## Recomended pass through the study plan

## Name of the pass: Bachelor specialization Computer Networks and Internet, in Czech, 2021

Faculty/Institute/Others:

Department:

Pass through the study plan: Bachelor Specialization Computer Networks and Internet, 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 assesment, Z - assesment, ZK - examination, L - summer semester, Z - winter semester

	Number	of	semester:	1
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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.)	ΚZ	5	2P+2C	Z	PP
TV1	Physical Education	Z	0	0+2	Z	PT

Number of ser	mester: 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, Pemysl 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 <b>Tomáš</b> Kalvoda Tomáš Kalvoda (Gar.)	Z,ZK	5	2P+1R+1C	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-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
TV2	Physical Education	Z	0	0+2	L	PT
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

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 <b>Dušan</b> Knop Dušan Knop (Gar.)	Z,ZK	5	2P+2C	Z	PP
BI-AAG.21	Automata and Grammars Jan Janoušek, Jan Holub <b>Jan Holub</b> 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 <b>Tomáš</b> Kalvoda Tomáš Kalvoda (Gar.)	Z,ZK	6	3P+2C	Z	PP
BI-APS.21	Architectures of Computer Systems Pavel Tvrdík, Michal Štepanovský Michal Štepanovský Pavel Tvrdík (Gar.)	Z,ZK	5	2P+2C	Z	PS
BI-TPS.21	Computer Networks Technologies Vladimír Smotlacha, Josef Koumar Vladimír Smotlacha Vladimír Smotlacha (Gar.)	Z,ZK	5	2P+2S	Z	PS
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

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	<b>Operating Systems</b> Ladislav Vagner, Ji í Kašpar, Jan Trdli ka, Petr Zemánek, Pavel Tvrdík, Michal Štepanovský <b>Pavel Tvrdík</b> Michal Štepanovský (Gar.)	Z,ZK	5	2P+1R+1L	. L	PP
BI-ADU.21	Unix Administration Zden k Muziká, Petr Zemánek, Miroslav Prágl <b>Zden k Muziká</b> Zden k Muziká (Gar.)	Z,ZK	5	2P+2C	L	PS
BI-VDC.21	Virtualization and Data Centers Ji í Kašpar <b>Ji í Kašpar</b> Ji í Kašpar (Gar.)	Z,ZK	5	2P+2C	L	PS
BI-VPS.21	Selected Topics in Computer Networking Alexandru Moucha, Mohamed Bettaz Pavel Tvrdík Mohamed Bettaz (Gar.)	Z,ZK	5	2P+2C	L	PS
		Min. cours.				
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)	0 Max. cours. 94	Min/Max 0/404			V

Number of semes	Number of semester: 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, <b>authors</b> 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-IOT.21	Internet of Things Viktor erný, Lenka Kosková Tísková Lenka Kosková Tísková Lenka Kosková Tísková (Gar.)	Z,ZK	5	2P+2C	Z	PS
BI-SIP.21	<b>Network Programming</b> Jan Fesl <b>Jan Fesl</b> Jan Fesl (Gar.)	Z	5	2P+2C	Z	PS
BI-SPS.21	Administration of Computer Networks and Services Jan Kubr, Libor Dostálek Pavel Tvrdík Libor Dostálek (Gar.)	Z,ZK	5	2P+2S	Z	PS
		Min. cours.				
BLV 0004	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			
BI-V.2021		Max. cours.	0/404			V
		94				

Number of se	mester: 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	<b>Documentation and Presentation</b> Alena Libánská, Ond ej Guth, Petra Pavlí ková, Dana Vynikarová, Tomáš Nová ek <b>Dana Vynikarová</b> Dana Vynikarová (Gar.)	KZ	3	2P+2C	Z,L	PP
BI-PV-PS.21	Povinn volitelné p edm ty specializace po íta ové sít a Internet, verze 2021 BI-EHA.21,BI-MSI.21, (see the list of groups below)	Min. cours. 1 Max. cours. 3	Min/Max 5/15			PV
BI-ZKA.21	<b>Zkouška z angli tiny 2021</b> 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 o group (for specificati	f courses an on see here	d codes of members of this or below the list of courses	Cor	npletion	Credit	s Scope	Semester	Role	
BI-PV-F	PS.21	Povinn volitelné p	edm ty spe nternet, verz	cializace po íta ové sít a e 2021		. cours. 1 a. cours. 3	<b>Min/Ma</b> 5/15			PV	
BI-EHA.21	Ethical Ha	cking	BI-MSI.21	Mobile Networks		BI-ML2.2	21	Machine Lear	ning 2		
					Min	. cours.					
