

Doporu ený pr chod studijním plánem

Název pr chodu: Bachelor branch Computer Science, in English, 2015-2020

Fakulta: Fakulta informa ních technologií

Katedra: katedra teoretické informatiky

Pr chod studijním plánem: Bachelor branch Computer Science, in English, 2015-2020

Obor studia, garantovaný katedrou: Computer Science (Bachelor, in English)

Garant oboru studia: doc. Ing. Jan Janoušek, Ph.D.

Program studia: Informatics 2010

Typ studia: Bakalá ské prezen ní

Poznámka k pr chodu: Compulsory subjects of neighboring specializations can be enrolled as optional ones.

Kódování rolí p edm t a skupin p edm t :

P - povinné p edm ty programu, PO - povinné p edm ty oboru, Z - povinné p edm ty, S - povinn volitelné p edm ty, PV - povinn volitelné p edm ty, F - volitelné p edm ty odborné, V - volitelné p edm ty, T - T lovýchovné p edm ty

Kódování zp sob zakon ení predm t (KZ/Z/ZK) a zkratk semestr (Z/L):

KZ - klasifikovaný zápo et, Z - zápo et, ZK - zkouška, L - letní semestr, Z - zimní semestr

íslo semestru: 1

Kód	Název p edm tu / Název skupiny p edm t (u skupiny p edm t seznam kód jejích len) Vyu ující, auto i a garantí (gar.)	Zakon ení	Kredity	Rozsah	Semestr	Role
BIE-CAO	Digital and Analog Circuits Kate ina Hyniová Miroslav Balík Kate ina Hyniová (Gar.)	Z,ZK	5	2P+2C	Z	PP
BIE-ZMA	Elements of Calculus Antonella Marchesiello Tomáš Kalvoda Tomáš Kalvoda (Gar.)	Z,ZK	6	3P+2C	Z	PP
BIE-PAI	Law and Informatics Alžb ta Krausová, Martin Myška, Michal Mat jka, Zden k Ku era Miroslav Balík Zden k Ku era (Gar.)	ZK	3	2P	Z	PP
BIE-MLO	Mathematical Logic Kate ina Trlířajová, Jiřka Rybní ková Kate ina Trlířajová (Gar.)	Z,ZK	5	2P+2C	Z	PP
BIE-PA1	Programming and Algorithmics 1 Jan Trávní ek, Ivan Šime ek, David Bernhauer, Roman Jelínek, Ji í Kašpar, Ladislav Vagner, Miroslav Balík, Josef Vogel Jan Trávní ek Ladislav Vagner (Gar.)	Z,ZK	6	2P+2R+2C	Z	PP
BIE-PS1	Programming in Shell 1 Jan Trdli ka Jan Ž árek Jan Trdli ka (Gar.)	KZ	5	2P+2C	Z	PP

íslo semestru: 2

Kód	Název p edm tu / Název skupiny p edm t (u skupiny p edm t seznam kód jejích len) Vyu ující, auto i a garantí (gar.)	Zakon ení	Kredity	Rozsah	Semestr	Role
BIE-SAP	Computer Structures and Architectures Petr Fišer, Ji í Douša, Pavel Kubalík Petr Fišer Ji í Douša (Gar.)	Z,ZK	6	2P+1R+2C	L	PP
BIE-DBS	Database Systems Josef Pavlí ek, Michal Mro ek Miroslav Balík Josef Pavlí ek (Gar.)	Z,ZK	6	3L	Z,L	PP
BIE-LIN	Linear Algebra Antonella Marchesiello Ji ina Scholtzová Antonella Marchesiello (Gar.)	Z,ZK	7	4P+2C	L	PP
BIE-PA2	Programming and Algorithmics 2 Jan Trávní ek, Peter Gu a, Ladislav Vagner, Josef Vogel Jan Trávní ek Ladislav Vagner (Gar.)	Z,ZK	7	2P+1R+1C	L	PP
BIE-V.2017	Purely Elective Bachelor Courses, Version 2017 BIE-ZUM,BIE-ZRS,..... (pokra ování viz seznam skupin níže)	Min. p edm. 0	Min/Max 0/22			V

