

Study plan

Name of study plan: Information Technology (Presented in Czech), Version 2013

Faculty/Institute/Others:

Department: Department of Computer Systems

Branch of study guaranteed by the department: Information Technology

Garantor of the study branch: prof. Ing. Róbert Lórencz, CSc.

Program of study: Informatics (in Czech)

Type of study: Bachelor combined

Required credits: 160

Elective courses credits: 20

Sum of credits in the plan: 180

Note on the plan:

Name of the block: Compulsory courses in the program

Minimal number of credits of the block: 122

The role of the block: PP

Code of the group: BIK-PP.2013

Name of the group: Compulsory Courses of Bachelor Study Program Informatics, in Czech, Version 2013

Requirement credits in the group: In this group you have to gain 122 credits

Requirement courses in the group: In this group you have to complete at least 21 courses

Credits in the group: 122

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
BIK-AAG	Automata and Grammars Ondřej Guth, Jan Janoušek, Jan Holub, Martin Svoboda Jan Janoušek (Gar.)	Z,ZK	6	13KP+4KC	Z	PP
BI-BAP	Bachelor Thesis Miroslav Balík Miroslav Balík (Gar.)	Z	14		L,Z	PP
BIK-BEZ	Security Róbert Lórencz, Jiří Dostál, Jiří Buček Jiří Dostál Róbert Lórencz (Gar.)	Z,ZK	6	13KP+4KC	L	PP
BIK-CAO	Digital and Analog Circuits Kateřina Hyniová, Martin Daňhel Martin Daňhel Kateřina Hyniová (Gar.)	Z,ZK	5	13KP+4KC	Z	PP
BIK-DBS	Database Systems Jiří Hunka, Michal Valenta, Ivan Halaška Jiří Hunka Michal Valenta (Gar.)	Z,ZK	6	13KP+8KC	L	PP
BIK-EPD.2	Business Economics	KZ	5	13KP+4KC	L	PP
BIK-LIN	Linear Algebra Karel Klouda Karel Klouda (Gar.)	Z,ZK	7	26KP+4KC	L	PP
BIK-MLO	Mathematical Logic Karel Klouda Karel Klouda Karel Klouda (Gar.)	Z,ZK	5	13KP+4KC	Z	PP
BIK-OSY	Operating Systems Michal Šoch, Jan Trdlička Michal Šoch (Gar.)	Z,ZK	5	13KP+4KC	L	PP
BIK-PSI	Computer Networks Vladimír Smotlacha Vladimír Smotlacha (Gar.)	Z,ZK	5	13KP+4KC	L	PP
BIK-PST	Probability and Statistics Daniel Vašata Daniel Vašata Petr Novák (Gar.)	Z,ZK	5	13KP+4KC	Z	PP
BIK-PAI	Law and Informatics Zdeněk Kučera Zdeněk Kučera (Gar.)	ZK	3	13KP	Z	PP
BIK-PA1	Programming and Algorithmics 1 Miroslav Balík, Josef Vogel, Ladislav Vagner Ladislav Vagner Ladislav Vagner (Gar.)	Z,ZK	6	20KP+6KC	Z	PP
BIK-PA2	Programming and Algorithmics 2 Josef Vogel, Ladislav Vagner Josef Vogel Josef Vogel (Gar.)	Z,ZK	7	13KP+4KC	L	PP
BIK-PPR	Project, Presentation and Rhetorics Dana Vyníkarová Dana Vyníkarová (Gar.)	KZ	5	13KP+2KC	Z	PP
BIK-SI1.2	Software Engineering I Jiří Mlejnek Jiří Mlejnek Jiří Mlejnek (Gar.)	Z,ZK	5	13KP+4KC	Z,L	PP
BIK-SAP	Computer Structure and Architecture Radek Dobiáš, Petr Fišer, Hana Kubátová Radek Dobiáš Radek Dobiáš (Gar.)	Z,ZK	6	13KP+4KC	L	PP

BIK-TED	Electronic Documentation Design <i>Ondřej Guth</i>	KZ	5	13KP+4KC	L	PP
BIK-UOS	Introduction to Operating System UNIX	KZ	5	13KP+4KC	Z	PP
BIK-ZDM	Elements of Discrete Mathematics <i>Eva Pernecká Ivo Petr Josef Kolář (Gar.)</i>	Z,ZK	5	13KP+4KC	Z	PP
BIK-ZMA	Elements of Calculus <i>Ivo Petr Ivo Petr Tomáš Kalvoda (Gar.)</i>	Z,ZK	6	20KP+4KC	Z	PP

Characteristics of the courses of this group of Study Plan: Code=BIK-PP.2013 Name=Compulsory Courses of Bachelor Study Program Informatics, in Czech, Version 2013

