Recomended pass through the study plan

Name of the pass: Bachelor specialization Computer Graphics, in Czech, 2021

Faculty/Institute/Others:

Department:

Pass through the study plan: Bachelor Specialization Computer Graphics, in Czech, 2021

Branch of study guranteed by the department: Welcome page

Guarantor of the study branch:

Program of study: Informatika

Type of study: Bachelor full-time

Note on the pass: Vedle ist volitelných p edm t si m žete zapsat jako volitelné p edm ty i povinné p edm ty sousedních specializací. Chcete-li splnit skupinu "BI-ZKA.21 Zkouška z angli tiny 2021" p edložením certifikátu, který prokazuje vaši znalost angli tiny srovnatelnou nebo p evyšující úrove B2 Spole ného evropského referen ního rámce pro jazyky, m žete tak u init v kterémkoliv aktivním semestru b hem studia.

Coding of roles of courses and groups of courses: P - compulsory courses of the program, PO - compulsory courses of the branch, Z - compulsory courses, S - compulsory elective courses, PV compulsory elective courses, F - elective specialized courses, V - elective courses, T - physical training courses Coding of ways of completion of courses (KZ/Z/ZK) and coding of semesters (Z/L):

KZ - graded assessment, Z - assessment, ZK - examination, L - summer semester, Z - winter semester

	Number	r of s	semester:	1
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number of se						
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-DML.21	Discrete Mathematics and Logic Ji ina Scholtzová, Daniel Dombek, Jan Sp vák Daniel Dombek Jan Sp vák (Gar.)	Z,ZK	5	2P+1R+1C	Z	PP
BI-LA1.21	Linear Algebra 1 Jakub Krásenský, Karel Klouda, Lud k Kleprlík Lud k Kleprlík Karel Klouda (Gar.)	Z,ZK	5	2P+1R+1C	z	PP
BI-PA1.21	Programming and Algorithmics 1 Radek Hušek, Josef Vogel, Miroslav Balík, Ladislav Vagner, Jan Trávní ek Jan Trávní ek Jan Trávní ek (Gar.)	Z,ZK	7	2P+2R+2C	z	PP
BI-TZP.21	Technological Fundamentals of Computers Jan ezní ek, Martin Novotný, Vojt ch Miškovský, Jaroslav Borecký, Martin Kohlík, Robert Hülle, Matúš Olekšák Martin Novotný Martin Novotný (Gar.)	Z,ZK	5	2P+2C	Z	PP
BI-GIT.21	SW Development Technologies Robin Ob rka, Petr Pulc Robin Ob rka Petr Pulc (Gar.)	Z	3	2P	Z	PP
BI-UOS.21	Unix-like Operating Systems Jan Trdli ka, Zden k Muziká, Yelena Trofimova, Jakub Žitný, Tomáš Vondra, Jakub Jan i ka, Ji í Borský, Lukáš Ba inka, Viktor erný, Zden k Muziká Zden k Muziká (Gar.)	KZ	5	2P+2C	Z	PP
TV1	Physical Education	Z	0	0+2	Z	PT

Number of se	emester: 2					
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-DBS.21	Database Systems Jan Matoušek, Michal Valenta, Pavel K íž, Št pán Pechman, Monika Borkovcová, Dominik Roudný, Jan Bittner, Ji í Hunka, P emysl D dic, Ji í Hunka Michal Valenta (Gar.)	Z,ZK	5	2P+2R+1L	. L	PP
BI-MA1.21	Mathematical Analysis 1 Pavel Paták, Tomáš Kalvoda, Pavel Hrabák, Ivo Petr, Petr Olšák Tomáš Kalvoda Tomáš Kalvoda (Gar.)	Z,ZK	5	2P+1R+1C	L	PP
BI-PA2.21	Programming and Algorithmics 2 Radek Hušek, Josef Vogel, Ladislav Vagner, Jan Trávní ek Jan Trávní ek Jan Trávní ek (Gar.)	Z,ZK	7	2P+1R+2C	L	PP
BI-SAP.21	Computer Structure and Architecture Jaroslav Borecký, Martin Kohlík, Hana Kubátová, Petr Fišer Hana Kubátová Hana Kubátová (Gar.)	Z,ZK	5	2P+1R+2C	L	PP
BI-LA2.21	Linear Algebra 2 Daniel Dombek, Karel Klouda, Lud k Kleprlík, Marta Nollová, Jakub Šístek Lud k Kleprlík Karel Klouda (Gar.)	Z,ZK	5	2P+2C	L	PS

TV2	Physical Education	Z	0	0+2	L	PT
BI-V.2021		Min. cours.				
	ist volitelné p edm ty bakalá ského programu Informatika, verze od 2021/22 do 2024/25 BI-ADW.1.BI-ALO (see the list of groups below)	0	Min/Max			
		Max. cours.	0/404			v
		94				

Number of se	emester: 3					
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-AG1.21	Algorithms and Graphs 1 Radek Hušek, Dušan Knop, Tomáš Valla, Ond ej Suchý, Michal Opler Dušan Knop Dušan Knop (Gar.)	Z,ZK	5	2P+2C	Z	PP
BI-AAG.21	Automata and Grammars Jan Janoušek, Jan Holub Jan Holub Jan Holub (Gar.)	Z,ZK	5	2P+2C	Z	PP
BI-MA2.21	Mathematical Analysis 2 Pavel Paták, Tomáš Kalvoda, Pavel Hrabák, Ivo Petr, Petr Olšák Tomáš Kalvoda Tomáš Kalvoda (Gar.)	Z,ZK	6	3P+2C	Z	PP
BI-MVT.21	Modern Visualisation Technologies Petr Pauš, Ji í Chludil Petr Pauš Petr Pauš (Gar.)	Z,ZK	5	2P+2C	Z	PS
BI-MGA.21	Multimedia and Graphics Applications Lukáš Ba inka, Ji í Chludil, Jan Buriánek, Šimon Tan v Lukáš Ba inka Ji í Chludil (Gar.)	Z,ZK	5	2P+2C	Z	PS
BI-PYT.21	Python Programming Ond ej Bouchala, Mohamed Bettaz, Martin Šlapák, Ji í Hanuš, Jan Šafa ík Martin Šlapák Martin Šlapák (Gar.)	КZ	5	3C	Z,L	PS