BI-V.2021 ist vol		ist volitelné p edm verze	ty bakalá ského programu Informatika,		Max	0 cours.	Min/Ma 0/404	-		v	
						94					
BI-ADW.1	Windows A	Administration	BI-ALO	Algebra and Logic	1	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 Programi	ming	
BIE-ZUM	Artificial In	telligence Fundamen	BI-BLE	Blender		NI-DSP		Database Sys	atabase Systems in Practes		
BI-STO	Storage an	nd Filesystems	NI-PSD	Public Services Design		BIE-DIF		Differential equations			
NI-DZO	Digital Ima	ge Processing	NI-DDM	Distributed Data Mining		BI-EP1.2	24	Effective prog	ramming 1		
BI-EP2	Efficient Pr	rogramming 2	BI-ANGK	English language, contact prepar .		BI-EJA		Enterprise Jav	/a		
BI-EJK	Enterprise	Java and Kotlin	BI-FMU	Financial and Management Accou	nt	BI-HAM		HW accelerate	ed network trat	fic m	
BI-HMI	History of I	Mathematics and Infor	BI-ARD	Interactive applications on Ardu		NI-IAM		Internet and N	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 app	۱	BI-SQL.		Language SQ	L, advanced		
BI-QAP	Quantum a	algorithms and programmi	NI-LSM	Statistical Modelling Lab		BI-HAS		Human Aspec	ts in Cryptogra	aphy an	
NI-MPL	Manageria	l Psychology	NI-MSI	Mathematical Structures in Compu	u BI-MPP		21	Methods of in	erfacing peripl	nera	

BI-MIT	Mikrotik te	chnologies	NI-MOP	Modern Object-Oriented Programm	ni	BI-MVT.2	1	Modern Visual	lisation Techno	ologie
BI-MMP	Multimedia	a team project	BI-ORL	Operations Research and Linear P	·	NI-OLI		Linux Drivers		
BI-ACM	Programm	ing Practices 1	FIT-ACM1	Programming Practices 1		FIT-ACM2	2	Programming Practices 2		
BI-ACM2	Programm	ing Practices 2	FIT-ACM3	Programming Practices 3		BI-ACM3		Programming	Practices 3	
FIT-ACM4	Programm	ing Practices 4	BI-ACM4	Programming Practices 4		FIT-ACM5	;	Programming Practices 5		
FIT-ACM6	Programm	ing Practices 6	BI-AND.21	Programming for the Android Oper	·	BI-CS1		Programming	in C#	
BI-PJV	Programm	ing in Java	BI-PJS.1	JavaScript Programming		BI-KOT		Programing in	Kotlin	
NI-PSL	Programm	ing in Scala	BI-PMA	Programming in Mathematica		BI-PHP.1		Programing in	PHP	
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	ineering Sem	inar II
BI-ST1	Network Te	echnology 1	BI-ST2	Network Technology 2		BI-ST3		Network Techr	nology 3	
BI-ST4	Network Te	echnology 4	BI-SKJ.21	Scripting Languages		BI-SOJ		Machine Orier	nted Language	s
FIT-SEP	World Eco	nomy and Business	BI-SEP	World Economy and Business		NI-SYP		Parsing and Compilers		
BI-GIT	Version co	ntrol system GIT	BIE-SEG	Systems Engineering		TVK1		Physical Education		
TVV	Physical e	ducation	TV1	Physical Education		TVV0		Physical education		
TV2	Physical E	ducation	TV2K1	Physical Education 2		TVKLV		Physical Education Course		
TVKZV	Physical E	ducation Course	BI-TS1	Theoretical Seminar I		BI-TS2		Theoretical Seminar II		
BI-TS3	Theoretica	I Seminar III	BI-TS4	Theoretical Seminar IV		BI-TDA		Test driven architecture		
NI-TSP	Testing an	d Reliability	BI-QUA	Quality Assurance		FI-TOP		Academic writing		
BI-CCN	Compiler (	Construction	BI-TEX	TeX and Typography		BI-EHD		Introduction to	European Ec	onomi
BI-KSA	Cultural ar	nd Social Anthropology	BI-ULI	Introduction to Linux		BI-OPT		Introduction to	Optical Netwo	orks
NI-VCC	Virtualizati	ion and Cloud Computi	BI-VHS	Virtual game worlds		BI-VR1		Virtual reality		
BI-VR2	Virtual rea	lity II	BI-VAK.21	Selected Applications of Combina		BI-VMM		Selected Math	ematical Meth	iods
NI-VYC	Computab	ility	BI-ZS10	Bachelor internship abroad for 1		BI-ZS20		Bachelor inter	nship abroad f	or 2
BI-ZS30		nternship abroad for 3	BI-ZIVS	Intelligent Embedded System Fund	d b	BI-ZPI		Process engin	0	
BI-ZNF	PHP Fram	ework Nette - basics	BI-IOS	Fundamentals of iOS Application		BI-ZWU		Introduction to	Web and Use	er Int
BI-3DT.1	3D Printing	g								
BI-Zł	(A.21	Zko	uška z angli	tiny 2021		cours. 1 . cours. 1	<b>Min/M</b> 2/4	ax		PJ
BI-ANG1	English La	nguage Examination wit	BIE-EEC	English language external certif		BI-ANG		English Langu	age, Internal (	Certi
				•						

## 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	course corresponds to the preparation for the English exam at the B2 level. Requirements for course credit. Academic Achievement	students are due	to: -Take an
active part in the	language instruction Meet the requirements for writing assignments - Summary, Abstract, Argumentation Paper Succeed in both the	ne midterm and the	e final term
tests with the succ	ess rate set at 70%80% and over in BOTH tests means ORAL EXAM ONLY (no written part). Requirements will be specified by indi	ividual teachers du	ring the first
	class of the term.		