BIK-AAG	Automata and Grammars Students are introduced to basic theoretical and implementation principles of the following topics: construction, use and mutual transformations of finite automata, regular expressions, and regular grammars, translation finite automata, construction and use of pushdown automata, hierarchy of formal languages. Knowledge acquired through the module is applicable to creation of algorithms for pattern matching, data compression, translation, simple parsing, and creation of digital circuits.	Z,ZK	6
BI-BAP	Bachelor Thesis	Z	14
BIK-BEZ	Security Students understand the mathematical fundamentals of cryptography and have an overview of current cryptographic algorithms and applications: symmetric and asymmetric cryptosystems, and hash functions. They also learn the fundamentals of secure programming and IT security, the fundamentals of designing and using modern cryptosystems for computer systems. They are able to use properly and securely cryptographic primitives and systems that are based on these primitives.	Z,ZK	6
BIK-CAO	Digital and Analog Circuits Students get the fundamental understanding of technologies underlying electronic digital systems. They understand the basic theoretical models and principles of functionality of transistors, gates, circuits, and conductors. They are able to design simple circuits and evaluate circuit parameters. They understand the differences between analog and digital modes of electronic devices.	Z,ZK	5
BIK-DBS	Database Systems Students are introduced to the database engine architecture and typical user roles. They are briefly introduced to various database models. They learn to design small databases (including integrity constraints) using a conceptual model and implement them in a relational database engine. They get a hands-on experience with the SQL language, as well as with its theoretical foundation of the relational database model. They learn the principles of normalizing a relational database schema. They understand the fundamental concepts of transaction processing, controlling parallel user access to a single data source, as well as recovering a database engine from a failure. They are briefly introduced to special ways of storing data in relational databases with respect to speed of access to large quantities of data. This introductory-level course does not cover: Administration of database systems, debugging and optimizing database applications, distributed database systems, data stores.	Z,ZK	6
BIK-EPD.2	Business Economics This course is aimed to fundamental problems of business economy. The course makes students familiar with a life cycle of business, specifically with fields: enterprise foundation, enterprise putting into state economic environment (CR), management of property and capital structure, business transaction records keeping during an accounting period, a relation between business production and costs, evaluation of enterprise financial health and business rehabilitation or termination.	KZ	5
BIK-LIN	Linear Algebra Students understand the theoretical foundation of algebra and mathematical principles of linear models of systems around us, where the dependencies among components are only linear. They know the basic methods for operating with matrices and linear spaces. They are able to perform matrix operations and solve systems of linear equations. They can apply these mathematical principles to solving problems in 2D or 3D analytic geometry. They understand the error-detecting and error-correcting codes.	Z,ZK	7
BIK-MLO	Mathematical Logic Students have knowledge of the syntax and semantics of the propositional and predicate logic. They master the Boolean algebra, both theoretically as an instance of universal algebra, and practically as a tool to describe the world of digital systems. They get skills to handle Boolean functions, normal forms, maps, and minimisation methods needed in the further modules.	Z,ZK	5
BIK-OSY	Operating Systems Students understand the classical theory of operating systems (OS) in addition to the knowledge gained in the BI-UOS module. They get a solid knowledge of OS kernels, processes and threads implementations. They understand the problems of race conditions and principles and algorithms for critical sections, thread scheduling, resource allocation, deadlocks. They understand the techniques of the management of virtual memory, principles and architectures of disks and disk arrays, file systems, and peripheral devices. They gain basic knowledge necessary for developing system applications or for system administration. They are able to design and implement simple multithreaded applications.	Z,ZK	5
BIK-PSI	Computer Networks Students understand the basic common techniques, protocols, technologies, and algorithms necessary to communicate in computer networks. The topics are primarily focused on the 2nd to 4th layer of the ISO OSI model. They also get a basic understanding of communication media, security, and network administration. Students will be able to write a simple network application and configure a simple network.	Z,ZK	5
BIK-PST	Probability and Statistics Students are introduced to elements of probability thinking, ability of the synthesis both prior and posterior information and use to work with random variables. They will be able to apply correctly basic models of the distribution of random variables and to solve applied probability problems in the area of informatics and computer science. Using statistical inference methods, they master methods of statistical inference to estimate unknown population parameters on the basis of sample. They get acquainted with basic methods of the determination of possible statistical dependence of two or more random variables.	Z,ZK	5
BIK-PAI	Law and Informatics This course is presented in Czech. However, there is an English variant in the program Informatics (B1801 / 4753).	ZK	3
BIK-PA1	Programming and Algorithmics 1 Students gain the ability to formulate algorithms for solving basic problems and write them in the C language. They understand data types (simple, structured, pointers), expressions, statements, functions, concept of recursion. They learn to analyse simple cases of algorithm complexity. They know fundamental algorithms for searching, sorting, and manipulating with linked lists.	Z,ZK	6
BIK-PA2	Programming and Algorithmics 2 Students know the instruments of object-oriented programming and are able to use them for specifying and implementing abstract data types (stack, queue, enlargeable array, set, table). They can implement linked structures. They learn these skills using the programming language C++. Although this is not a module of programming in C++, students are introduced with all C++ features needed to achieve the main objective (operator overloading, templates).	Z,ZK	7
BIK-PPR	Project, Presentation and Rhetorics This course is presented in Czech.	KZ	5
BIK-SI1.2	Software Engineering I Students learn the methods of analysis and design of large software systems, which are typically designed and implemented in teams. They get practical skill thanks to applying hands-on analysis and design of a large-scale software project that is to be developed within the concurrent BI-SP1 module. They get skill to use CASE tools and UML for modelling and solving software-related problems. They get overview of object-oriented analysis, design, architecture, validation, verification, and testing processes.	Z,ZK	5

BIK-SAP	Computer Structure and Architecture	Z,ZK	6
Students understand basic digital computer units and their structures, functions, and hardware implementation: ALU, control unit, memory system, inputs, outputs, data storage and transfer. In the labs, students gain practical experience with the design and implementation of the logic of a simple processor using modern digital design tools. The subject teaches basic knowledge of digital computer construction principles, how a computer performs its operations, what is machine code, and what are its connections to higher programming languages.			
BIK-TED	Electronic Documentation Design	KZ	5
Students are able to create electronic documentation, namely technical reports. They learn alternatives of WYSIWYG editors and are able to produce well-formed technical reports using configurable tools appropriate for ICT professionals. They learn the documentation of software projects, including basics of UML and documentation of source code.			
BIK-UOS	Introduction to Operating System UNIX	KZ	5
Students become advanced and knowledgeable users of common UNIX-like operating systems. They understand the fundamental principles of the operating systems (file systems, processes and threads, access rights, memory management, network interfaces). They gain the knowledge of advanced users, with hands-on experience of the shell, basic commands, and filters.			
BIK-ZDM	Elements of Discrete Mathematics	Z,ZK	5
Students get both a mathematical sound background, but also practical calculation skills in the area of combinatorics, value estimation and formula approximation, tools for solving recurrent equations, and basics of graph theory.			
BIK-ZMA	Elements of Calculus	Z,ZK	6
Students acquire knowledge and understanding of the fundamentals of classical calculus so that they are able to apply mathematical way of thinking and reasoning and are able to use basic proof techniques. They get skills to practically handle functions of one variable in solving the problems in informatics. They understand the links between the integrals and sums of sequences. They are able to estimate lower or upper bounds of values of real functions and to handle simple asymptotic expressions.			

Name of the block: Compulsory courses of the specialization

Minimal number of credits of the block: 30

The role of the block: PO

Code of the group: BIK-PO-IT.2

Name of the group: Compulsory Courses of Spec. Information Technologies, Part-time Form of Study, in Czech

Requirement credits in the group: In this group you have to gain 30 credits

Requirement courses in the group: In this group you have to complete at least 6 courses

Credits in the group: 30

Note on the group: Opozditý student oboru BI-IT, kterému ještě chybí povinný předmět BI-AWD se musí se obrátit na dvojici učitelů Valenta a Bařinka za účelem provedení rozdílové zkoušky.

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
BIK-ADU	Unix Internals and Administration Jan Žďárek	Z,ZK	6	13+4	L	PO
BIK-ADW	Windows Administration Miroslav Prágl	Z,ZK	5	13+2	L	PO
BIK-ADS	Network Administration	Z,ZK	5	13KP+4KC	Z	PO
BIK-AWD	Web and Database Server Administration	Z,ZK	4	13KP+4KC	L	PO
BIK-APS	Architecture of Computer Systems Jiří Dostál	Z,ZK	6	13KP+4KC	Z	PO
BIK-SKJ	Scripting Languages	Z,ZK	4	13KP+2KC	L	PO

Characteristics of the courses of this group of Study Plan: Code=BIK-PO-IT.2 Name=Compulsory Courses of Spec. Information Technologies, Part-time Form of Study, in Czech

BIK-ADU	Unix Internals and Administration	Z,ZK	6
Students learn the internals of the UNIX operating system and the administration of its basic subsystems and get practical skills on real-world examples. They understand the differences between the user and administrator roles. They understand theoretically and know practically system monitoring, analysis and tuning tools; file systems implementation and administration; disk subsystems; processes; memory; network services; shared file systems; naming services; remote access; system boot.			
BIK-ADW	Windows Administration	Z,ZK	5
Students understand the architecture and internals of the Windows OS and acquire the skills to administrate the Windows OS. They are able use the standard administration and security tools and apply advanced ActiveDirectory administration methods. They are able to solve problems by applying appropriate troubleshooting methods and administrate heterogeneous systems. Students are able to effectively configure centralised administration of a computer network.			
BIK-ADS	Network Administration	Z,ZK	5
Students acquire basic skills needed to administrate computer networks, networking technologies, services, and to ensure their security. They understand and are able practically use Ethernet technology, VLAN, authorisation, security architecture of computer networks, routing protocols and backbone routing mechanisms, directory and naming services and addressing, administration of networking equipment, secure client connections and secure data transfer, flow control mechanisms, and service availability monitoring.			
BIK-AWD	Web and Database Server Administration	Z,ZK	4
Student in the branch "BI-IT Information technology" who lack the compulsory BIK-AWD course, ask the office of study affairs for enrolling an equivalent course BIK-AWD.1, which has a block lectures. Students are introduced to the administration of database and web servers and services. Students will be able to install, configure, maintain, test and backup complex systems of database and web services. To provide a balanced overview, students will be introduced to three different database engines: Oracle as a representative of a large commercial system; PostgreSQL as a representative of a complex and advanced open-source, community-developed software; MySQL as the most common database engine to use with the Apache web server.			

