. Zagreb: Visoka škola za informacijske tehnologije, 2011.
- Čulina, Boris; Zlopaša, Šimun. **Matematika za tehničke visoke škole, prvi dio**. Velika gorica: Veleučilište Velika Gorica, 2010.
- Čulina, Boris; Zlopaša, Šimun. **Matematika za tehničke visoke škole, drugi dio**, Velika gorica: Veleučilište Velika Gorica, 2010.
- Čulina, Boris; Zlopaša, Šimun. **Matematika za tehničke visoke škole, treći dio**. Velika gorica: Veleučilište Velika Gorica, 2010.
- Čulina, Boris; Čulina, Dragana. **Elementarna numerička matematika uz pomoć Excela**. Velika gorica: Veleučilište Velika Gorica, 2010.
- Kožica, Valentini; Nikitović, Milorad. **Arhitektura osobnih računala**. Zagreb: Visoka škola za informacijske tehnologije, 2010.
- Rivier, Karmen; Čulina, Boris; Čančarević, Marijan: **Matematika 1**. Zagreb: Visoka škola za informacijske tehnologije, 2010.
- Šribar, Julijan; Motik, Boris. **Demistificirani C++, 3. prošireno izdanje**. Zagreb: Element, 2010.
- Klasić, Ksenija; Andrijanić Ivo. **Bazat e sigurimit (Basics of Insurance)**. Universiteti VICTORY & Instituti i Hulumtimeve Shkencore VICTORY, Prishtine, 2009.
- Klasić, Ksenija; Klarin, Karmen. **Informacijski sustavi - načela i praksa**. Zagreb: Visoka škola za informacijske tehnologije, 2009.
- Nikitović, Milorad; Sluganović, Ivanka. **Korištenje računala i programa**. Zagreb: Visoka škola za informacijske tehnologije, 2009.

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