BI-AAG.21	Automata and Grammars	Z,ZK	5
Students are introc	uced to basic theoretical and implementation principles of the following topics: construction, use and mutual transformations of finite a	automata, regular e	expressions,
and regular gramm	nars, context-free grammars, construction and use of pushdown automata, and translation grammars and transducers. They know the	hierarchy of forma	al languages
and the	ey understand the relationships between formal languages and automata. They are introduced to the Turing machine and complexity	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.		I
BI-ACM2	Programming Practices 2	KZ	5
	This is a selective course for preparing talented student for representation in international programming contests.	1	I
BI-ACM3	Programming Practices 3	KZ	5
	This is a selective course for preparing talented student for representation in international programming contests.	I	I
BI-ACM4	Programming Practices 4	KZ	5
	This is a selective course for preparing talented student for representation in international programming contests.	1	I
BI-ADU.21	Unix Administration	Z,ZK	5
Students will learn	the internal structure of the UNIX operating system, with the administration of its basic subsystems and with the security principles. They		differences
between user and	administrator roles. They will get theoretical and practical knowledge of user management and administration, of users access rights,	file systems, disk s	subsystems,
processes, memo	ory, network services and remote access, and in the areas of system deployment and virtualization. In the labs, they will verify the known specific examples from practice.	owledge from the le	ectures on
BI-ADW.1	Windows Administration	Z,ZK	4
	This course is presented in Czech. However, there is an English variant in the program Informatics (B1801 / 4753).		1

BI-AG1.21	Algorithms and Graphs 1	Z,ZK	5
1	s the basics of efficient algorithm design, data structures, and graph theory, belonging to the core knowledge of every computing cur		-
	ledge from the course BI-DML.21, in which students acquire the knowledge and skills in combinatorics necessary for evaluating the		
-		-	inplexity of
	rithms. The course also follows up knowledge from BI-MA1.21, the practical usage of asymptotic mathematics, in particular, the asym		
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
1	This course is presented in Czech.		1
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-AN		
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	course corresponds to the preparation for the English exam at the B2 level. Requirements for course credit. Academic Achievement	students are due	to: -Take an
active part in the la	anguage instructionMeet the requirements for writing assignments - Summary, Abstract, Argumentation PaperSucceed in both th	e midterm and the	e final term
tests with the succe	ess rate set at 70%80% and over in BOTH tests means ORAL EXAM ONLY (no written part). Requirements will be specified by indiv	vidual teachers du	ring the first
	class of the term.		
BI-APJ	Aplication Programming in Java	Z,ZK	4
BIANO	This course is presented in Czech. Advanced technologies in Java.	2,213	1 -
		7 71/	
BI-APS.21	Architectures of Computer Systems	Z,ZK	5
	n the construction principles of internal architecture of computers with universal processors at the level of machine instructions. Spec		
pipelined instruction	n processing and on the memory hierarchy. Students will understand the basic concepts of RISC and CISC architectures and the princ	iples of instruction	n 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 mo	odel of the
program. The cours	e further elaborates the principles and architectures of shared memory multiprocessor and multicore systems and the memory coher	rence and consiste	ency in such
	systems.		
BI-ARD	Interactive applications on Arduino	KZ	4
	ned for students of first grade of bachelor study as introduction to embedded systems. Students will learn how to design simple applicati		ogrammable
	ried peripherals with help of available libraries. The goal of the subject is to show varied software approaches to control embedded sy		-
	y of a PC. Thanks to possible control on higher (objective) layer, this platform is frequently used for artist performance and therefore i		
not only on displa			i web and
51.01/1.04	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	d 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	;http://www.algovis	sion.org>)
	that make understanding the principles of algorithms easy.		
BI-BAP.21	Bachelor Thesis	Z	14
		4	
BI-BI F	Blender		
BI-BLE	Blender	Z,ZK	4
The course extend	ds knowledge of opensource program Blender from BI-MGA (Multimedia and Graphics Applications) course. It is intended for those in	Z,ZK nterested in 3D gra	4 aphics and
The course extend animation. It o	ds knowledge of opensource program Blender from BI-MGA (Multimedia and Graphics Applications) course. It is intended for those in ffers a complete and practically oriented introduction to Blender environment. Students may continue to BI-PGA (Programming graph	Z,ZK nterested in 3D gra nics applications) o	4 aphics and course.
The course extend animation. It o BI-BPR.21	ds knowledge of opensource program Blender from BI-MGA (Multimedia and Graphics Applications) course. It is intended for those in ffers a complete and practically oriented introduction to Blender environment. Students may continue to BI-PGA (Programming graph Bachelor project	Z,ZK nterested in 3D gra nics applications) o Z	4 aphics and course.