BIK-APS	Architecture of Computer Systems	Z,ZK	6
Students understand architectures of uniprocessor computers at the level of machine instructions, with emphasis to instruction pipelining and memory hierarchy. They know the main concepts of RISC and CISC architectures. They learn how modern computers work and how they are constructed. They learn about the techniques that today's processors use to increase the program execution speed. They have a basic knowledge allowing them to optimise their programs to fully exploit the processors. They get an idea about the trends in the area of computer architectures and how will they affect software. They also understand the architectures of vector processors, their use in today's microprocessors. They understand the principles of shared-memory multiprocessor system architectures and the issues of memory consistency.			
BIK-SKJ	Scripting Languages	Z,ZK	4
This course is presented in Czech.			

Name of the block: Compulsory elective economic-management courses

Minimal number of credits of the block: 4

The role of the block: VE

Code of the group: BIK-PV-EM

Name of the group: Compulsory Elective Economics Bachelor Courses, Part-time Form of Study, in Czech

Requirement credits in the group: In this group you have to gain at least 4 credits (at most 12)

Requirement courses in the group: In this group you have to complete at least 1 course (at most 3)

Credits in the group: 4

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
BI-DAN	Taxes for non-Economists Lucie Kábelová, Savina Finardi Michal Valenta Savina Finardi (Gar.)	Z,ZK	4	2P+2C	Z	VE
BIK-MEK	Macroeconomic Context of Domestic and World Economy Ivo Straka Michal Valenta Ivo Straka (Gar.)	KZ	4	13KP+2KC	L	VE
BIK-PRP	Law and Business Zdeněk Kučera	Z,ZK	4	13KP+4KC	L	VE
BIK-TIS	Information Systems Design Michal Valenta	Z,ZK	5	13KP+2KC	Z	VE
BIK-FIP	Accounting and Corporate Finance	Z,ZK	5	13KP+4KC	Z	VE

Characteristics of the courses of this group of Study Plan: Code=BIK-PV-EM Name=Compulsory Elective Economics Bachelor Courses, Part-time Form of Study, in Czech

BI-DAN	Taxes for non-Economists	Z,ZK	4
Taxes, including social insurance contributions, are obligatory payments paid by people or institutions to public budgets. This is the way how a significant portion of GDP is redistributed. This course concerns who pays which taxes or who bears the tax burden. The course introduces students to the tax theory and policy fundamentals and shows how they affect taxation of income, consumption, and wealth. The course provides practical information on calculations of tax liabilities of both citizens and institutions as well as information about important taxpayers' formal duties towards public administration.			
BIK-MEK	Macroeconomic Context of Domestic and World Economy	KZ	4
This course is presented in Czech.			
BIK-PRP	Law and Business	Z,ZK	4
Students understand the basic issues when engaging in business activities in the CR and in the EU. Students learn to establish companies, gain necessary business permits, conclude commercial or civil contracts. Students also get acquainted with the principles of antitrust regulation and learn to resolve disputes in the area of business, labour, or civil relationships in courts.			
BIK-TIS	Information Systems Design	Z,ZK	5
Students know various types of ISs and their practical implementation aspects and are able to match the needs of different market segments (customers) with applications of existing technologies (databases, programming languages, GUI etc.).			
BIK-FIP	Accounting and Corporate Finance	Z,ZK	5
Students know the principles and practicalities of financing and financial policies of companies or organisations.			

Name of the block: Povinná zkouška z angličtiny

Minimal number of credits of the block: 2

The role of the block: PJ

Code of the group: BI-ZKA

Name of the group: English Language, Internal Certifica

Requirement credits in the group: In this group you have to gain 2 credits

Requirement courses in the group: In this group you have to complete 1 course

Credits in the group: 2

Note on the group: Ze skupiny je nutné absolvovat jeden ze dvou předmětů, představujících interní zkoušku z angličtiny. Předmět BI-ANG si zapisují studenti, kteří absolvovali přípravné kurzy z angličtiny a mají zápočet z předmětu BI-A2L. Předmět BI--ANG1 si zapisují studenti, kteří se na zkoušku připravovali samostatně. Tito studenti musí před vlastní zkouškou absolvovat zápočtovou písemku.

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
BI-ANG1	English Language Examination without Preparatory Courses Kateřina Valentová Kateřina Valentová Kateřina Valentová (Gar.)	Z,ZK	2		L	PJ
BI-ANG	English Language, Internal Certificate Kateřina Valentová Kateřina Valentová Kateřina Valentová (Gar.)	ZK	2		L	PJ

Characteristics of the courses of this group of Study Plan: Code=BI-ZKA Name=English Language, Internal Certificate

BI-ANG1	English Language Examination without Preparatory Courses	Z,ZK	2
BI-ANG	English Language, Internal Certificate	ZK	2

Name of the block: Compulsory elective humanities courses

Minimal number of credits of the block: 2

The role of the block: VH

Code of the group: BIK-PV-HU

Name of the group: Compulsory Elective Humanity Courses of Bc. Program Informatics, Part-time Form of Study, in Czech

Requirement credits in the group: In this group you have to gain at least 2 credits (at most 6)

Requirement courses in the group: In this group you have to complete at least 1 course

Credits in the group: 2

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
FI-FIL	Philosophy Peter Zamarovský Michal Valenta Peter Zamarovský (Gar.)	ZK	2	2+0	Z,L	VH
BIK-HMI	History of Mathematics and Informatics Alena Šolcová Alena Šolcová Alena Šolcová (Gar.)	ZK	3	13KP+2KC	L	VH
FI-HTE	History of Technology and Economics Marcela Efmertová Michal Valenta Marcela Efmertová (Gar.)	ZK	2	2+0	Z,L	VH
FI-MPL	Managerial Psychology Jan Fiala, Marek Procházka Jan Fiala Jan Fiala (Gar.)	ZK	2	2+0	Z,L	VH
BIK-KSA	Cultural and Social Anthropology Alena Libánská, Tomáš Houdek Michal Valenta Alena Libánská (Gar.)	ZK	2	13KP	L	VH
FI-KSA	Cultural and Social Anthropology Alena Libánská, Tomáš Houdek Tomáš Houdek Alena Libánská (Gar.)	ZK	2	2+0	L,Z	VH
FI-ULI	Introduction to Linguistics for Computer Václav Cvrček Michal Valenta Václav Cvrček (Gar.)	ZK	2	2+0	L	VH
FI-GNO	Introduction to Gnoseology Ivo Janoušek Michal Valenta Ivo Janoušek (Gar.)	ZK	2	2+0	L	VH