Number of se	mester: 4					
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-KAB.21	Cryptography and Security Ivana Trummová, Josef Kokeš, Róbert Lórencz, Ji í Bu ek, Julia Plotnikova, David Pokorný, Jakub Tetera, Tomáš Rabas, Tomáš Zahradnický, Róbert Lórencz Róbert Lórencz (Gar.)	Z,ZK	5	2P+2C	L	PP
BI-OSY.21	Operating Systems Ladislav Vagner, Ji í Kašpar, Jan Trdli ka, Petr Zemánek, Michal Štepanovský, Pavel Tvrdík Pavel Tvrdík Michal Štepanovský (Gar.)	Z,ZK	5	2P+1R+1L	. L	PP
BI-PSI.21	Computer Networks Yelena Trofimova, Viktor erný, Petr Hoda , Josef Zápotocký, Michal Polák, Michal Hažlinský, Jan Fesl, Vladimír Smotlacha, Josef Koumar, Jan Fesl Jan Fesl (Gar.)	Z,ZK	5	2P+1R+1C	E L	PP
BI-PGR.21	Computer graphics programming Petr Felkel, Jaroslav Sloup Jaroslav Sloup Petr Felkel (Gar.)	Z,ZK	5	2P+2C	L	PS
BI-SWI.21	Software Engineering Michal Valenta, Zden k Rybola, Ji í Mlejnek Zden k Rybola Michal Valenta (Gar.)	Z,ZK	5	2P+1C	L	PS
BI-TUR.21	User Interface Design Jan Schmidt Jan Schmidt Jan Schmidt (Gar.)	Z,ZK	5	2P+2C	L	PS

Number of seme	ester: 5					
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-BPR.21	Bachelor project Zden k Muziká Zden k Muziká (Gar.)	Z	1	0P+0C	Z,L	PP
BI-PST.21	Probability and Statistics Pavel Hrabák, Kamil Dedecius, Jana Vacková, Petr Novák, Jitka Hrabáková Pavel Hrabák Pavel Hrabák (Gar.)	Z,ZK	5	2P+2C	Z	PP
BI-PGA.21	Programming of Graphic Applications Ji í Chludil, Radek Richtr Radek Richtr Radek Richtr (Gar.)	Z,ZK	5	2P+2C	Z	PS
		Min. cours.				
	Povinn volitelné p edm ty pro specializaci Po íta ová	1	Min/Max			
BI-PV-PG.21	grafika, verze 2021 BI-SP2.21,BI-VHS.21	Max. cours.	5/10			PV
		2				

		Min. cours.			
BI-V.2021	ist volitelné p edm ty bakalá ského programu Informatika,	0	Min/Max		
DI-V.2021	verze od 2021/22 do 2024/25 BI-ADW.1,BI-ALO, (see the list of groups below)	Max. cours.	0/404		V
		94			

Number of sem	ester: 6					
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-BAP.21	Bachelor Thesis Zden k Muziká Zden k Muziká Zden k Muziká (Gar.)	Z	14		L,Z	PP
BI-TDP.21	Documentation and Presentation Alena Libánská, Ond ej Guth, Petra Pavlí ková, Dana Vynikarová, Tomáš Nová ek Dana Vynikarová Dana Vynikarová (Gar.)	KZ	3	2P+2C	Z,L	PP
BI-SVZ.21	Machine vision and image processing Marcel Ji ina, Jakub Novák, David Kramný, Justýna Frommová Jakub Novák Marcel Ji ina (Gar.)	Z,ZK	5	2P+2C	L,Z	PS
BI-ZKA.21	Zkouška z angli tiny 2021 BI-ANG1,BIE-EEC, (see the list of groups below)	Min. cours. 1 Max. cours. 1	Min/Max 2/4			PJ
BI-V.2021	ist volitelné p edm ty bakalá ského programu Informatika, verze od 2021/22 do 2024/25 BI-ADW.1,BI-ALO, (see the list of groups below)	Min. cours. 0 Max. cours. 94	Min/Max 0/404			V

List of groups of courses of this pass with the complete content of members of individual groups

Kód		Name of the group of group (for specification	courses and	d codes of members of this or below the list of courses)	Com	pletion	Credi	ts Scope	Semester	Role
BI-PV-	PG.21	Povinn volitelné p		specializaci Po íta ová	Min	. cours. 1 . cours. 2	Min/M 5/10	ax		PV
BI-SP2.21	Team Soft	ware Project 2	BI-VHS.21	Virtual game worlds				1	1 1	
					Min	cours.				
BI-V.	2021	ist volitelné p edm verze	ty bakalá sl od 2021/22	tého programu Informatika, do 2024/25		0 . cours.	Min/M 0/404			v
						94				
BI-ADW.1	Windows A	Administration	BI-ALO	Algebra and Logic		BI-AVI.2	1	Algorithms vis	ually	
BI-A2L	English lar	nguage, preparation fo	BI-APJ	Aplication Programming in Java		NI-AFP		Applied Funct	ional Programr	ning
BIE-ZUM	Artificial In	telligence Fundamen	BI-BLE	Blender		NI-DSP		Database Sys	tems in Practe	S
BI-STO	Storage ar	nd Filesystems	NI-PSD	Public Services Design		BIE-DIF		Differential eq	uations	
NI-DZO	Digital Ima	ge Processing	NI-DDM	Distributed Data Mining		BI-EP1.2	4	Effective prog	ramming 1	
BI-EP2	Efficient P	rogramming 2	BI-ANGK	English language, contact prepar		BI-EJA		Enterprise Jav	/a	
BI-EJK	Enterprise	Java and Kotlin	BI-FMU	Financial and Management Accourt	nt	BI-HAM		HW accelerate	ed network traf	fic m
BI-HMI	History of	Mathematics and Infor	BI-ARD	Interactive applications on Ardu		NI-IAM		Internet and M	lultimedia	
BIE-CSI	Introductio	n to Computer Science	FITE-EHD	Introduction to European Economi		BIE-IMA	2	Introduction to	Mathematics	2
BI-CS2	C# langua	ge and data access	BI-CS3	Language C# - design of web appl		BI-SQL.1		Language SQ	L, advanced	
BI-QAP	Quantum a	algorithms and programmi	NI-LSM	Statistical Modelling Lab		BI-HAS			ts in Cryptogra	
NI-MPL	<u> </u>	l Psychology	NI-MSI	Mathematical Structures in Compu		BI-MPP.2			erfacing periph	
BI-MIT	Mikrotik te	0	NI-MOP	Modern Object-Oriented Programn		BI-MVT.2	21	Modern Visua	lisation Techno	logie
BI-MMP	Multimedia	a team project	BI-ORL	Operations Research and Linear P	'	NI-OLI		Linux Drivers		
BI-ACM	0	ing Practices 1	BI-ACM2	Programming Practices 2		BI-ACM3		Programming		
BI-ACM4	<u> </u>	ing Practices 4	BI-AND.21	Programming for the Android Oper		BI-CS1		Programming		
BI-PJV	Programm	ing in Java	BI-PJS.1	JavaScript Programming		BI-KOT		Programing in	Kotlin	
NI-PSL	0	ing in Scala	BI-PMA	Programming in Mathematica		BI-PHP.1		Programing in		
BI-PS2	Programm	ing in shell 2	NI-PDD	Data Preprocessing		BI-PKM		Introduction to	mathematics	
NI-REV	Reverse E	ngineering	BI-SCE1	Computer Engineering Seminar I		BI-SCE2		Computer Eng	gineering Semi	nar II
BI-ST1	Network Te	echnology 1	BI-ST2	Network Technology 2		BI-ST3		Network Tech	nology 3	
BI-ST4	Network Te	echnology 4	BI-SKJ.21	Scripting Languages		BI-SOJ		Machine Orier	nted Language	s