íslo semestru: 3

Kód	Název p edm tu / Název skupiny p edm t (u skupiny p edm t seznam kód jejích len) Vyu ující, auto i a garantí (gar.)	Zakon ení	Kredity	Rozsah	Semestr	Role
BIE-AG1	Algorithms and Graphs 1 Ji ina Scholtzová, Tomáš Valla, Dušan Knop, Pavel Tvrdík Pavel Tvrdík Tomáš Valla (Gar.)	Z,ZK	6	2P+2C	Z	PP
BIE-AAG	Automata and Grammars Jan Trávní ek, Jan Holub, Jan Janoušek, Martin Svoboda Radomír Polách Jan Holub (Gar.)	Z,ZK	6	2P+2C	Z	PP

BIE-ZDM	Elements of Discrete Mathematics <i>Ji ina Scholtzová, Josef Kolá Ji ina Scholtzová Ji ina Scholtzová (Gar.)</i>	Z,ZK	5	2P+2C	Z	PP
BIE-SI1.2	Software Engineering I <i>Zden k Rybola Zden k Rybola Zden k Rybola (Gar.)</i>	Z,ZK	5	2P+1C	Z,L	PP
BIE-EMP	Economic and management principles <i>Tomáš Evan Tomáš Evan (Gar.)</i>	KZ	4	2P+2C	Z,L	PE
BIE-V.2017	Purely Elective Bachelor Courses, Version 2017 <i>BIE-ZUM,BIE-ZRS,..... (pokra ování viz seznam skupin níže)</i>	Min. p edm. 0	Min/Max 0/22			V

íslo semestru: 4

Kód	Název p edm tu / Název skupiny p edm t (u skupiny p edm t seznam kód jejich len) Vyu ující, auto i a garantí (gar.)	Zakon ení	Kredity	Rozsah	Semestr	Role
BIE-PSI	Computer Networks <i>Vladimír Smotlacha, Yelena Trofimova Alexandru Moucha Vladimír Smotlacha (Gar.)</i>	Z,ZK	5	2P+1R+1C	L	PP
BIE-OSY	Operating Systems <i>Pavel Tvrđík, Michal Štepanovský Pavel Tvrđík (Gar.)</i>	Z,ZK	5	2P+1R+1L	L	PP
BIE-BEZ	Security <i>Róbert Lórencz, Ji í Bu ek Róbert Lórencz (Gar.)</i>	Z,ZK	6	2P+1R+1C	L	PP
BIE-AG2	Algorithms and Graphs 2 <i>Ji ina Scholtzová, Maria Saumell Mendiola Ji ina Scholtzová Ond ej Suchý (Gar.)</i>	Z,ZK	5	2P+2C	L	PO
BIE-PJP	Programming Languages and Compilers <i>Radomír Polách Radomír Polách Jan Janoušek (Gar.)</i>	Z,ZK	5	2P+1C	L	PO
BIE-V.2017	Purely Elective Bachelor Courses, Version 2017 <i>BIE-ZUM,BIE-ZRS,..... (pokra ování viz seznam skupin níže)</i>	Min. p edm. 0	Min/Max 0/22			V

íslo semestru: 5

Kód	Název p edm tu / Název skupiny p edm t (u skupiny p edm t seznam kód jejich len) Vyu ující, auto i a garantí (gar.)	Zakon ení	Kredity	Rozsah	Semestr	Role
BIE-BPR	Bachelor Project <i>Zden k Muziká Zden k Muziká (Gar.)</i>	Z	2		Z,L	PP
BIE-PST	Probability and Statistics <i>Petr Novák Petr Novák (Gar.)</i>	Z,ZK	5	2P+1R+1C	Z	PP
BIE-APS.1	Architectures of Computer Systems <i>Pavel Tvrđík, Michal Štepanovský Ji í Bu ek Pavel Tvrđík (Gar.)</i>	Z,ZK	5	2P+2C	Z	PO
BIE-VZD	Data Mining <i>Miroslav epek Pavel Kordík Pavel Kordík (Gar.)</i>	Z,ZK	4	2P+2C	Z	PO
BIE-OOP	Object-Oriented Programming <i>Petr Máj, Filip K ikava, Ivo Strejc, Jan Sliacký Filip K ikava (Gar.)</i>	Z,ZK	4	2P+2C	Z	PO
BIE-PPA	Programming Paradigms <i>Petr Máj, Jan Sliacký, Jan Janoušek, Tomáš Pecka Petr Máj Petr Máj (Gar.)</i>	Z,ZK	5	2P+2C	Z	PO
BIE-V.2017	Purely Elective Bachelor Courses, Version 2017 <i>BIE-ZUM,BIE-ZRS,..... (pokra ování viz seznam skupin níže)</i>	Min. p edm. 0	Min/Max 0/22			V