The course extend animation. It o BI-BPR.21 1. At the beginning	ds knowledge of opensource program Blender from BI-MGA (Multimedia and Graphics Applications) course. It is intended for those in ffers a complete and practically oriented introduction to Blender environment. Students may continue to BI-PGA (Programming graph Bachelor project g of the semester, the student reserves the topic of the bachelor's thesis and connects with the supervisor. He / she will arrange the p	Z,ZK nterested in 3D gra nics applications) of Z partial tasks that h	4 aphics and course. 1 e / she will
The course extend animation. It of BI-BPR.21 1. At the beginning perform during the s	ds knowledge of opensource program Blender from BI-MGA (Multimedia and Graphics Applications) course. It is intended for those if ffers a complete and practically oriented introduction to Blender environment. Students may continue to BI-PGA (Programming graph Bachelor project g of the semester, the student reserves the topic of the bachelor's thesis and connects with the supervisor. He / she will arrange the programmes the assignment. If he completes these tasks, the supervisor will award him a credit from the subject BI-BRR at the supervisor.	Z,ZK nterested in 3D gra nics applications) of Z partial tasks that h ne end of the sem	4 aphics and course. 1 e / she will ester. 2. The
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Students will get acquainted with the basic concepts of propositional logic and predicate logic and learn to work with their laws. Necessary concepts from set theory will be exp	5
	lained.
Special attention is paid to relations, their general properties, and their types, especially functional relations, equivalences, and partial orders. The course also lays down the ba	sics of
combinatorics and number theory, with emphasis on modular arithmetics.	
BI-EHA.21 Ethical Hacking Z,ZK	5
The goal of the course is to introduce students to the field of penetration testing and ethical hacking. The course deals with cybersecurity threats, vulnerabilities, and their pos	
exploitation in computer networks, web applications, wireless networks, operating systems, and others like the Internet of Things or cloud. The focus is on hands-on experience vulnerabilities testing and the following process of penetration test documentation.	e with
	3
BI-EHD Introduction to European Economic History Z,ZK This course is presented in Czech. However, there is an English variant in the program Informatics (B1801 / 4753).	ა
BI-EJA Enterprise Java Z,ZK	4
The course is on advanced technologies in the Java programming language. The focus is on technologies for development of enterprise information systems which are connect	•
a database and are accessed through the web interface.	100 10
BI-EJK Enterprise Java and Kotlin Z,ZK	4
The course is on advanced technologies in the Java and Kotlin programming languages. The focus is on technologies for developing enterprise information systems with micros	·
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 Efficient Programming 1. Students will practice implementation of algorithms by solving typical problems. Various ways of solving individual problems are discu	ssed,
with the aim to choose the best one and avoid implementation errors.	
BI-FMU Financial and Management Accounting Z,ZK	5
The aim of the course is explanation of basic terms in the theory of accounting, the principles of balancing the property amounts and liabilities in the particular accounting oper	ations,
operations in accounts and accounting statements including opening and closing of bookkeeping. The course provides students with a legal modification of bookkeeping, desc	ription
of economic operations based on current methods of double-entry bookkeeping for enterprising subjects in the Czech Republic. Principles of management accounting are ba	se of
Business Inteligence moduls in Business information systems.	
BI-GIT Version control system GIT KZ	2
Students will be introduced to basic principles of version control systems. These principles will be then shown on DCVS Git both theoretically and practically. In this particular s	ystem
even the implementation details will be shown. Students will be challenged to use Git as users, project managers, team leaders as well as Git server administrators.	
BI-GIT.21 SW Development Technologies Z	3
This course is aimed at one of the rudimental team software development technology - version control. To be more specific, we will introduce students to Git, the information matching the students of the rudimental team software development technology - version control. To be more specific, we will introduce students to Git, the information matching technology - version control. To be more specific, we will introduce students to Git, the information matching technology - version control. To be more specific, we will introduce students to Git, the information matching technology - version control.	anager
from hell, as Linus Torvalds nicknamed it, and provide a comprehensive guide into its depths, as well as for day-to-day use.	
BI-HAM HW accelerated network traffic monitoring KZ	4
This course introduces students to modern and widely used technologies and principles in the area of network infrastructure and traffic monitoring. The monitoring and analys	
network traffic are mandatory skills to network operators (planning and development of resources and infrastructure) and security analysts alike (as a source of information and	
for analysis). The goals of the course are to acquaint students with the modern trends and cornerstone principles in the area of monitoring network traffic on a hardware and so level and to develop their practical abilities in this field.	liware
BI-HAS Human Aspects in Cryptography and Security Z,ZK	5
This course is for students interested not only in technical scope of computer science, but also in making products usable - for users and for developers. Students of this course	-
use their gained knowledge to design, plan and analyse their own projects in the context of human-centered security.	e can
BI-HMI History of Mathematics and Informatics Z,ZK	3
This course is presented in Czech.	Ŭ
BI-IOS Fundamentals of iOS Application Development for iPhone and iPad KZ	4
This course is presented in Czech.	
BI-IOT.21 Internet of Things Z,ZK	5
The course focuses on an overview of technologies and development tools used in the field of the Internet of Things (IoT). Lectures are devoted to an overview of sensors and activity of the internet of Things (IoT).	uators,
wireless communication technologies designed primarily for this area, and appropriate programming methods. They include an overview of IoT architectures for different applic	cation
areas. Within the computer labs, students will gain practical experience with developing simple IoT systems using common development environments (hardware - ARM, ESP,	STM;
software - Arduino, Raspberry Pi OS).	