BI-ANG1	English Lar	guage Examination wit	BIE-EEC	English language external certif .		1 BI-ANG		English Lang	juage, Internal	Certi
BI-ZH	(A.21	Zko	uška z angli tiny 2021		Max	1 cours.	Min/Ma 2/4	ax		PJ
					Min	. cours.				
BI-3DT.1	3D Printing					-				
BI-ZNF	PHP Frame	work Nette - basics	BI-IOS	Fundamentals of iOS Application		BI-ZWU		Introduction t	to Web and Us	er Int
BI-ZS30	Bachelor in	ternship abroad for 3	BI-ZIVS	Intelligent Embedded System Fu	nd	BI-ZPI		Process engineering		
NI-VYC	Computabil	ity	BI-ZS10	Bachelor internship abroad for 1		BI-ZS20		Bachelor internship abroad for 2		
BI-VR2	Virtual reali	ty II	BI-VAK.21	Selected Applications of Combinations	a	BI-VMM		Selected Mat	Selected Mathematical Methods	
NI-VCC	Virtualizatio	on and Cloud Computi	BI-VHS	Virtual game worlds		BI-VR1		Virtual reality I		
BI-KSA	Cultural and	d Social Anthropology	BI-ULI	Introduction to Linux		BI-OPT		Introduction to Optical Networks		
BI-CCN	Compiler C	onstruction	BI-TEX	TeX and Typography		BI-EHD		Introduction t	to European Eo	conomi
NI-TSP	Testing and	Reliability	BI-QUA	Quality Assurance		FI-TOP		Academic wr	iting	
BI-TS3	Theoretical	Seminar III	BI-TS4	Theoretical Seminar IV		BI-TDA		Test driven a	rchitecture	
TVKZV	Physical Ec	lucation Course	BI-TS1	Theoretical Seminar I		BI-TS2		Theoretical S	Seminar II	
TV2	Physical Ec	lucation	TV2K1	Physical Education 2		TVKLV		Physical Edu	cation Course	
TVV	Physical ed	ucation	TV1	Physical Education		TVV0		Physical edu	cation	
BI-GIT	Version cor	trol system GIT	BIE-SEG	Systems Engineering		TVK1		Physical Edu	ication	
FIT-SEP	World Ecor	omy and Business	BI-SEP	World Economy and Business		NI-SYP		Parsing and	Compilers	

List of courses of this pass:

Code	Name of the course	Completion	Credits
BI-3DT.1	3D Printing	KZ	4
BI-A2L	English language, preparation for the B2 level exam	Z	2
The content of the cour	rse corresponds to the preparation for the English exam at the B2 level. Requirements for course credit. Academic Achievemer	nt - students are due	to: -Take an
	uage instructionMeet the requirements for writing assignments - Summary, Abstract, Argumentation PaperSucceed in both		
tests with the success r	ate set at 70%80% and over in BOTH tests means ORAL EXAM ONLY (no written part). Requirements will be specified by in	ndividual teachers du	iring the first
	class of the term.		
BI-AAG.21	Automata and Grammars	Z,ZK	5
Students are introduced	d to basic theoretical and implementation principles of the following topics: construction, use and mutual transformations of finit	e automata, regular e	, expressions,
and regular grammars,	context-free grammars, construction and use of pushdown automata, and translation grammars and transducers. They know t	he hierarchy of forma	al languages
and they ur	nderstand the relationships between formal languages and automata. They are introduced to the Turing machine and complexi	ty classes P and NP.	
BI-ACM	Programming Practices 1	KZ	5
	This is a selective course for preparing talented student for representation in international programming contests.		
BI-ACM2	Programming Practices 2	KZ	5
	This is a selective course for preparing talented student for representation in international programming contests.	1	
BI-ACM3	Programming Practices 3	KZ	5
	This is a selective course for preparing talented student for representation in international programming contests.	1	1
BI-ACM4	Programming Practices 4	KZ	5
	This is a selective course for preparing talented student for representation in international programming contests.	1	
BI-ADW.1	Windows Administration	Z,ZK	4
I	This course is presented in Czech. However, there is an English variant in the program Informatics (B1801 / 4753).	1 ,	1
BI-AG1.21	Algorithms and Graphs 1	Z,ZK	5
The course covers th	e basics of efficient algorithm design, data structures, and graph theory, belonging to the core knowledge of every computing (curriculum. It links an	d partially
develops the knowledg	ge from the course BI-DML.21, in which students acquire the knowledge and skills in combinatorics necessary for evaluating the	ne time and space co	mplexity of
algorithm	ns. The course also follows up knowledge from BI-MA1.21, the practical usage of asymptotic mathematics, in particular, the as	ymptotic notation.	
BI-ALO	Algebra and Logic	Z,ZK	4
	The course extends and deepens the study of topics touched upon in the basic course in logic.		•
BI-AND.21	Programming for the Android Operating System	KZ	4
	This course is presented in Czech.		
BI-ANG	English Language, Internal Certificate	ZK	2
	Course information and teaching materials can be found at https://moodle-vyuka.cvut.cz/course/search.php?search=BI-A	NG	
BI-ANG1	English Language Examination without Preparatory Courses	Z,ZK	2
BI-ANGK	English language, contact preparation for the B2 level exam	Z	2
The content of the cour	rse corresponds to the preparation for the English exam at the B2 level. Requirements for course credit. Academic Achievemer	nt - students are due	to: -Take an
active part in the lang	uage instructionMeet the requirements for writing assignments - Summary, Abstract, Argumentation PaperSucceed in both	the midterm and the	e final term
tests with the success r	ate set at 70%80% and over in BOTH tests means ORAL EXAM ONLY (no written part). Requirements will be specified by in class of the term.	ndividual teachers du	iring the first
BI-APJ	Aplication Programming in Java	Z,ZK	4