Characteristics of the courses of this group of Study Plan: Code=BIK-PV-HU Name=Compulsory Elective Humanity Courses of Bc. Program Informatics, Part-time Form of Study, in Czech

FI-FIL see A0B16	Philosophy	ZK	2
BIK-HMI	History of Mathematics and Informatics This course is presented in Czech.	ZK	3
FI-HTE	History of Technology and Economics The course introduces the scientific disciplines of history and technology, economic and social history of the Czech lands and Czechoslovakia in comparison with the development of the European region 19 to 21 century.	ZK	2
FI-MPL	Managerial Psychology	ZK	2
BIK-KSA	Cultural and Social Anthropology The one-semester course aims to acquaint students with the basics of social and cultural anthropology as a scientific discipline dealing with the diversity of the world - examples from anthropological research from our culture as well as from the "exotic" ones (topics: kinship, religion, social exclusion, migration, globalization, material culture, language, health, history, death, etc ...). The course is an interesting alternative to other humanities, taught at FIT.	ZK	2
FI-KSA	Cultural and Social Anthropology The one-semester course aims to acquaint students with the basics of social and cultural anthropology as a scientific discipline dealing with the diversity of the world - examples from anthropological research from our "exotic" cultures (topics: kinship, religion, social exclusion, migration, globalization, material culture, language, health, history, death, etc ...) will be shown. The course is an interesting alternative to other humanities, taught at FIT.	ZK	2
FI-ULI	Introduction to Linguistics for Computer This course is presented in Czech.	ZK	2

FI-GNO	Introduction to Gnoseology	ZK	2
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Předmět studenti uvádí do teorie poznání, systémovým pohledem nahlíží na pole kultury, na vztahy a rozdíly mezi přírodními a humánními obory, vědou a uměním. Rozborem dějin modernismu a myšlenkových proudů 20. století jsou ukázány proměny paradigmat a převrat k postmodernismu, analýzou paralelismů ve vědě a umění odhaleny mechanismy tvůrčích procesů. V návaznosti na teorii přírodních jazyků a sémiotiky je vedena diskuze i o kognitivních procesech, v historickém přehledu nastíněna hlediska estetického vnímání. Samostatnou kapitolou jsou modely spojených přírodních soustav a systémů, v závěru přednášek je pozornost věnována filozofii vědy a otázkám udržitelného rozvoje. Předmět přednáší a garantuje Ing. Ivo Janoušek CSc.

Name of the block: Elective courses

Minimal number of credits of the block: 0

The role of the block: V

Code of the group: BIK-V

Name of the group: Elective Courses of Bachelor Study Program Informatics, Part-time Form of Study, in Czech

Requirement credits in the group:

Requirement courses in the group:

Credits in the group: 0

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
BIK-ADU.1	Unix Administration Zdeněk Muzikář, Jan Žďárek Jan Žďárek Zdeněk Muzikář (Gar.)	Z,ZK	5	14KP+4KC	L	v
BIK-ADW.1	Windows Administration Jiří Kašpar, Miroslav Prágl Miroslav Prágl (Gar.)	Z,ZK	4	14KP+2KC	Z	v
BIK-ADS	Network Administration	Z,ZK	5	13KP+4KC	Z	v
BIK-AWD	Web and Database Server Administration	Z,ZK	4	13KP+4KC	L	v
BI-A2L	English Language for IT Kateřina Valentová Kateřina Valentová (Gar.)	Z	2	2C	L	v
BI-A2Z	English Language 2-1 Kateřina Valentová Kateřina Valentová (Gar.)	Z	0	2C	Z	v
BI-DAN	Taxes for non-Economists Lucie Kábelová, Savina Finardi Michal Valenta Savina Finardi (Gar.)	Z,ZK	4	2P+2C	Z	v
BIK-EFA	Efficient Algorithms	Z,ZK	5	13KP+4KC	Z	v
BIK-EIA	Efficient Implementation of Algorithms	Z,ZK	5	13KP+4KC	Z	v
BIK-EPD	Business Economics	KZ	4	13KP+4KC	L	v
BIK-GRA	Graph Algorithms Jiří Chludil Jiří Chludil Josef Kolář (Gar.)	Z,ZK	5	13KP+4KC	L	v
BIK-SQL.1	Language SQL Michal Valenta, Ivan Halaška Michal Valenta	KZ	4	13KP+4KC	L	v
BIK-MEK	Macroeconomic Context of Domestic and World Economy Ivo Straka Michal Valenta Ivo Straka (Gar.)	KZ	4	13KP+2KC	L	v
BIK-OMO	Object Modeling Ivan Ryant, Robert Pergl Robert Pergl (Gar.)	Z,ZK	5	13KP+4KC	Z	v
BIK-PRP	Law and Business Zdeněk Kučera	Z,ZK	4	13KP+4KC	L	v
BIK-PJP	Programming Languages and Compilers	Z,ZK	5	13KP+2KC	L	v
BIK-PJV	Programming in Java Miroslav Balík Karel Klouda Miroslav Balík (Gar.)	Z,ZK	4	13KP+4KC	Z	v
BIK-PS2	Programming in shell 2	Z,ZK	4	13KP+2KC	L	v
BIK-PKM	Introduction to Mathematics Karel Klouda	Z	4		Z	v
BIK-SI2.3	Software Engineering 2 Jiří Mlejnek Jiří Mlejnek Jiří Mlejnek (Gar.)	Z,ZK	3	14KP	Z	v
BIK-SP1	Team Software Project 1 Jiří Mlejnek Jiří Mlejnek Jiří Mlejnek (Gar.)	KZ	4	8KC	L	v
BIK-SP2	Team Software Project 2 Michal Valenta	KZ	6	12KC	Z	v
BIK-TIS	Information Systems Design Michal Valenta	Z,ZK	5	13KP+2KC	Z	v
BIK-TUR	User Interface Design Jan Schmidt Jan Schmidt (Gar.)	Z,ZK	4	13KP+4KC	L	v
BIK-FIP	Accounting and Corporate Finance	Z,ZK	5	13KP+4KC	Z	v
BIK-VZD	Data Mining	Z,ZK	4	13KP+4KC	L	v
BIK-ZSI	Introduction to Software Engineering	Z,ZK	5	13KP+2KC	Z	v

BIK-ZWU	Introduction to Web and User Interfaces <i>Jiří Pavelka Jiří Pavelka Jiří Pavelka (Gar.)</i>	Z,ZK	4	13KP+4KC	Z	v
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Characteristics of the courses of this group of Study Plan: Code=BIK-V Name=Elective Courses of Bachelor Study Program Informatics, Part-time Form of Study, in Czech