BI-KAB.21 Cryptography and Security Z,ZK	5
Students will understand the mathematical foundations of cryptography and gain an overview of current cryptographic algorithms. They will be able to use cryptographic keys	
certificates in systems based on them and learn the basics of safe use of symmetric and asymmetric cryptographic systems and hash functions in applications. Within labs, stu	udents
will gain practical skills in using standard cryptographic methods with an emphasis on security and will also get acquainted with the basic procedures of cryptanalysis.	
BI-KOT Programing in Kotlin Z,ZK	4
Kotlin is a modern, statically-styled object-functional language that exploits the extensive Java language ecosystem while delivering a number of advanced language construction of a static delivering and the static delivering	
The language is fully Java compliant and allows for mixed projects that preserve existing parts written in Java, and continue with the development of a modern, object-functional states and the states of the state	al way
with minimum of boiler-plate code. Last but not least, Kotlin is suitable for designing of DSLs (Domain-Specific Languages).	
BI-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 - example	
	will be i
anthropological research from our "exotic" cultures (topics: kinship, religion, social exclusion, migration, globalization, , material culture, language, health, history, death, etc)	
anthropological research from our "exotic" cultures (topics: kinship, religion, social exclusion, migration, globalization, , material culture, language, health, history, death, etc) shown. The course is presented in Czech.	5
anthropological research from our "exotic" cultures (topics: kinship, religion, social exclusion, migration, globalization, , material culture, language, health, history, death, etc) shown. The course is presented in Czech. BI-LA1.21 Linear Algebra 1 Z,ZK	5
anthropological research from our "exotic" cultures (topics: kinship, religion, social exclusion, migration, globalization, , material culture, language, health, history, death, etc)         shown. The course is presented in Czech.         BI-LA1.21       Linear Algebra 1         Ve will introduce students to the basic concepts of linear algebra, such as vectors, matrices, vector spaces. We will define vector spaces over the field of real and complex nur	mbers
anthropological research from our "exotic" cultures (topics: kinship, religion, social exclusion, migration, globalization, , material culture, language, health, history, death, etc)         shown. The course is presented in Czech.         BI-LA1.21       Linear Algebra 1         We will introduce students to the basic concepts of linear algebra, such as vectors, matrices, vector spaces. We will define vector spaces over the field of real and complex nur and also over finite fields. We will present the concepts of basis and dimension and learn to solve systems of linear equations using the Gaussian elimination method (GEM) and	mbers d show
anthropological research from our "exotic" cultures (topics: kinship, religion, social exclusion, migration, globalization, , material culture, language, health, history, death, etc)         shown. The course is presented in Czech.         BI-LA1.21       Linear Algebra 1         Ve will introduce students to the basic concepts of linear algebra, such as vectors, matrices, vector spaces. We will define vector spaces over the field of real and complex nur	mbers d show
anthropological research from our "exotic" cultures (topics: kinship, religion, social exclusion, migration, globalization, , material culture, language, health, history, death, etc)         shown. The course is presented in Czech.         BI-LA1.21       Linear Algebra 1         We will introduce students to the basic concepts of linear algebra, such as vectors, matrices, vector spaces. We will define vector spaces over the field of real and complex nur and also over finite fields. We will present the concepts of basis and dimension and learn to solve systems of linear equations using the Gaussian elimination method (GEM) and the connection with linear manifolds. We define the regularity of matrices and learn to find their inversions using GEM. We will also learn to find eigenvalues and eigenvectors matrix. We will also demonstrate some applications of these concepts in computer science.	mbers d show s of a
anthropological research from our "exotic" cultures (topics: kinship, religion, social exclusion, migration, globalization, , material culture, language, health, history, death, etc)         BI-LA1.21       Linear Algebra 1       Z,ZK         We will introduce students to the basic concepts of linear algebra, such as vectors, matrices, vector spaces. We will define vector spaces over the field of real and complex nur and also over finite fields. We will present the concepts of basis and dimension and learn to solve systems of linear equations using the Gaussian elimination method (GEM) and the connection with linear manifolds. We define the regularity of matrices and learn to find their inversions using GEM. We will also learn to find eigenvalues and eigenvectors matrix. We will also demonstrate some applications of these concepts in computer science.         BI-MA1.21       Mathematical Analysis 1       Z,ZK	mbers d show s of a 5
anthropological research from our "exotic" cultures (topics: kinship, religion, social exclusion, migration, globalization, , material culture, language, health, history, death, etc)         shown. The course is presented in Czech.         BI-LA1.21       Linear Algebra 1         We will introduce students to the basic concepts of linear algebra, such as vectors, matrices, vector spaces. We will define vector spaces over the field of real and complex nur and also over finite fields. We will present the concepts of basis and dimension and learn to solve systems of linear equations using the Gaussian elimination method (GEM) and the connection with linear manifolds. We define the regularity of matrices and learn to find their inversions using GEM. We will also learn to find eigenvalues and eigenvectors matrix. We will also demonstrate some applications of these concepts in computer science.	mbers d show s of a 5 uences