BI-ARD	Interactive applications on Arduino	KZ	4
The subject is desig	ned for students of first grade of bachelor study as introduction to embedded systems. Students will learn how to design simple applicat	ions for modern pro	grammable
kits and control va	ried peripherals with help of available libraries. The goal of the subject is to show varied software approaches to control embedded s	ystems, i.e. to see	the results
not only on displa	y of a PC. Thanks to possible control on higher (objective) layer, this platform is frequently used for artist performance and therefore	is suitable even for	Web and
	Software Engineering students.		
BI-AVI.21	Algorithms visually	Z,ZK	4
	ments other algorithm courses at FIT. It brings knowledge about particular important algorithms from different fields of the computer sc		
knowledge presente	ed in BI-AG1 and BI-AG2. A wide scope of covered subject is made possible due to using visualization bz Algovision (www.algovision.org&l	t;http://www.algovis	ion.org>)
	that make understanding the principles of algorithms easy.		
BI-BAP.21	Bachelor Thesis	Z	14
BI-BLE	Blender	Z,ZK	4
The course exten	ds knowledge of opensource program Blender from BI-MGA (Multimedia and Graphics Applications) course. It is intended for those i	nterested in 3D gra	aphics and
animation. It o	ffers a complete and practically oriented introduction to Blender environment. Students may continue to BI-PGA (Programming graph	nics applications) c	ourse.
BI-BPR.21	Bachelor project	Z	1
1. At the beginnin	g of the semester, the student reserves the topic of the bachelor's thesis and connects with the supervisor. He / she will arrange the I	partial tasks that he	e / she will
perform during the	semester to process the assignment. If he completes these tasks, the supervisor will award him a credit from the subject BI-BPR at t	he end of the seme	ester. 2. The
	enters the information on granting the credit using the form "Granting credit from the external supervisor of the final thesis" (http://fit.cvu		
-	signed form must be delivered in person or by email to the SZZ coordinator, who will arrange for the credit to be granted. 3. If the top		
has reserved is forr	nulated more generally, the tasks assigned to him by the supervisor for the semester should be aimed primarily at fine-tuning the assig	gnment so that the	assignment
	can be supplemented and approved at the end of the semester.		
BI-CCN	Compiler Construction	Z,ZK	5
	actory class on compiler construction for bachelor students in computer science. The goal of the class is to introduce basic principles		
	nd the design and implementation of programming languages. Seeing and actually understanding self-compilation is the overarching	theme of the class	3.
BI-CS1	Programming in C#	KZ	4
The goal of the cou	urse is to introduce .NET Framework as a multi-language development platform. Then, programming language C#, its fundamental co	onstruction, types o	of variables,
operators, arrays	s, loops, definitions and calls of functions will be discussed. Attention is focused on the object oriented programming in C# - class def	inition and class in	stancing,
constructors, meth	ods, properties, static members, Garbage Collector, inheritance and polymorphism, collections, delegates, and generics. Debugging	and exception pro	cessing, as
	well as work with files are emphasized.		
BI-CS2	C# language and data access	KZ	4
The C# language a	and data access course objective is to introduce students several data access technologies - database, XML, NoSQL - on the Micros	oft platform. The st	tudents will
get to know object	s used to retrieve data - Connection, Command, Data Reader and DataAdapter v ADO.NET. Next, they will learn to use current tech	nologies such as Ll	INQ - a set
of features for que	rying and updating data, integrated directly with the .NET platform languages, which enable LINQ use with Objects, XML and SQL (L	INQ to Objects, LI	NQ to XML
). Another objective is the Entity Framework - an object-relational mapper that enables .NET developers to work with relational data ι		-
(ORM). This part of	f the course introduces Code First, Database First, Model First approaches. The students will also get to know the Conceptual Model	, Storage Model ar	nd Mapping
	(XML description).		
BI-CS3	Language C# - design of web applications	KZ	4
The students will be	introduced to current technologies in web application development on the .NET platform. They will acquire a comprehensive overview of	of the development	possibilities
	on thisplatform. They will learn to create WebAPI and to use it by client programs.	I	
BI-DBS.21	Database Systems	Z,ZK	5
	oduced to the database engine architecture and typical user roles. They are briefly introduced to various database models. They lear	-	
	constraints) using a conceptual model and implement them in a relational database engine. They get a hands-on experience with the	00,	
	ation - the relational database model. They learn the principles of normalizing a relational database schema. They understand the funda	-	
	ling parallel user access to a single data source, as well as recovering a database engine from a failure. They are briefly introduced t		-
In relational databa	ases with respect to speed of access to large quantities of data. This introductory-level course does not cover: Administration of datal optimizing database applications, distributed database systems, data stores.	base systems, deb	ugging and
		7 71/	-
BI-DML.21	Discrete Mathematics and Logic	Z,ZK	5
	equainted with the basic concepts of propositional logic and predicate logic and learn to work with their laws. Necessary concepts fro		
Special attention is	paid to relations, their general properties, and their types, especially functional relations, equivalences, and partial orders. The cours	e also lays down tr	ne basics of
	combinatorics and number theory, with emphasis on modular arithmetics.	7 71/	
BI-EHD	Introduction to European Economic History	Z,ZK	3
	This course is presented in Czech. However, there is an English variant in the program Informatics (B1801 / 4753).		
BI-EJA	Enterprise Java	Z,ZK	4
I ne course is on a	dvanced technologies in the Java programming language. The focus is on technologies for development of enterprise information system of the superior of the su	stems which are co	onnected to
	a database and are accessed through the web interface.		
BI-EJK	Enterprise Java and Kotlin	Z,ZK	4
The course is on ac	dvanced technologies in the Java and Kotlin programming languages. The focus is on technologies for developing enterprise informat	ion systems with m	nicroservice
	architecture, that can be deployed to the cloud.		
BI-EP1.24	Effective programming 1	KZ	4
	The course is taught in Czech.	· '	
BI-EP2	Efficient Programming 2	KZ	4
Continuation of Ef	ficient Programming 1. Students will practice implementation of algorithms by solving typical problems. Various ways of solving indivi-	dual problems are	discussed,
	with the aim to choose the best one and avoid implementation errors.	······································	
BI-FMU	Financial and Management Accounting	Z,ZK	5
	rse is explanation of basic terms in the theory of accounting, the principles of balancing the property amounts and liabilities in the pa	-	
	unts and accounting statements including opening and closing of bookkeeping. The course provides students with a legal modification		
of economic oper	ations based on current methods of double-entry bookkeeping for enterprising subjects in the Czech Republic. Principles of manage	ment accounting a	re base of
,	Business Inteligence moduls in Business information systems.	·	
BI-GIT	Version control system GIT	KZ	2
	troduced to basic principles of version control systems. These principles will be then shown on DCVS Git both theoretically and pract		
even the ir	mplementation details will be shown. Students will be challenged to use Git as users, project managers, team leaders as well as Git s	server administrato	rs.