íslo semestru: 6

Kód	Název p edm tu / Název skupiny p edm t (u skupiny p edm t seznam kód jejich len) Vyu ující, auto i a garantí (gar.)	Zakon ení	Kredity	Rozsah	Semestr	Role
BIE-BAP	Bachelor Thesis <i>Miroslav Balík Zden k Muziká (Gar.)</i>	Z	14		L,Z	PP
BIE-DPR	Documentation, Presentation, Rhetorics <i>Dana Vynikarová, Petra Pavlí ková, Ond ej Guth Ond ej Guth Dana Vynikarová (Gar.)</i>	KZ	4		L	PP
BIE-PV-EM.2015	Compulsory Elective Economics, and Management Courses, in English, Version 2015 <i>BIE-EPR,BIE-FTR.1,..... (pokra ování viz seznam skupin níže)</i>	Min. p edm. 1	Min/Max 4/10			VE
BIE-PV-HU.2015	Compulsory Elective Bachelor Social Courses, Presented in English, Ver. 2015 <i>BIE-HMI,FI-HPZ,..... (pokra ování viz seznam skupin níže)</i>	Min. p edm. 1 Max. p edm. 3	Min/Max 2/9			VH
BIE-V.2017	Purely Elective Bachelor Courses, Version 2017 <i>BIE-ZUM,BIE-ZRS,..... (pokra ování viz seznam skupin níže)</i>	Min. p edm. 0	Min/Max 0/22			V

Seznam skupin p edm t tohoto pr chodu s úplným obsahem len jednotlivých skupin

Kód	Název skupiny p edm t a kódy len této skupiny p edm t (specifikace viz zde nebo níže seznam p edm t)	Zakon ení	Kredity	Rozsah	Semestr	Role
BIE-PV-EM.2015	Compulsory Elective Economics, and Management Courses, in English, Version 2015	Min. p edm. 1	Min/Max 4/10			VE
BIE-EPR	Economic project	BIE-FTR.1	Financial Markets	BIE-MIK	Fundamentals of Microeconomics	
BIE-EHD	Introduction to European Economi ...					
BIE-PV-HU.2015	Compulsory Elective Bachelor Social Courses, Presented in English, Ver. 2015	Min. p edm. 1 Max. p edm. 3	Min/Max 2/9			VH
BIE-HMI	History of Mathematics and Infor ...	FI-HPZ	Humanitní p edm t z výjezdu v za ...	BIE-EHD	Introduction to European Economi ...	
BE0B16F11	Philosophy 1					
BIE-V.2017	Purely Elective Bachelor Courses, Version 2017	Min. p edm. 0	Min/Max 0/22			V
BIE-ZUM	Artificial Intelligence Fundamen ...	BIE-ZRS	Basics of System Control	BIE-SCE1	Computer Engineering Seminar I	
BIE-SCE2	Computer Engineering Seminar II	BIE-CZ0	Czech Language for Foreigners	BIE-FTR.1	Financial Markets	
BIE-EHD	Introduction to European Economi ...	BIE-IMA	Introduction to Mathematics	BIE-IMA2	Introduction to Mathematics 2	
BIE-ST1	Network Technology 1	BIE-OOP	Object-Oriented Programming	BIE-PKM	Preparatory Mathematics	
BIE-PJV	Programming in Java	BIE-PS2	Programming in shell 2	BI-SCE1	Seminá po íta ového inženýrství ...	
BIE-3DT.1	3D Printing					

Seznam p edm t tohoto pr chodu:

Kód	Název p edm tu	Zakon ení	Kredity
BE0B16F11	Philosophy 1 Probírají se postavy a myšlenky antické filozofie a v dy. Na historickém pozadí se otevírají i aktuální problémy dneška. Jde zejména o otázky související s rozvojem dnešní fyziky, matematiky a p írodov dy, dále s rozvojem a společenskými aspekty techniky a otázek ekonomiky, etiky a politiky.	KZ	4
BI-SCE1	Seminá po íta ového inženýrství I Seminá po íta ového inženýrství je výb rový p edm t pro studenty, kte í se cht jí zabývat hloub jí tématy íslicového návrhu, spolehlivosti a odolnosti proti poruchám a útok m. Ke student m se v rámci p edm tu p istupuje individuáln a každý student í skupinka student eší n jaké zajímavé aktuální téma s vybraným školitelem. Sou ástí p edm tu je práce s v deckými ílánky a jinou odbornou literaturou a/nebo práce v laborato ích K N. Kapacita p edm tu je omezena možnostmi u ítel seminá e. Probíraná témata jsou pro každý semestr nová.	Z	4
BIE-3DT.1	3D Printing Students learn to design three-dimensional objects optimized for printing on a RepRap printer and the printing itself. They will be able to design objects, prepare for printing and print in 3D.	KZ	4
BIE-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, relationships between formal languages and automata. Knowledge acquired through the module is applicable in designs of algorithms for searching in text, data compression, simple parsing and translation, and design of digital circuits.	Z,ZK	6
BIE-AG1	Algorithms and Graphs 1 The course covers the basics from the efficient algorithm design, data structures, and graph theory, belonging to the core knowledge of every computing curriculum. It is interlinked with the concurrent BIE-AAG and BIE-ZDM courses in which the students gain the basic skills and knowledge needed for time and space complexity of algorithms and learn to handle practically the asymptotic mathematics.	Z,ZK	6
BIE-AG2	Algorithms and Graphs 2	Z,ZK	5
BIE-APS.1	Architectures of Computer Systems Students will learn the construction principles of internal architecture of computers with universal processors at the level of machine instructions. Special emphasis is given on the pipelined instruction processing and on the memory hierarchy. Students will understand the basic concepts of RISC and CISC architectures and the principles of instruction processing not only in scalar processors, but also in superscalar processors that can execute multiple instructions in one cycle, while ensuring the correctness of the sequential model of programs. The course further elaborates the principles and architectures of shared memory multiprocessor and multicore systems and the memory coherence and consistency in such systems.	Z,ZK	5
BIE-BAP	Bachelor Thesis	Z	14
BIE-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 properly and securely use cryptographic primitives and systems that are based on these primitives. Students are introduced to legal aspects of information security, security standards, social engineering, and basic principles of security management.	Z,ZK	6
BIE-BPR	Bachelor Project At the beginning of the semester the student will contact the supervisor of the bachelor thesis he has booked. They will discuss the partial tasks that student will perform during the semester. If he fulfill these tasks, the supervisor will award him / her at the end of the semester with the BI-BPR course.	Z	2