BIK-ADS	Network Administration	Z,ZK	5	Students acquire basic skills needed to administrate computer networks, networking technologies, services, and to ensure their security. They understand and are able practically use Ethernet technology, VLAN, authorisation, security architecture of computer networks, routing protocols and backbone routing mechanisms, directory and naming services and addressing, administration of networking equipment, secure client connections and secure data transfer, flow control mechanisms, and service availability monitoring.
BIK-AWD	Web and Database Server Administration	Z,ZK	4	Student in the branch "BI-IT Information technology" who lack the compulsory BIK-AWD course, ask the office of study affairs for enrolling an equivalent course BIK-AWD.1, which has a block lectures. Students are introduced to the administration of database and web servers and services. Students will be able to install, configure, maintain, test and backup complex systems of database and web services. To provide a balanced overview, students will be introduced to three different database engines: Oracle as a representative of a large commercial system; PostgreSQL as a representative of a complex and advanced open-source, community-developed software; MySQL as the most common database engine to use with the Apache web server.
BI-DAN	Taxes for non-Economists	Z,ZK	4	Taxes, including social insurance contributions, are obligatory payments paid by people or institutions to public budgets. This is the way how a significant portion of GDP is redistributed. This course concerns who pays which taxes or who bears the tax burden. The course introduces students to the tax theory and policy fundamentals and shows how they affect taxation of income, consumption, and wealth. The course provides practical information on calculations of tax liabilities of both citizens and institutions as well as information about important taxpayers' formal duties towards public administration.
BIK-MEK	Macroeconomic Context of Domestic and World Economy	KZ	4	This course is presented in Czech.
BIK-PRP	Law and Business	Z,ZK	4	Students understand the basic issues when engaging in business activities in the CR and in the EU. Students learn to establish companies, gain necessary business permits, conclude commercial or civil contracts. Students also get acquainted with the principles of antitrust regulation and learn to resolve disputes in the area of business, labour, or civil relationships in courts.
BIK-TIS	Information Systems Design	Z,ZK	5	Students know various types of ISs and their practical implementation aspects and are able to match the needs of different market segments (customers) with applications of existing technologies (databases, programming languages, GUI etc.).
BIK-FIP	Accounting and Corporate Finance	Z,ZK	5	Students know the principles and practicalities of financing and financial policies of companies or organisations.
BIK-ADU.1	Unix Administration	Z,ZK	5	This course is presented in Czech.
BIK-ADW.1	Windows Administration	Z,ZK	4	This course is presented in Czech.
BI-A2L	English Language for IT	Z	2	
BI-A2Z	English Language 2-1	Z	0	
BIK-EFA	Efficient Algorithms	Z,ZK	5	Students get a solid overview of efficient algorithms for solving classical algorithmic problems: selecting, searching, sorting, and other basic forms of reshaping and processing tree-like data structures. Students are able to design and implement such algorithms, to analyse their complexity, and to develop an optimised efficient algorithm under specific requirements or constraints. They are able to recognise a proper algorithm variant for any specific usage.
BIK-EIA	Efficient Implementation of Algorithms	Z,ZK	5	Student learn to combine their SW skills (efficient algorithms) and HW knowledge (utilization of all available features of the particular processor and memory architecture). Students learn the basics of code tuning.
BIK-EPD	Business Economics	KZ	4	Students get common and general knowledge of business economics, at all the levels: law, financing, processes and organisation, taxes and state economy environment. They are introduced to these issues from the viewpoint of a manager.
BIK-GRA	Graph Algorithms	Z,ZK	5	Students get an overview of typical usages of graph models in computing. They learn algorithmic methods of solution of graph problems, using the programming techniques presented in the BI-EFA module. They understand algorithms for the key application domains of graph theory (flows in networks, heuristic search, approximation of complex problems, matching problems). Students get basic competence in computer science background: they understand Turing machine models and issues of NP-completeness and NP-hardness.
BIK-SQL.1	Language SQL	KZ	4	Course is based on knowledge obtained in BI-DBS. Students become familiar with advanced relational and non-relational features of SQL language. In particular stored program unites, triggers, recursive queries, OLAP support, object-relational constructions. Part of the course is dedicated to practical database optimization from the point of view of specialized database structures like indexes, clusters, index-organized tables, and materialized views. as well as from the point of view query optimization. Execution plan and possibilities of its. changes will be discussed. Lectures will usually discuss SQL standard, but many features will be demonstrated on Oracle DBMS. Seminars are based on Oracle DBMS and partially on PostgreSQL.
BIK-OMO	Object Modeling	Z,ZK	5	Students will practically master conceptual modelling of business structures, they will learn fundamentals of OntoUML notation and methodology. Students will learn fundamentals of pure object-oriented paradigm, i.e. terms object, method, message, class, class instance, composition, inheritance, collections. Students will learn to transform a conceptual model to object-oriented implementation model and they will learn fundamentals of pure object-oriented implementation in Smalltalk and pure object database. Students will learn to formulate rules and queries upon the object database.
BIK-PJP	Programming Languages and Compilers	Z,ZK	5	Students master basic methods of implementation of common high-level programming languages. They get experience with the design and implementation of individual compiler parts for a simple programming language: data types, subroutines, and data abstractions. Students are able to formally specify a translation of a text that has a certain syntax into a target form and write a compiler based on such a specification. The notion of compiler in this context is not limited to compilers of programming languages, but extends to all other programs for parsing and processing text in a language defined by a LL(1) grammar.
BIK-PJV	Programming in Java	Z,ZK	4	This course is presented in Czech. However, there is an English variant in the program Informatics (B1801 / 4753).
BIK-PS2	Programming in shell 2	Z,ZK	4	This course is presented in Czech.

BIK-PKM	Introduction to Mathematics This course is presented in Czech.	Z	4
BIK-SI2.3	Software Engineering 2 This course is presented in Czech. However, there is an English variant in the program Informatics (B1801 / 4753).	Z,ZK	3
BIK-SP1	Team Software Project 1 Students gain hands-on experience with the analysis, design, and prototyping of a large-scale software system. Theoretical support is provided by the BEI-SI1 course that runs concurrently and that teaches the necessary techniques and theory. Teams consisting of 4-6 students will work on a specific project. The teacher, in the role of the team and project leader, regularly consults with the team (at the seminars) with respect to both the formal and material aspects of the design. The resulting work will be further developed and finished in the BEI-SP2 course.	KZ	4
BIK-SP2	Team Software Project 2 Students gain hands-on experience with the iterative development process while working on a large-scale software project. The first iteration is the result of the BEI-SP1 course project. However, this time, the functionality, testing and documenting of the system being developed will be emphasized. Students will work in teams of 4-6 people. The teacher, in the role of the team and project leader, regularly consults with the team (at the seminars) with regard to the formal as well as material aspects of their solution. The BEI-SI2 course that runs concurrently will provide the students with supporting knowledge, especially in the area of teamwork, testing and quality assurance of the software product.	KZ	6
BIK-TUR	User Interface Design Students have a basic overview of the methods for designing and testing common user interfaces. They have experience to solve the problems where software and other products do not communicate with the user optimally, since the needs and characteristics of users are not taken into account during product development. Students gain an overview of the methods that bring users into the development process to ensure optimal communication with a user.	Z,ZK	4
BIK-VZD	Data Mining Students are introduced to the basic methods of discovering knowledge in data. In particular, they learn the basic techniques of data preprocessing, multidimensional data visualization, statistical techniques of data transformation, and fundamental principles of knowledge discovery methods. Students will be aware of the relationships between model bias and variance, and know the fundamentals of assessing model quality. Data mining software is extensively used in the module. Students will be able to apply basic data mining tools to common problems (classification, regression, clustering).	Z,ZK	4
BIK-ZSI	Introduction to Software Engineering Students learn to understand formalized descriptions of analytic and design models in UML. To a limited extent, they take part in creating such models in seminars, where they perform small team projects. Students should be able to discuss the models with other members of a software development team. This experience and skills enable the students to participate in such teams as members.	Z,ZK	5
BIK-ZWU	Introduction to Web and User Interfaces This course is presented in Czech.	Z,ZK	4

Code of the group: BI-V-PRO_MG

Name of the group: Elective Courses, Suitable for those who intend to apply for Master's program at FIT

Requirement credits in the group:

Requirement courses in the group:

Credits in the group: 0

Note on the group: Courses in this group are recommended for students who intend to enroll to master program at FIT.