The source a amed are of the ruthermal men share development technology - version control. The prior a specific we call insidue: a during to General specific we call insidue in the specific metal specific we call insidue in the specific metal specific we call insidue: a during to General specific we call insidue: a during to General specific we call insidue in the specific metal specific we call insidue in the specific metal specific we call insidue in the specific we call insidue in the specific metal specific we call insidue in the specific we	BI-GIT.21	SW Development Technologies	Z	3
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Kattin is motorin, statically value compliant and allows for mide points: their servers or stating parts within a way, and configures with the development of a motorin, object-furning way with minimum of boline place code, Last but not leas, Ratio in susual to for designing of DSL (Donain-Specific Language). BHXSA Cultural and Social Anthropology ZK 2 The one sensestire course aline to acquaint students with the basics of social and cultural intropology as a solentific discipline designing of DSL (Donain-Specific Language). Well ZKK 5 BHXSA Cultural and cultural intropology ZKK 5 We will introduce students to the basic concepts of linear algebra, such as wordser, matrices, well or gauses. ZZK 5 We will introduce students to the basic concepts of linear algebra, such as wordser, matrices, well and team to software students or the long sequence will be development or the cascasse in the origonal security of matrices and learn to find their inversions using GEM. We will all be the regulatery of matrices and learn to find their inversions using GEM. We will all be an exact social intropolity and security of the secure concepts in compart science. EI-LA22 ZZK 5 BHAMA 21 Linear Algebra 1 Linear Algebra 2 ZZK 5 BHAMA 21 Linear Algebra 1 Linear Algebra 2 ZZK 5 BHAMA 21 Linear Algebra 1 Linear Algebra 2				
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BI-MPP.21 Methods of interfacing peripheral devices Z,ZK 5 The course is focused on methods for interfacing of peripheral devices. Interfacing of real peripheral devices is focused on techniques based on Universal serial bus (USB). The course includes both PC side and peripheral devices side. Labs are practically oriented. Students gain experience with implementation of relevant parts of USB devices, Linux and Windows drivers, simple application development, and APIs of selected devices. BI-MVT.21 Modern Visualisation Technologies Z,ZK 5 The goal of the course is to give an overview of modern visualization technologies and their principles, namely technologies related to virtual and augmented reality, visualization on high resolution displays (e.g., SAGE and video mapping) and their applications in practice. Several lectures deal with the content creation for the mentioned technologies, namely fractal and procedural visualization, scientific data visualization, and 3D model scanning. Z,ZK 4 BI-OPT Introduction to Optical Networks Z,ZK 4 Students get basic overview of optical networking technology with the emphasis on practical utilization in Internet and in network infrastructures, on possible problems with deployment of optical network technology and on their solutions. The course will include the history of optical communications, an overview of passive components (optical fibres, multiplexors,	BI-IVIIVIP		KZ	4
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ultrastable frequency transfer, or sensor networks. The labs will focus on real work with optical components and on measurement of their parameters. Students will solve real	tasks
from practice.	
BI-ORL Operations Research and Linear Programming KZ KZ He subject aims to introduce students to the issues of operational research and primarily to the practical application of linear programming as a fundamental optimization tect	5 hnique
Operational research primarily focuses on the use of engineering methods (with a mathematical background) to solve practical problems (such as management).	iniquo.
BI-OSY.21 Operating Systems Z,ZK	5
In this course that is a follow-up of the Unix-like operating systems course students deepen their knowledge in areas of OS kernels, process and thread implementations, race con	
critical regions, thread scheduling, shared resource allocation and deadlocks, management of virtual memory and data storages, file systems, OS monitoring. They are able to and implement simple multithreaded applications. General principles are illustrated on operating systems Solaris, Linux, or MS Windows.	design
BI-PA1.21 Programming and Algorithmics 1 Z,ZK	7
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), expre	
statements, functions, concept of recursion. They learn to analyse simple cases of algorithm complexity. They know fundamental algorithms for searching, sorting, and manipute with linked lists and trees.	ulating
BI-PA2.21 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,	
table). They learn these skills using the C++ programming language and are introduced to all C++ features needed in object-oriented programming (e.g., template programming	ming,
copying/moving of objects, operator overloading, inheritance, polymorphism).	F
BI-PGA.21 Programming of Graphic Applications Z,ZK The course will present the possibilities of current professional open-source tools for image editing, video editing, 3D animation (GIMP, Blender) and their use for visualization of	5 specific
data (3D scenes, mathematical data). Emphasis will be placed on the possibilities of further enhancement of the presented software tools, both using built-in scripting language	•
by implementation of plugins.	
BI-PGR.21 Computer graphics programming Z,ZK	5
After attending this curse, students can program a simple interactive 3D graphical application like a computer game or scientific visualization, design the scene, add textures in geometric details and materials (like wall surface, wood, sky), and set up the lighting. At the same time, they understand the fundamental principles and terms used in computer game or scientific visualization.	
such as graphical pipeline, geometric transformations, or lighting model. They gain knowledge allowing orientation in computer graphics and representing solid fundamentals f	-
professional development, e.g., GPU programming and animations. They get used to techniques utilized in geometric modeling, modeling curves and surfaces, and scientific visua	lization.
BI-PHP.1 Programing in PHP KZ	4
The course is taught in Czech Main goal of the course is an introduction to PHP - language and technology. Students will learn also best practices and will use tool that ea development in PHP. The course is recommended for students of BIE-WSI-WI.2015 branch of study and do not have required knowledge to register for BIE-TWA.1. They sh	
register for this course in their 3rd semester of study.	iouiu
BI-PJS.1 JavaScript Programming KZ	4
Main goal of the course is an introduction to Javascript programming. Students will learn also best practices and will use tool that eases development in Javascript. The course is an introduction to Javascript programming.	
recommended for students of BIE-WSI-WI.2015 branch of study and do not have required knowledge to register for BIE-TWA.1. They should register for this course in their 4th se of study.	emester
BI-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).	
BI-PKM Introduction to mathematics Z This course is presented in Czech.	4
This course is presented in Czech. BI-PMA Programming in Mathematica Z,ZK	4
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BI-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		
are approached individually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the sarticles 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	-	
semester.		w ior cacir
BI-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		
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	s. The topics are ne	w for each
semester.		
BI-SEP World Economy and Business	Z,ZK	4
This course is presented in Czech. The course introduces students of technical university to the international business. It does that predominantly by co and key regions of world economy. Students get to know about different religions and cultures, necessary for doing business in diverse societies as well as i		
corruption and economic development, which are needed for the right investment decision. Seminars help to improve on the knowledge in the form of dis		
readings. It is advised to take bachelor level of this course BIE-SEP as a prerequisite.		marviolaar
BI-SKJ.21 Scripting Languages	Z,ZK	4
Students gain a general overview of available scripting languages, their syntax, semantics, programming style, data structures, pros and cons. In addition	· .	er insight
into shell and some other particular scripting languages and will get practical experience with shell script programming.		
BI-SOJ Machine Oriented Languages	Z,ZK	4
Students of the course will gain an ability to create their own programs in the assembly language of the most common PC platform focusing on optimal use		
and efficient cooperation of software with hardware. Next, there will be discussed x86 specifics of the majority of OSes from the application point of view line	ked to higher level la	anguages.
This knowledge will be used during reverse engineering, optimization, and evaluation of code security.	1/7	
BI-SP2.21 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	KZ	5 se project
However, in this follow-up, the functionality, testing, and documentation of the software system being developed will be emphasized. Students will work		