BIE-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
BIE-CZ0	Czech Language for Foreigners Course Czech for foreigners offers the basic topics of conversation: Introductions, Orientation, Shopping, Work / Study, Travel, Time, Family.	KZ	2
BIE-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 - 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 module does not cover: Administration of database systems, debugging and optimizing database applications, distributed database systems, data stores.	Z,ZK	6
BIE-DPR	Documentation, Presentation, Rhetorics This subject is aimed to the professional communication and writing of the scientific texts (bachelor's and diploma thesis). Students will learn to create and prepare interactive presentations and presenting before an audience. Students will also learn to write technical reports and scientific texts.	KZ	4
BIE-EHD	Introduction to European Economic History The course introduces a selection of themes from the European economic history. It gives the student basic knowledge about forming of the global economy through the description of the key periods in history. As European countries have been dominant actors in this process it focuses predominantly on their roles in the economic history. From large economic area of Roman Empire to fragmentation of the Middle Ages, from destruction of WWII to the current affairs, the development of modern financial institutions is deciphered. The course does not cover detailed economic history of particular European countries but rather the impact of trade and role of particular events, institutions and organizations in history. Class meetings will consist of a mixture of lecture and discussion.	Z,ZK	3
BIE-EMP	Economic and management principles 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	4
BIE-EPR	Economic project This course is an extension of the course Introduction to European Economic History (BIE-EHD).	Z	1
BIE-FTR.1	Financial Markets Financial sector has been deeply transformed in the recent years, which led to a development of structured financial products, a new point of view on the issue of credit risk, and globalization of market activities. The need to use and properly apply mathematical and technical tools is emphasized. To manage their financial activities, many firms need graduates from technical schools who have sufficient knowledge ICT and mathematics, and who have at the same time an understanding of the functioning of financial markets. The Financial Markets course thus englobes both a description of financial markets and related economic theories, and an overview of mathematical and statistical tools used in this field.	Z,ZK	5
BIE-HMI	History of Mathematics and Informatics Students will master the methods traditionally used in mathematics and related disciplines - informatics - from different periods of the development of mathematics, and will thus become acquainted with mathematical methods suitable for applications in contemporary computer science.	Z,ZK	3
BIE-IMA	Introduction to Mathematics Students refresh and extend knowledge of elementary functions and their properties. Students understand basic mathematical principles and they are able to apply them in particular examples.	Z	4
BIE-IMA2	Introduction to Mathematics 2 Students refresh and extend knowledge of elementary functions and their properties. Students understand basic mathematical principles and they are able to apply them in particular examples.	Z	2
BIE-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 polynomials 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 error-detecting and error-correcting codes.	Z,ZK	7
BIE-MIK	Fundamentals of Microeconomics This a introductory course of microeconomics designed for students without previous economic background. It describes different market regimes and ways how firm can react to consumer demand, competitor strategies, government intervention, uncertainty and information asymmetry. All concepts are illustrated on real life examples.	Z,ZK	4
BIE-MLO	Mathematical Logic An introduction to propositional and predicate logic.	Z,ZK	5
BIE-OOP	Object-Oriented Programming Students will learn the pure object-oriented paradigm, being a tool for effective implementation of quality, evolvable business software systems. They will understand fundamentals and they will learn how to apply it for solving typical implementation tasks. Students will learn syntax and programming fundamentals of a pure OO open-source technology Pharo. Various other modern programming languages utilising the OO concepts will be introduced in the subject, as well.	Z,ZK	4
BIE-OSY	Operating Systems Students understand the classical theory of operating systems (OS) in addition to the knowledge gained in the BI-PS1 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 managing 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
BIE-PA1	Programming and Algorithmics 1 Students learn to construct 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 the basics of algorithm complexity analysis. They know fundamental algorithms for searching, sorting, and manipulating with linked lists.	Z,ZK	6
BIE-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 to all C++ features needed to achieve the main objective (e.g., operator overloading, templates).	Z,ZK	7
BIE-PAI	Law and Informatics Students have knowledge of fundamental protection of intangible property, overview of contractual aspects of copyright. They are able to design an appropriate contract-based copyright protection and do research and verification of the outputs concerning trademarks, patents, industrial design rights. They are able to participate actively in the proceedings to register intangible property. They have a good overview of the Czech Republic legislation as well as the EU legislation.	ZK	3