anthropological research from our "exotic" cultures (topics: kinship, religion, social exclusion, migration, globalization, , material culture, language, health, history, death, etc)         BI-LA1.21       Linear Algebra 1       Z,ZK         We will introduce students to the basic concepts of linear algebra, such as vectors, matrices, vector spaces. We will define vector spaces over the field of real and complex nur and also over finite fields. We will present the concepts of basis and dimension and learn to solve systems of linear equations using the Gaussian elimination method (GEM) and the connection with linear manifolds. We define the regularity of matrices and learn to find their inversions using GEM. We will also learn to find eigenvalues and eigenvectors matrix. We will also demonstrate some applications of these concepts in computer science.         BI-MA1.21       Mathematical Analysis 1       Z,ZK         We begin the course by introducing students to the set of real numbers and its properties, and we note its differences with the set of machine numbers. Then we study real sequences with the set of machine numbers. Then we study real sequences with the set of machine numbers. Then we study real sequences with the set of machine numbers.	mbers d show s of a 5 uences ndation

BI-MA2.21	Mathematical Analysis 2	Z,ZK	6		
	tes the theme of analysis of real functions of a real variable initiated in BI-MA1 by introducing the Riemann integral. Students will learn	•			
use the substitution method. The next part of the course is devoted to number series, and Taylor polynomials and series. We apply Taylors theorem to the computation of elementary					
-	functions with a prescribed accuracy. Then we study the linear recurrence equations with constant coefficients, the complexity of recursive algorithms, and its analysis using the Master theorem. Finally, we introduce the student to the theory of multivariate functions. After establishing basic concepts of partial derivative, gradient, and Hessian matrix, we study the				
-	f localization of local extrema of multivariate functions as well as the numerical descent method. We conclude the course with the integr		-		
BI-MIT	Mikrotik technologies	KZ	3		
	on of the subject stands in the introduction of the RouterOS operating system and some network Mikrotik technologies which are corr	1			
middle internet ser	vice providers (ISPs). The students learn how to use and create the architectures of the network solutions which are based on the me	etallic, optical or wi	ireless links		
and how to administ	trate and practically deploy them. The successful completion of this subject requires the previous knowledge of elementary computer ne	tworks concepts lik	ke protocols		
	and technologies of the data-link, network and transport layer of the OSI model.				
BI-ML2.21	Machine Learning 2	Z,ZK	5		
e e	urse is to introduce students to the selected advanced methods of machine learning. In the supervised learning scenario, they, in parks. In the unsupervised learning scenario students learn the principal component analysis and other dimensionality reduction method				
and neural network	basic principles of reinforcement learning and natural language processing.	3. Moreover, stude	sino ger ine		
BI-MMP	Multimedia team project	KZ	4		
	This course is presented in Czech.				
BI-MPP.21	Methods of interfacing peripheral devices	Z,ZK	5		
The course is focus	ed on methods for interfacing of peripheral devices. Interfacing of real peripheral devices is focused on techniques based on Universa	l serial bus (USB).	The course		
includes both PC s	ide and peripheral devices side. Labs are practically oriented. Students gain experience with implementation of relevant parts of USE	devices, Linux an	d Windows		
	drivers, simple application development, and APIs of selected devices.	1			
BI-MSI.21	Mobile Networks	Z,ZK	5		
-	ourse is to acquaint students with basic principles of mobile networks 4G, 5G, and with multimedia data transfers in these networks. rt cards and their use for authentication of users of mobile networks. The computer labs will be based on simulations of mobile netwo		-		
principles of sma	preceding courses BIE-PSI and BIE-VPS and completes the overall student's knowledge mainly in the area of high-speed mobile related to a student of the speed mo		lilds upon		
BI-MVT.21	Modern Visualisation Technologies	Z,ZK	5		
	urse is to give an overview of modern visualization technologies and their principles, namely technologies related to virtual and augm	· ·			
-	lays (e.g., SAGE and video mapping) and their applications in practice. Several lectures deal with the content creation for the mentione				
	and procedural visualization, scientific data visualization, and 3D model scanning.				
BI-OPT	Introduction to Optical Networks	Z,ZK	4		
-	overview of optical networking technology with the emphasis on practical utilization in Internet and in network infrastructures, on poss				
	technology and on their solutions. The course will include the history of optical communications, an overview of passive components				
	sators, and others), and an overview of active components (optical switches and amplifiers, high-speed coherent transmission syster e topics presented at premium research conferences, such as ECOC or OFC. Attention will also be paid to new applications, such as				
		the accurate time of	on merner,		
ultrastable freque	ncy 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		
ultrastable freque	ncy transfer, or sensor networks. The labs will focus on real work with optical components and on measurement of their parameters. from practice.	Students will solve	real tasks		
ultrastable freque		Students will solve	real tasks		
BI-ORL The subject aims to	from practice. Operations Research and Linear Programming b introduce students to the issues of operational research and primarily to the practical application of linear programming as a fundar	KZ	5 technique.		
BI-ORL The subject aims to Operatio	from practice. Operations Research and Linear Programming introduce students to the issues of operational research and primarily to the practical application of linear programming as a fundar nal research primarily focuses on the use of engineering methods (with a mathematical background) to solve practical problems (suc	KZ nental optimization h as management)	5 n technique. ).		