teacher, in the role of the team and project leader, regularly consults with the team (at the seminars) the formal as well as material aspects		
BI-SQL.1 Language SQL, advanced	KZ	4
Module is based on knowledge obtained in BI-DBS. Students become familiar with advanced relational and non-relational features of SQL language. In par	rticular stored progra	am unites,
triggers, recursive queries, OLAP support, object-relational constructions. Part of the course is dedicated to practical database optimization from the point of	f view of specialized	l database
structures like indexes, clusters, index-organized tables, and materialized views. as well as from the point of view query optimization. Execution plan and		-
will be discussed. Lectures will usually discuss SQL standard, but many features will be demonstrated on Oracle DBMS. Seminars are based on Orac	cle DBMS and parti	ally on
PostgreSQL.	7	
BI-ST1 Network Technology 1 The subject is oriented to providing the students basic information and practical skills from the area of digital and IP networks. The subject is acredited	Z	3
CCNA1 - R&S Introduction to Networks.		elacau -
BI-ST2 Network Technology 2	Z	3
This course is presented in Czech.	~	U U
This course is presented in Ozech.		
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BI-ST3 Network Technology 3	I-ST1 and BI-ST2 co	ourses will
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BI-TS1	Theoretical Seminar I	Z	4
	r is intended for students which want to come in deeper contact with contemporary theoretical computer science. It is mostly a classic		
	ally and concern themselves with interesting topics from the latest research in the area. Therefore, an integral part of the course is a other scholarly literature. The capacity is limited by the the potentials of the teachers of the seminar.	work with scientific	papers and
BI-TS2	Theoretical Seminar II	Z	4
	r is intended for students which want to come in deeper contact with contemporary theoretical computer science. It is mostly a classic	al reading group. T	
are treated individu	ally and concern themselves with interesting topics from the latest research in the area. Therefore, an integral part of the course is a	work with scientific	papers and
	other scholarly literature. The capacity is limited by the the potentials of the teachers of the seminar.	,	
BI-TS3	Theoretical Seminar III	Z	4
	r is intended for students which want to come in deeper contact with contemporary theoretical computer science. It is mostly a classic ally and concern themselves with interesting topics from the latest research in the area. Therefore, an integral part of the course is a	·	
	other scholarly literature. The capacity is limited by the the potentials of the teachers of the seminar.	work with scientine	papers and
BI-TS4	Theoretical Seminar IV	7	4
	r is intended for students which want to come in deeper contact with contemporary theoretical computer science. It is mostly a classic	. – .	•
are treated individu	ally and concern themselves with interesting topics from the latest research in the area. Therefore, an integral part of the course is a	work with scientific	papers and
	other scholarly literature. The capacity is limited by the the potentials of the teachers of the seminar.		
BI-TUR.21	User Interface Design	Z,ZK	5
-	asic overview of methods for designing and testing common user interfaces. They get experience to solve the problems where softw the user optimally, since the needs and characteristics of users are not taken into account during product development. Students ga	-	
communicate with	bring users into the development process to ensure optimal interface for them.		ethous that
BI-TZP.21	Technological Fundamentals of Computers	Z,ZK	5
	inted with the fundamentals of digital and analog circuits, as well as basic methods of analyzing them. Students learn how computer s	1 1 1	-
level. They are intr	oduced to the function of a transistor. They will understand why processors generate heat, why cooling is necessary, and how to redu	uce the consumptio	n; what the
limits to the maxim	num operating frequency are and how to raise them; why a computer bus needs to be terminated, what happens if it is not; how a cor	mputer power suppl	y looks like
	(in principle). In the labs, students model the behavior of basic electrical circuits in SW Mathematica.	7	
BI-ULI Students become	Introduction to Linux familiar with the basics of the Linux operating system using e-learning form. They learn to work with the command line and become	A familiar with basic of	2 commands
Olddenia become	and techniques of a Unix-like system. Topics can be studied first theoretically and then practically verified in a virtual machine (te		ommanas
BI-UOS.21	Unix-like Operating Systems	KZ	5
	systems represent a large family mostly open-source codes that kept bringing during the history of computers efficient innovative fu	Inctions of multiuse	r operating
	uters and their networks and clusters. The most popular OS today, Android, has a unix kernel. Students get overview of basic proper		
	eads, access rights and user identity, filters, or handling files in a file system. They learn to use practically these systems at the level		
BI-VAK.21	e to utilize powerful system tools that are available to users, but are also able to automatize routine agenda using the unix scripting in	Z	3
	Selected Applications of Combinatorics introduce students in an accessible form to various branches of theoretical computer science and combinatorics. In contrast to the b	·	-
	ions to theory. Together, we will first refresh the basic knowledge needed to design and analyze algorithms and introduce some basic		
with the active par	ticipation of students, we will focus on solving popular and easily formulated problems from various areas of (not only theoretical) info	ormatics. Areas fror	n which we
will select probler	ns to be solved will include, for example, graph theory, combinatorial and algorithmic game theory, approximation algorithms, optimiz	ation and more. Stu	udents will
51.1/10	also try to implement solutions to the studied problems with a special focus on the effective use of existing tools.	71/	
BI-VHS	Virtual game worlds tudents to create a complex virtual world. The course is a continuation of basic graphical courses (MGA, PGR, BLE,). This current stud	ZK ZK	4 urthormoro
	the theory of game design, principles of writing dialogues and characters in order to create a functional and complex virtual world. T	-	
, ,	the course MI-PVR with the task of converting scenes and their dynamics into a fully virtual environment suitable for VR devi		,
BI-VHS.21	Virtual game worlds	Z,ZK	5
	nts learn methods to create a complex virtual world. It is a follow-up course of basic courses of the PG specialization (BIE-MGA, BIE-F	, .	
of the theory of gan	ne design, of principles of writing dialogues and characters in order to create a functional virtual world. Within the labs they get practical	l skills within team d	evelopment
BI-VMM	work on the semester project. Selected Mathematical Methods	Z,ZK	4
	s with an introduction to the analysis of complex functions of a complex variable. Next, we present the Lebesgue integral. We then ac	1 1	
	r, we introduce and study the properties of the Discrete Fourier Transform (DFT) and its fast implementation (FFT). We discuss the w		
	he linear programming problem in more detail and its solution using the Simplex algorithm. Each topic is demonstrated with interesting		
BI-VR1	Virtual reality I	KZ	4
	al Reality (VR), virtual reality operating system and virtual reality creation. Another objective is to meet the rules and requirements o		
The course focus	es on the ways of teaching using virtual reality technologies and interactive activities in educational virtual 3D worlds. It improves cor	nputational thinking	, empathy
BI-VR2	and shared social activities. Virtual reality II	KZ	3
	course Virtual Reality I. The new course focuses on collaborative telepresence, spatial computing and social life of avatars. The objet	1 1	
	for computer science and gamification in various social metaverse and desktop engines.		approductio
BI-ZIVS	Intelligent Embedded System Fundamentals	KZ	4
Intelligent embedd	ed system fundamentals course is focused on high-level technology embedded systems integrating artificial intelligence. The aim of	the course is to tea	ch students
	robot control and development of applications in a graphical development environment. Lectures provide fundamentals of motion control and development tools in a graphical because a set of basis took by using the robot simulator and real backware to get		
milenaces, robot ha	avigation and development tools. In labs, students program a set of basic task by using the robot simulator and real hardware to get technologies.	practical experience	wiur these
BI-ZNF	PHP Framework Nette - basics	КZ	3
	he basics of PHP framework Nette. They will learn how to practically work with MVP architecture and various libraries of this Czech po	1 1	-
	knowledge should serve for the efficient creation of a web backend in PHP language.		
BI-ZPI	Process engineering	KZ	4
	fundamentals of process engineering in this subject. Students will get necessary foundations for understanding formal principles of process and the state of the	-	-
	used notations (UML, BPMN, BORM). The focus in this subject lies in training of practical skills of formalisation and modelling of bus	-	-
	le of process engineering for information systems development is discussed as well as its importance in the overall context of inform	auon and Dusiness	sualegy of
	an enterprise.		