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
BI-AG2	Algorithms and Graphs 2 Ondřej Suchý, Tomáš Valla Josef Kolář Ondřej Suchý (Gar.)	Z,ZK	5	2P+2C	L	v

Characteristics of the courses of this group of Study Plan: Code=BI-V-PRO_MG Name=Elective Courses, Suitable for those who intend to apply for Master's program at FIT

BI-AG2	Algorithms and Graphs 2 This course, presented in Czech, introduces basic algorithms and concepts of graph theory as a follow-up on the introduction given in the compulsory course BI-AG1. It further delves into advanced data structures and amortized complexity analysis. It also includes a very light introduction to approximation algorithms. For English version of the course see BIE-AG2.	Z,ZK	5
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List of courses of this pass:

Code	Name of the course	Completion	Credits
BI-A2L	English Language for IT	Z	2
BI-A2Z	English Language 2-1	Z	0
BI-AG2	Algorithms and Graphs 2 This course, presented in Czech, introduces basic algorithms and concepts of graph theory as a follow-up on the introduction given in the compulsory course BI-AG1. It further delves into advanced data structures and amortized complexity analysis. It also includes a very light introduction to approximation algorithms. For English version of the course see BIE-AG2.	Z,ZK	5
BI-ANG	English Language, Internal Certificate	ZK	2
BI-ANG1	English Language Examination without Preparatory Courses	Z,ZK	2
BI-BAP	Bachelor Thesis	Z	14
BI-DAN	Taxes for non-Economists Taxes, including social insurance contributions, are obligatory payments paid by people or institutions to public budgets. This is the way how a significant portion of GDP is redistributed. This course concerns who pays which taxes or who bears the tax burden. The course introduces students to the tax theory and policy fundamentals and shows how they affect taxation	Z,ZK	4

of income, consumption, and wealth. The course provides practical information on calculations of tax liabilities of both citizens and institutions as well as information about important taxpayers' formal duties towards public administration.			
BIK-AAG	Automata and Grammars	Z,ZK	6
Students are introduced to basic theoretical and implementation principles of the following topics: construction, use and mutual transformations of finite automata, regular expressions, and regular grammars, translation finite automata, construction and use of pushdown automata, hierarchy of formal languages. Knowledge acquired through the module is applicable to creation of algorithms for pattern matching, data compression, translation, simple parsing, and creation of digital circuits.			
BIK-ADS	Network Administration	Z,ZK	5
Students acquire basic skills needed to administrate computer networks, networking technologies, services, and to ensure their security. They understand and are able practically use Ethernet technology, VLAN, authorisation, security architecture of computer networks, routing protocols and backbone routing mechanisms, directory and naming services and addressing, administration of networking equipment, secure client connections and secure data transfer, flow control mechanisms, and service availability monitoring.			
BIK-ADU	Unix Internals and Administration	Z,ZK	6
Students learn the internals of the UNIX operating system and the administration of its basic subsystems and get practical skills on real-world examples. They understand the differences between the user and administrator roles. They understand theoretically and know practically system monitoring, analysis and tuning tools; file systems implementation and administration; disk subsystems; processes; memory; network services; shared file systems; naming services; remote access; system boot.			
BIK-ADU.1	Unix Administration This course is presented in Czech.	Z,ZK	5
BIK-ADW	Windows Administration	Z,ZK	5
Students understand the architecture and internals of the Windows OS and acquire the skills to administrate the Windows OS. They are able use the standard administration and security tools and apply advanced ActiveDirectory administration methods. They are able to solve problems by applying appropriate troubleshooting methods and administrate heterogeneous systems. Students are able to effectively configure centralised administration of a computer network.			
BIK-ADW.1	Windows Administration This course is presented in Czech.	Z,ZK	4
BIK-APS	Architecture of Computer Systems	Z,ZK	6
Students understand architectures of uniprocessor computers at the level of machine instructions, with emphasis to instruction pipelining and memory hierarchy. They know the main concepts of RISC and CISC architectures. They learn how modern computers work and how they are constructed. They learn about the techniques that today's processors use to increase the program execution speed. They have a basic knowledge allowing them to optimise their programs to fully exploit the processors. They get an idea about the trends in the area of computer architectures and how will they affect software. They also understand the architectures of vector processors, their use in todays microprocessors. They understand the principles of shared-memory multiprocessor system architectures and the issues of memory consistency.			
BIK-AWD	Web and Database Server Administration	Z,ZK	4
Student in the branch "BI-IT Information technology" who lack the compulsory BIK-AWD course, ask the office of study affairs for enrolling an equivalent course BIK-AWD.1, which has a block lectures. Students are introduced to the administration of database and web servers and services. Students will be able to install, configure, maintain, test and backup complex systems of database and web services. To provide a balanced overview, students will be introduced to three different database engines: Oracle as a representative of a large commercial system; PostgreSQL as a representative of a complex and advanced open-source, community-developed software; MySQL as the most common database engine to use with the Apache web server.			
BIK-BEZ	Security	Z,ZK	6
Students understand the mathematical fundamentals of cryptography and have an overview of current cryptographic algorithms and applications: symmetric and asymmetric cryptosystems, and hash functions. They also learn the fundamentals of secure programming and IT security, the fundamentals of designing and using modern cryptosystems for computer systems. They are able to use properly and securely cryptographic primitives and systems that are based on these primitives.			
BIK-CAO	Digital and Analog Circuits	Z,ZK	5
Students get the fundamental understanding of technologies underlying electronic digital systems. They understand the basic theoretical models and principles of functionality of transistors, gates, circuits, and conductors. They are able to design simple circuits and evaluate circuit parameters. They understand the differences between analog and digital modes of electronic devices.			
BIK-DBS	Database Systems	Z,ZK	6
Students are introduced to the database engine architecture and typical user roles. They are briefly introduced to various database models. They learn to design small databases (including integrity constraints) using a conceptual model and implement them in a relational database engine. They get a hands-on experience with the SQL language, as well as with its theoretical foundation ? the relational database model. They learn the principles of normalizing a relational database schema. They understand the fundamental concepts of transaction processing, controlling parallel user access to a single data source, as well as recovering a database engine from a failure. They are briefly introduced to special ways of storing data in relational databases with respect to speed of access to large quantities of data. This introductory-level course does not cover: Administration of database systems, debugging and optimizing database applications, distributed database systems, data stores.			
BIK-EFA	Efficient Algorithms	Z,ZK	5
Students get a solid overview of efficient algorithms for solving classical algorithmic problems: selecting, searching, sorting, and other basic forms of reshaping and processing tree-like data structures. Students are able to design and implement such algorithms, to analyse their complexity, and to develop an optimised efficient algorithm under specific requirements or constraints. They are able to recognise a proper algorithm variant for any specific usage.			
BIK-EIA	Efficient Implementation of Algorithms	Z,ZK	5
Student learn to combine their SW skills (efficient algorithms) and HW knowledge (utilization of all available features of the particular processor and memory architecture). Students learn the basics of code tuning.			
BIK-EPD	Business Economics	KZ	4
Students get common and general knowledge of business economics, at all the levels: law, financing, processes and organisation, taxes and state economy environment. They are introduced to these issues from the viewpoint of a manager.			
BIK-EPD.2	Business Economics	KZ	5
This course is aimed to fundamental problems of business economy. The course makes students familiar with a life cycle of business, specifically with fields: enterprise foundation, enterprise putting into state economic environment (CR), management of property and capital structure, business transaction records keeping during an accounting period, a relation between business production and costs, evaluation of enterprise financial health and business rehabilitation or termination.			
BIK-FIP	Accounting and Corporate Finance Students know the principles and practicalities of financing and financial policies of companies or organisations.	Z,ZK	5
BIK-GRA	Graph Algorithms	Z,ZK	5
Students get an overview of typical usages of graph models in computing. They learn algorithmic methods of solution of graph problems, using the programming techniques presented in the BI-EFA module. They understand algorithms for the key application domains of graph theory (flows in networks, heuristic search, approximation of complex problems, matching problems). Students get basic competence in computer science background: they understand Turing machine models and issues of NP-completeness and NP-hardness.			
BIK-HMI	History of Mathematics and Informatics This course is presented in Czech.	ZK	3