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eternation of unknown distributional parameters from machine anarpe characteristics. They will also be introduced to the tending statistical hypotheses and determine the statistical hypotheses and decomparison will be care on over another windles.			-	
Bit-QAP         Outstand algorithms and programming         KZ         E           Cause aims at yoing students haves describes and how summur computers and their programming. We locus on fundaments of quantum modules, which is the sease. And algorithms always describes and limitation on the programming. We locus on fundaments of quantum modules, which is the sease of			-	-
BI-DAP         Quantum algorithms and programming         KZ         E           Correr aims at giving subsite hards-on experience with quantum computers of the tree programming. We took on fundaments of quantum mechanics, on which quantum development is Quiki, which is to on Python tangenes. Knowledge of tensors and subprinters at the tend of a last and experiment with previous involvedge of styrucs is assumed.         KZ         KZ           BI-OUA         Quality for an obvious proving showing previous involvedge of styrucs is assumed.         KZ         KZ         KZ           BI-OUA         Quality for an obvious involvedge of styrucs is assumed.         KZ         KZ         KZ           BI-OUA         Quality constraints of the hards metals of a last and store tensors, mol previous involvedge of styrucs is assumed.         KZ         KZ           BI-SAP21         Computer Structure and Architecture constraints, and prevenes involvedge of styrucs is assumed.         KZ         KZ           BI-SAP21         ZX         Z         KZ         KZ         KZ           Rescent and the styructure and tensor and tensors, mol prevenes involvedge of styrucs is assumed.         KZ         KZ         KZ           Rescent and tensors and tensors, mol prevenes involvedge of styrucs is assumed.         KZ         KZ         KZ           Rescent and tensors and ten	estimations of un		I hypotheses and d	ietermining
Course are at giving students hands on experience with quantum computing and their programming. We locule on trudents with sing ansume subware development is if Galak, which is a the local of BLA and BLA2 or BLANB is received physica is assumed.  BI-QUA BI-QUA CUA QUAITY ASSUMPTICE COMPUTED STUDENTS			1/7	-
are base, and algorithms showing advantages and limitations of quarkinu computer. During touring students work in open-source softward welpoment At Dealer, which is be on opticating to the provious introducing of byhacis is assumed. Bi-OUA Bi-OUA Duality Assurance Bi-OUA Duality Assurance Computer Signature and Areney and Areney Assurance Computer Signature Assur			1 1	5
an Python language. Knowledge of linear algebra at the teed of Bi-LA and Bi-LA2 (or Bi-LN) is necessary. Province correlation of Bi-MA2 or Bi-VMM and experience with Pyt might be an anhandrage. No projectional structure of physics is assumed. Bi-OLM   Outliny Assurance Kindows will learn what the role of a tester is in the context of different types of absume development and will experience hands-on agelication testing using both manual and automated testing. At the end of the sensets, the shudde be prepared to paper and analysis, design as of test structure, paper less data, automate an opproprince part on the sugs touch into product under test Bi-SAP21   Computer Engineering Senset as data, and and a data data data data data and automate and experiments analysis, design as of test structure, paper less data, and and a data data data data data data	•			•
Birloux         Implementation         Kitz         A           Birloux         Birloux         Kitz         A           This concern introduces students to the fundamental of lesting and quality management. Students will kern what her role of a lester is in the reported to perform a analysis, design as of the stoamatic, pregare test data, automata e analysis, design as of the interpret of perform a analysis, design as of the stoamatic, pregare test data, automata e analysis, design as of the stoamatic, pregare test data, automata e analysis, design as of the interpret of perform a analysis, design as of the interpret of perform a analysis, design as of the interpret of perform a design (EDA) tools.         Z/K         Z/K           BirlSAP21         Computer Engineering Gammatian of the scorear-control displant processor is particular interpret or perform and performation. The product moder that the stoamatic programmable circuit (PRA), a single-the memorpatier, and modern design (EDA) tools.         Z<				
Bi-DUAL         Coupling Assumance         IK2         4         2         4         2         4         2         4         2         4         2         4         2         4         2         4         2         4         2         4         2         4         2         4         2         4         2         4         2         4 </td <td>on rythornangue</td> <td></td> <td>and experience w</td> <td>vian i yalon</td>	on rythornangue		and experience w	vian i yalon
This course indicates students to the fundamentals of testing and quality management. Students will learn what the role of a tester is the context of different types of advances development and will reperform a data advanced test estimates, and the prepared test students advanced test estimates, and test students advanced test estimates, and test advanced test estimates, and test advanced test estimates, and test advanced test estimates and test estimates advanced test estimates and test estimates advanced test esti	BI-OLIA		K7	4
development and will experiment hands on application testing using both manual and automated testing. At the and of the semestin, at department to profere and analysis, designed as a def of at scansing, prepare test data, automate an appropring prepare to the scansing, and prepares a report on the buging bound in the product under test BLSAP21 Computer Structure and Architecture Control and the product under test BLSAP21 Computer Structures and Architecture Computer, understand the structure, function, and implementation of atmosphere, testing and the implementation of an approximation of a program-control and implementation of a structure in the basic approximated in the scalar programma beic cruits (PCA), a single-tilty introlosed display field (BSA). The topics of staff and testing programma being and testing programma being and testing programma being and testing program display and resistance beliaves and tarabars. Sture as approximated individually with the subject Each student or orgou of atuchene solves committerecting to provide the subject and testing to the subject and testing the provide staff and testing to provide the subject and the subjec			1 1	1