BI-ZS10	Bachelor internship abroad for 10 credits	Z	10
	n once within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scientific and/or re		
	an of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of the professional content. The student must provide evidence of the professional content. The student must provide evidence of the professional content. The student must provide evidence of the professional content.		
	y courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Every 10 credits corr a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can be divided int	-	
	exceeds the academic year's dead-line.		ointornomp
BI-ZS20	Bachelor internship abroad for 20 credits	Z	20
	n once within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scientific and/or re	search institution.	Before the
internship the De	an of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of the profession	nal content and ex	tent of the
	y courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Every 10 credits corr	-	
employment with a	a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can be divided int	o two subjects if the	e internship
DI 7920	exceeds the academic year's dead-line.	Z	30
BI-ZS30	Bachelor internship abroad for 30 credits n once within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scientific and/or re	–	
	an of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of the professional content.		
	y courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Every 10 credits corr		
employment with a	a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can be divided int	o two subjects if th	e internship
	exceeds the academic year's dead-line.		
BI-ZWU	Introduction to Web and User Interfaces	Z,ZK	4
	This course is presented in Czech.		
BIE-CSI	Introduction to Computer Science	Z	2
	tory class on Elementary Computer Science for broad audiences: bachelor students in computer science, students majoring in other fie ool students, anybody with a background in basic math and the desire to understand the absolute basics of computer science. The go		
-	principles of computer science for students to understand, early on, what computer science is, why things such as high-level programmer and the desire to understand the absolute basics of computer science for students to understand, early on, what computer science is, why things such as high-level programmer and the desire to understand the absolute basics of computer science and the absolute basics of computer science is a science of the science is a science and the absolute basics of computer science is a		
	y are, and even how, on a basic yet representative and practically relevant level. After taking the class, students are able to answer no	0 0 0	
questions but also	questions about themselves such as which courses to take next and which books to follow up with, ideally realizing if they are interest	sted in computer sc	ience more
	than expected, or even less than before.		
BIE-DIF	Differential equations	Z,ZK	5
	es a foundational overview of differential equations, starting with basic motivation and examples of ODEs and progressing to essential so		-
	theorems on existence and uniqueness establish when solutions can be guaranteed. Linear and system-based ODEs are covered wit ysis, followed by examples of non-linear models such as predator-prey and epidemiological models to showcase real-world applicatior		
	I equations (PDEs) extends these concepts to multi-variable contexts. The course will also cover numerical methods for solving ODEs		
	and explicit Euler methods, Runge-Kutta methods, and finite element methods for both ODEs and PDEs.		ing implicit
BIE-EEC	English language external certificate	Z	4
	se can be recognized for any active semester after the submission of a certificate certificate that demonstrates their proficiency in Englis	sh comparable to o	r exceeding
	the B2 level of the Common European Framework of Reference for Languages.		
BIE-IMA2	Introduction to Mathematics 2	Z	2
Students refresh a	and extend knowledge of elementary functions and their properties. Students understand basic mathematical principles and they are a	ble to apply them i	in particular
	examples.		
BIE-SEG	Systems Engineering tory class on systems engineering for bachelor students in computer science. The goal of the class is to introduce basic principles of o	Z Z	0 for students
	cessor and memory virtualization. Seeing and actually understanding virtualization is the overarching theme of the class. After taking		
	difference between processes and threads as well as emulation and virtualization, what virtual memory is and how it works, what cor		
	parallelism, and how processes and threads synchronize efficiently to overcome concurrency for communication.		
BIE-ZUM	Artificial Intelligence Fundamentals	Z,ZK	4
	duced to the fundamental problems in the Artificial Intelligence, and the basic methods for their solving. It focuses mainly on the classical		
space search, mul	ti-agent systems, game theory, planning, and machine learning. Modern soft-computing methods, including the evolutionary algorithm	s and the neural ne	etworks, will
	be presented as well.	7	0
FI-TOP	Academic writing about obtaining research activity. It is not only about obtaining research results but also about applying them in the form of the fo	Z Z	2 na scientific
-	be useful for students not only in their own publishing activities but also in the preparation of a bachelor's or master's thesis. In the cou	-	-
	ticle, what parts such an article should have, and how the peer review process works. Students will also try their hand at presenting an		
else's article. The	course will be taught in blocks, with one lecture at the beginning of the semester and one practicum in the middle of the semester. Date the semester of the semester and one practicum in the middle of the semester.	ates will be determi	ined based
	on the availability of enrolled students.		
FIT-SEP	World Economy and Business	Z,ZK	4
	esented in Czech. The course introduces students of technical university to the international business. It does that predominantly by co		
	world economy. Students get to know about different religions and cultures, necessary for doing business in diverse societies as well as pnomic development, which are needed for the right investment decision. Seminars help to improve on the knowledge in the form of di		
	readings. It is advised to take bachelor level of this course BIE-SEP as a prerequisite.		
FITE-EHD	Introduction to European Economic History	Z,ZK	3
	luces a selection of themes from the European economic history. It gives the student basic knowledge about forming of the global eco		
	s in history. As European countries have been dominant actors in this process it focuses predominantly on their roles in the economic		
	npire to fragmentation of the Middle Ages, from destruction of WWII to the current affairs, the development of modern financial institution and a second relation of the development of modern financial institutions and a second relation of the development of th		
aces not cover de	etailed economic history of particular European countries but rather the impact of trade and role of particular events, institutions and c meetings will consist of a mixture of lecture and discussion.	rganizations in his	lory. Class
NI-AFP	Applied Functional Programming	KZ	5
	sented in Czech. Functional programming represents one of the traditional programming paradigms. Traditional and novel functional p	I I	
	s and the functional paradigm becomes an important construct of traditionally imperative languages (C++, C#, Java). As such, master		-
	necessary competence of a software engineer: the theory and especially the practice.	-	