BIK-KSA	Cultural and Social Anthropology	ZK	2
The one-semester course aims to acquaint students with the basics of social and cultural anthropology as a scientific discipline dealing with the diversity of the world - examples from anthropological research from our culture as well as from the "exotic" ones (topics: kinship, religion, social exclusion, migration, globalization, , material culture, language, health, history, death, etc ...). The course is an interesting alternative to other humanities, taught at FIT.			
BIK-LIN	Linear Algebra	Z,ZK	7
Students understand the theoretical foundation of algebra and mathematical principles of linear models of systems around us, where the dependencies among components are only linear. They know the basic methods for operating with matrices and linear spaces. They are able to perform matrix operations and solve systems of linear equations. They can apply these mathematical principles to solving problems in 2D or 3D analytic geometry. They understand the error-detecting and error-correcting codes.			
BIK-MEK	Macroeconomic Context of Domestic and World Economy	KZ	4
This course is presented in Czech.			
BIK-MLO	Mathematical Logic	Z,ZK	5
Students have knowledge of the syntax and semantics of the propositional and predicate logic. They master the Boolean algebra, both theoretically as an instance of universal algebra, and practically as a tool to describe the world of digital systems. They get skills to handle Boolean functions, normal forms, maps, and minimisation methods needed in the further modules.			
BIK-OMO	Object Modeling	Z,ZK	5
Students will practically master conceptual modelling of business structures, they will learn fundamentals of OntoUML notation and methodology. Students will learn fundamentals of pure object-oriented paradigm, i.e. terms object, method, message, class, class instance, composition, inheritance, collections. Students will learn to transform a conceptual model to object-oriented implementation model and they will learn fundamentals of pure object-oriented implementation in Smalltalk and pure object database. Students will learn to formulate rules and queries upon the object database.			
BIK-OSY	Operating Systems	Z,ZK	5
Students understand the classical theory of operating systems (OS) in addition to the knowledge gained in the BI-UOS module. They get a solid knowledge of OS kernels, processes and threads implementations. They understand the problems of race conditions and principles and algorithms for critical sections, thread scheduling, resource allocation, deadlocks. They understand the techniques of the management of virtual memory, principles and architectures of disks and disk arrays, file systems, and peripheral devices. They gain basic knowledge necessary for developing system applications or for system administration. They are able to design and implement simple multithreaded applications.			
BIK-PA1	Programming and Algorithmics 1	Z,ZK	6
Students gain the ability to formulate algorithms for solving basic problems and write them in the C language. They understand data types (simple, structured, pointers), expressions, statements, functions, concept of recursion. They learn to analyse simple cases of algorithm complexity. They know fundamental algorithms for searching, sorting, and manipulating with linked lists.			
BIK-PA2	Programming and Algorithmics 2	Z,ZK	7
Students know the instruments of object-oriented programming and are able to use them for specifying and implementing abstract data types (stack, queue, enlargeable array, set, table). They can implement linked structures. They learn these skills using the programming language C++. Although this is not a module of programming in C++, students are introduced with all C++ features needed to achieve the main objective (operator overloading, templates).			
BIK-PAI	Law and Informatics	ZK	3
This course is presented in Czech. However, there is an English variant in the program Informatics (B1801 / 4753).			
BIK-PJP	Programming Languages and Compilers	Z,ZK	5
Students master basic methods of implementation of common high-level programming languages. They get experience with the design and implementation of individual compiler parts for a simple programming language: data types, subroutines, and data abstractions. Students are able to formally specify a translation of a text that has a certain syntax into a target form and write a compiler based on such a specification. The notion of compiler in this context is not limited to compilers of programming languages, but extends to all other programs for parsing and processing text in a language defined by a LL(1) grammar.			
BIK-PJV	Programming in Java	Z,ZK	4
This course is presented in Czech. However, there is an English variant in the program Informatics (B1801 / 4753).			
BIK-PKM	Introduction to Mathematics	Z	4
This course is presented in Czech.			
BIK-PPR	Project, Presentation and Rhetorics	KZ	5
This course is presented in Czech.			
BIK-PRP	Law and Business	Z,ZK	4
Students understand the basic issues when engaging in business activities in the CR and in the EU. Students learn to establish companies, gain necessary business permits, conclude commercial or civil contracts. Students also get acquainted with the principles of antitrust regulation and learn to resolve disputes in the area of business, labour, or civil relationships in courts.			
BIK-PS2	Programming in shell 2	Z,ZK	4
This course is presented in Czech.			
BIK-PSI	Computer Networks	Z,ZK	5
Students understand the basic common techniques, protocols, technologies, and algorithms necessary to communicate in computer networks. The topics are primarily focused on the 2nd to 4th layer of the ISO OSI model. They also get a basic understanding of communication media, security, and network administration. Students will be able to write a simple network application and configure a simple network.			
BIK-PST	Probability and Statistics	Z,ZK	5
Students are introduced to elements of probability thinking, ability of the synthesis both prior and posterior information and use to work with random variables. They will be able to apply correctly basic models of the distribution of random variables and to solve applied probability problems in the area of informatics and computer science. Using statistical inference methods, they master methods of statistical inference to estimate unknown population parameters on the basis of sample. They get acquainted with basic methods of the determination of possible statistical dependence of two or more random variables.			
BIK-SAP	Computer Structure and Architecture	Z,ZK	6
Students understand basic digital computer units and their structures, functions, and hardware implementation: ALU, control unit, memory system, inputs, outputs, data storage and transfer. In the labs, students gain practical experience with the design and implementation of the logic of a simple processor using modern digital design tools. The subject teaches basic knowledge of digital computer construction principles, how a computer performs its operations, what is machine code, and what are its connections to higher programming languages.			
BIK-SI1.2	Software Engineering I	Z,ZK	5
Students learn the methods of analysis and design of large software systems, which are typically designed and implemented in teams. They get practical skill thanks to applying hands-on analysis and design of a large-scale software project that is to be developed within the concurrent BI-SP1 module. They get skill to use CASE tools and UML for modelling and solving software-related problems. They get overview of object-oriented analysis, design, architecture, validation, verification, and testing processes.			
BIK-SI2.3	Software Engineering 2	Z,ZK	3
This course is presented in Czech. However, there is an English variant in the program Informatics (B1801 / 4753).			