BIE-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.			
BIE-PJV	Programming in Java	Z,ZK	4
BIE-PKM	Preparatory Mathematics	Z	4
The purpose of Preparatory Mathematics is to help students revise the most important topics of high-school mathematics.			
BIE-PPA	Programming Paradigms	Z,ZK	5
BIE-PS1	Programming in Shell 1	KZ	5
Students understand the basic principles of operating systems (processes and threads, file systems, access rights, memory management, network interface) with a focus on UNIX like operating systems. In practically oriented exercises, they will learn to use shell, basic commands and filters for processing text data.			
BIE-PS2	Programming in shell 2	Z,ZK	4
Students get a general overview of scripting languages, introduction into syntax, semantics, programming style, pros and cons. In addition, they gain a deeper insight into Bourne Again shell and some other particular scripting languages and will get practical experience with shell script programming. Note to Erasmus students: Do not be afraid of this module! We are ready to adapt the lectures to provide even very basic Bourne shell usage. Depending on actual knowledge of the students, orientation in user filesystem tools (cp, ln, mkdir, rm...) and useful basic data filtering tools (cut, tr, sort, uniq...) can be provided. The advantage of this module is that we do not stop at this point - we will show you also a selection of advanced scripting techniques used in practice.			
BIE-PSI	Computer Networks	Z,ZK	5
Students understand the basic common techniques, protocols, technologies, and algorithms necessary to communicate in computer networks focusing primarily 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.			
BIE-PST	Probability and Statistics	Z,ZK	5
The students will learn the basics of probabilistic thinking, the ability to synthesize prior and posterior information and learn to work with random variables. They will be able to apply basic models of random variable distributions and solve applied probabilistic problems in informatics and computer science. Using the statistical induction they will be able to perform estimations of unknown distributional parameters from random sample characteristics. They will also be introduced to the methods of determining the statistical dependence of two or more random variables.			
BIE-SAP	Computer Structures and Architectures	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.			
BIE-SCE1	Computer Engineering Seminar I	Z	4
The Seminar of Computer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to failures and attacks. Students are approached individually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the subject is work with scientific articles and other professional literature and/or work in K N laboratories. The capacity of the subject is limited by the possibilities of the seminar teachers. The topics are new for each semester.			
BIE-SCE2	Computer Engineering Seminar II	Z	4
The Seminar of Computer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to failures and attacks. Students are approached individually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the subject is work with scientific articles and other professional literature and/or work in K N laboratories. The capacity of the subject is limited by the possibilities of the seminar teachers. The topics are new for each semester.			
BIE-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. Students will get acquainted with CASE tools using a visual modeling language UML for modeling and solving software-related problems. Students will get an overview of object-oriented analysis, design, architecture, validation, verification, and testing processes. The knowledge obtained in the lectures is practiced on a team project. If enrolled for the BIE-SP1 course running in parallel (only summer semester), the students can work on a single more complex project and they are classified to both courses for a single project. This course does not teach the students programming, nor any particular technology, framework or programming language. The students are required to have some knowledge of these to apply them on their team project.			
BIE-ST1	Network Technology 1	Z	3
P ední je zam ěn na získání základních znalostí z oblasti počítačových sítí a praktických zkušeností se síťovými technologiemi. P ední odpovídá látce kurikula Cisco Netacad programu - CCNA1 - R&S Introduction to Networks.			
BIE-VZD	Data Mining	Z,ZK	4
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).			
BIE-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, and tools for solving recurrent equations.			
BIE-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.			
BIE-ZRS	Basics of System Control	Z,ZK	4
Volitelný p ední základy řízení systém ů je určen pro všechny zájemce o aplikovanou informatiku v bakalářském studiu. Alespo ů pohledové znalosti oboru automatického řízení budou pro naše absolventy jist ě konkuren ní výhodou a zhodnotí je bezesporu v pr ůmyslové praxi. Studenti získají znalosti v dynamicky se rozvíjejícím oboru s velkou budoucností. Zam ěrá se zejména na řízení inženýrských a fyzikálních systém ů. Poskytneme vám základní informace z oblasti zp ůnovazebního řízení lineárních dynamických jednorozměrných systém ů. Seznámíme vás s metodami vytvá ění popisu a modelu systém ů, základní analýzou lineárních dynamických systém ů a návrhem a ov ěněním jednoduchých zp ůnovazebních PID, PSD a fuzzy regulátor ů. Pozornost je věnována rovn ěž snímáním a akcím v regulačních obvodech, otázkám stability regulačních obvod ů, jednorázovému a pr ůběžnému nastavování parametr ů regulátoru a n ěkterým aspekt ům pr ůmyslových realizací spojitých a ěislicových regulátor ů. Jednotlivá témata p ednášek jsou provázána množstvím užitečných p ůklad ů a praktických pr ůmyslových realizací.			

BIE-ZUM	Artificial Intelligence Fundamentals	Z,ZK	4
Students are introduced to the fundamental problems in the Artificial Intelligence, and the basic methods for their solving. It focuses mainly on the classical tasks from the areas of state space search, multi-agent systems, game theory, planning, and machine learning. Modern soft-computing methods, including the evolutionary algorithms and the neural networks, will be presented as well.			
FI-HPZ	Humanitní p edm t z výjezdu v zahrani í	Z	3
P edm t "Humanitní p edm t z výjezdu v zahrani í" zast ešuje ve studijním plánu povahou humanitní p edm ty získané studenty v rámci jejich výjezdu v zahrani í. P edpokládá se tedy spln ní náhradou a o uznání rozhoduje prod kan pro studijní a pedagogickou innost v zastoupení d kána a to na základ žádosti studenta			

Aktualizace výše uvedených informací naleznete na adrese <http://bilakniha.cvut.cz/cs/FF.html>

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