Course focuses on	Distributed Data Mining	KZ	4	
	state-of-the-art approaches for distributed data mining and parallelization of machine learning algorithms. Students will gain hands of			
data processing framework Apache Spark and with existing distributed DM / ML algorithms. They will learn principles of their parallel implementations and will be capable to propose				
	approaches to parallelize other algorithms. The course is prezented in czech language.	7 71/		
NI-DSP	Database Systems in Practes This course is presented in Czech.	Z,ZK	4	
NI-DZO		Z,ZK	4	
	Digital Image Processing nts a comprehensive overview of modern methods for interactive editing of digital images and video. It mainly deals with practical al <u>c</u>	1 '	-	
-	e an interesting theoretical basis. Visually attractive applications provide better understanding of basic theoretical background that is all	-	-	
•	processing. This course will introduce algorithms solving the following practical applications: edge-aware editing, tone mapping, HDR			
frequency domain,	abstraction, hybrid images, gradient domain editing, seamless image stitching and cloning, digital photo-montage, color-to-gray conv	version, context en	hancement,	
interactive as-ri	gid-as-possible image deformation, free-form image registration, texture synthesis, interactive segmentation, colorization, painting, a	dding depth, alpha	matting.	
NI-IAM	Internet and Multimedia	Z,ZK	4	
	se is focused on principles and modern technologies for network transmissions of audiovisual (AV) signals. The syllabus includes acq			
	signals (output), network communication protocols, device interfaces, codecs, data formats and stereoscopy. We will look at practical u			
	nissions. Within the labs, students will practically assemble AV transmission chains using HW and SW technologies and verify the eff ncy of AV transmissions. Students will learn how to build Internet infrastructure for end-to-end AV transmissions from the recording th		-	
	for audience.		Diesentation	
NI-LSM	Statistical Modelling Lab	КZ	5	
	ented on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is p	1	1	
-	on and its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms, an			
	At this point, the subject is on the border of own research and may result in the topic of final work (diploma or bachelor thesi	is).		
NI-MOP	Modern Object-Oriented Programming in Pharo	KZ	4	
,	gramming is currently one of the most widespread paradigms of software creation, especially enterprise information systems, where			
	plex modern applications. In this course, we build on the knowledge acquired in the course BI-OOP and aim to further deepen the skills	• ·		
	in modern pure object system Pharo (https://pharo.org). The course focuses on individual approach to students, their development n			
-	ing object programming skills, which are generally applicable in other OO languages, students will also gain the opportunity to work or ms of semestral work with the possibility of cooperation with practice and related bachelor, diploma, postgraduate our direct involven			
NI-MPL	Managerial Psychology	ZK	2	
NI-MSI	Mathematical Structures in Computer Science	Z,ZK	4	
-	emantics of programming languages. Data types as continuous lattices, Scott topology. Procedures as continuous mappings. The Scot	1 '	1	
Mathomation	Introduction to category theory.		oulouido.	
NI-OLI	Linux Drivers	Z.ZK	4	
-	g system is an important operating system for personal computer and also for embedded systems. Systems on chip and combining po	1 '		
increase the vari	ability of peripheral subsystems requiring specific software drivers. This course is an advanced course in the Linux driver development	nt for master's stud	dents. The	
со	urse provides knowledge of Linux operating system architecture, principles of development of various types drivers, including practic	al experience.		
NI-PDD	Data Preprocessing	Z,ZK	5	
Students learn to p	repare raw data for further processing and analysis. They learn what algorithms can be used to extract information from various data s	sources, such as in	hages, texts,	
Students learn to p	repare raw data for further processing and analysis. They learn what algorithms can be used to extract information from various data s and learn the skills to apply these theoretical concepts to solve specific problems in individual projects - e.g., extraction of characteris	sources, such as in	hages, texts,	
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TV2K1	Physical Education 2	Z	1
TVK1	Physical Education	Z	1
TVKLV	Physical Education Course	Z	0
TVKZV	Physical Education Course	Z	0
TVV	Physical education	Z	0
TVV0	Physical education	Z	0

For updated information see <u>http://bilakniha.cvut.cz/en/FF.html</u> Generated: day 2025-06-16, time 19:18.