BIK-SKJ	Scripting Languages This course is presented in Czech.	Z,ZK	4
BIK-SP1	Team Software Project 1 Students gain hands-on experience with the analysis, design, and prototyping of a large-scale software system. Theoretical support is provided by the BEI-SI1 course that runs concurrently and that teaches the necessary techniques and theory. Teams consisting of 4-6 students will work on a specific project. The teacher, in the role of the team and project leader, regularly consults with the team (at the seminars) with respect to both the formal and material aspects of the design. The resulting work will be further developed and finished in the BEI-SP2 course.	KZ	4
BIK-SP2	Team Software Project 2 Students gain hands-on experience with the iterative development process while working on a large-scale software project. The first iteration is the result of the BEI-SP1 course project. However, this time, the functionality, testing and documenting of the system being developed will be emphasized. Students will work in teams of 4-6 people. The teacher, in the role of the team and project leader, regularly consults with the team (at the seminars) with regard to the formal as well as material aspects of their solution. The BEI-SI2 course that runs concurrently will provide the students with supporting knowledge, especially in the area of teamwork, testing and quality assurance of the software product.	KZ	6
BIK-SQL.1	Language SQL Course is based on knowledge obtained in BI-DBS. Students become familiar with advanced relational and non-relational features of SQL language. In particular stored program unites, triggers, recursive queries, OLAP support, object-relational constructions. Part of the course is dedicated to practical database optimization from the point of view of specialized database structures like indexes, clusters, index-organized tables, and materialized views. as well as from the point of view query optimization. Execution plan and possibilities of its. changes will be discussed. Lectures will usually discuss SQL standard, but many features will be demonstrated on Oracle DBMS. Seminars are based on Oracle DBMS and partially on PostgreSQL.	KZ	4
BIK-TED	Electronic Documentation Design Students are able to create electronic documentation, namely technical reports. They learn alternatives of WYSIWYG editors and are able to produce well-formed technical reports using configurable tools appropriate for ICT professionals. They learn the documentation of software projects, including basics of UML and documentation of source code.	KZ	5
BIK-TIS	Information Systems Design Students know various types of ISs and their practical implementation aspects and are able to match the needs of different market segments (customers) with applications of existing technologies (databases, programming languages, GUI etc.).	Z,ZK	5
BIK-TUR	User Interface Design Students have a basic overview of the methods for designing and testing common user interfaces. They have experience to solve the problems where software and other products do not communicate with the user optimally, since the needs and characteristics of users are not taken into account during product development. Students gain an overview of the methods that bring users into the development process to ensure optimal communication with a user.	Z,ZK	4
BIK-UOS	Introduction to Operating System UNIX Students become advanced and knowledgeable users of common UNIX-like operating systems. They understand the fundamental principles of the operating systems (file systems, processes and threads, access rights, memory management, network interfaces). They gain the knowledge of advanced users, with hands-on experience of the shell, basic commands, and filters.	KZ	5
BIK-VZD	Data Mining Students are introduced to the basic methods of discovering knowledge in data. In particular, they learn the basic techniques of data preprocessing, multidimensional data visualization, statistical techniques of data transformation, and fundamental principles of knowledge discovery methods. Students will be aware of the relationships between model bias and variance, and know the fundamentals of assessing model quality. Data mining software is extensively used in the module. Students will be able to apply basic data mining tools to common problems (classification, regression, clustering).	Z,ZK	4
BIK-ZDM	Elements of Discrete Mathematics Students get both a mathematical sound background, but also practical calculation skills in the area of combinatorics, value estimation and formula approximation, tools for solving recurrent equations, and basics of graph theory.	Z,ZK	5
BIK-ZMA	Elements of Calculus Students acquire knowledge and understanding of the fundamentals of classical calculus so that they are able to apply mathematical way of thinking and reasoning and are able to use basic proof techniques. They get skills to practically handle functions of one variable in solving the problems in informatics. They understand the links between the integrals and sums of sequences. They are able to estimate lower or upper bounds of values of real functions and to handle simple asymptotic expressions.	Z,ZK	6
BIK-ZSI	Introduction to Software Engineering Students learn to understand formalized descriptions of analytic and design models in UML. To a limited extent, they take part in creating such models in seminars, where they perform small team projects. Students should be able to discuss the models with other members of a software development team. This experience and skills enable the students to participate in such teams as members.	Z,ZK	5
BIK-ZWU	Introduction to Web and User Interfaces This course is presented in Czech.	Z,ZK	4
FI-FIL	Philosophy see A0B16	ZK	2
FI-GNO	Introduction to Gnoseology Předmět studenty uvádí do teorie poznání, systémovým pohledem nahlíží na pole kultury, na vztahy a rozdíly mezi přírodními a humánními obory, vědou a uměním. Rozborem dějin modernismu a myšlenkových proudů 20. století jsou ukázány proměny paradigmat a převrat k postmodernismu, analýzou paralelismů ve vědě a umění odhaleny mechanismy tvůrčích procesů. V návaznosti na teorii přírodních jazyků a sémiotiky je vedena diskuze i o kognitivních procesech, v historickém přehledu nastíněna hlediska estetického vnímání. Samostatnou kapitolou jsou modely spojených přírodních soustav a systémů, v závěru přednášek je pozornost věnována filozofii vědy a otázkám udržitelného rozvoje. Předmět přednáší a garantuje Ing. Ivo Janoušek CSc.	ZK	2
FI-HTE	History of Technology and Economics The course introduces the scientific disciplines of history and technology, economic and social history of the Czech lands and Czechoslovakia in comparison with the development of the European region 19 to 21 century.	ZK	2
FI-KSA	Cultural and Social Anthropology The one-semester course aims to acquaint students with the basics of social and cultural anthropology as a scientific discipline dealing with the diversity of the world - examples from anthropological research from our "exotic" cultures (topics: kinship, religion, social exclusion, migration, globalization, material culture, language, health, history, death, etc ...) will be shown. The course is an interesting alternative to other humanities, taught at FIT.	ZK	2
FI-MPL	Managerial Psychology	ZK	2
FI-ULI	Introduction to Linguistics for Computer This course is presented in Czech.	ZK	2

For updated information see <http://bilakniha.cvut.cz/en/FF.html>

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