analysis, design a set of test scamaros, pregare test data, automate an approprise profin of the scamaros, and pregare a regord not the bugs board in the product under test Bi-SAP21 Communication, methods of data transfer between the unst. The log design and the implementation of archivest-test of a data transfer between the usus. The log design and the implementation of archivest and transfer between the usus. The log design and the implementation of archivest and transfer between the usus. The log design and the implementation of archivest and transfer between the usus. The log design and the implementation of archivest and transfer between the usus. The log design and the implementation of archivest and transfer between the usus the log test of the scamaro test students who want to deal with desper topics of digital design, reliability and resistance to balkness and transfer. Student also care approach of individually with the scalpect a transfer of group of students abves som interesting topic with the scalend a supreview. Part of the subject is invited by the possibilities of the saminar teachers. The topics are new tor- semeter. Bi-SCE2 Computer Engineering Seminar II Z, ZA 4 This corners is presented in Care. The topics are new tor- semeter. Bi-SCE2 Difference of the subject is a subject and the student to deal with despert topics of digital design, reliability and resistance to beliaves and attacks. Stud are approached individually with the subject. Each student or group of students alves and the student to design. The possibilities of the seminar teachers. The topics are new tor- semeter. Bi-SEP WOrld Economy and Business Z,ZK 4 Infis course is presented in Care. The course introduces the design of tealmatical to the student and verse to the course birds and the student and the course of the disease and teachers are approached individually with the subject and then to individual course is presented in Care. The course introduces and predication encourse of topic descames to the course of the right inve				
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But-Bets will gei acquainted with the basic architecture and units of a digital computer, understand the structure, function, and integen processor is practically implementation of a struments-bagic unit, contralls           BI-SCE1         Computer Engineering Seminar I         Z         4           The Seminar OComputer Engineering Seminar I         Z         4         4           The Seminar OComputer Engineering Seminar I         Z         4         4           The Seminar OComputer Engineering Seminar I         Z         4         4           The Seminar OComputer Engineering Seminar I         Z         4         4           The Seminar OComputer Engineering Seminar II         Z         4         2         4         2         4         2         4         2         4         2         4         2         4         2         4				5
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BI-SCE2         Computer Engineering Seminar II         Z         Z         Z           The Seminar of Computer Engineering is a (s)elective course for students who want to deal with deep topics of dipital design, reliability and resistance to failures and stacks. Students and uses 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 semester.           BI-SCP         World Economy and Business. It does that predominantly by pomparing individual count and key regions of world economy. Students get to know about different religions and outures, necessary for doing business. It does that predominantly by pomparing individual count readings. It is advised to take bachelor level of this course BIE-SEP as a prerequisite.         Z         <	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 teacher	rs. The topics are n	ew for each
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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 selected 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: 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 comparing individual court and key regions of world economic development, which are needed for the right intrestment decision. Seminars help to improve on the knowledge in the form of discussions based on indivireatings. It is advised to take bachelor level of this course BIE-SEP as a prorequisite.           BI-SIP21         Network Programming         Z         C           The course covers fundamental topics of programming network applications. It consists of 4 parts. The introduces the produces in discussions based on indivircude computing - P2P and backchain. All topics will be first explained theoretically and then practices in computer labs using a chose programming using a SD sockets.           BI-SKL21         Scripting Languages         Z,ZK         4           Students gain a a general overview of available scripting languag	BI-SCE2	Computer Engineering Seminar II	Z	4
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 sensets:           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 comparing individual count readings. It is advised to adve benchmore trailigions and cultures, necessary for doing business in diverse societies as well as indexes of economic fee corruption and economic development, which are needed for the right investment decision. Seminars help to improve on the knowledge in the form of discussions based on individual count readings. It is advised to take bachelor tweil of this course BIE-SEP as a prerequisite.           BI-SIP21         Network Programming         Z	The Seminar of Co	mputer Engineering is a (s) elective course for students who want to deal with deeper topics of digital design, reliability and resistance to	o failures and attack	ks. Students
BI-SEP         World Economy and Business         Z.2K         4           This course is presented in Czech. The course introduces students of technical university to the international business. It does that predominantly by comparing individual count 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 indexes of economic free course introduces the theored of the right investment decision. Seminats help to improve on the knowledge in the form of discussions based on individual count readings. It is advised to take bachelor level of this course BIE-SEP as a prerequisite.         Image: Comparison of the course course introduces the principles and applications of middleware technologies. The final introduces basic models of distributed computing - P2P and blockchain. All topics will be first explained theoretically and then practices in computer has using a chose.         Image: Comparison of the course course introduces the principles and applications of middleware technologies. The final introduces basic models of distributed computing - P2P and blockchain. All topics will be first explained theoretically and then practices in computer has using a chose.         Image: Comparison of Comparison of the course will be distributed computing - P2P and blockchain. All topics will be right and proceed and cons. In addition, they gain a deeper in into shell and some other particular scripting languages and will get practical experiment with addition, they gain a deeper in the structures. pros and cons. In addition, they gain a deeper in the structure will be discussed x86 specifics of the majority of OSes from the application point of view linked to higher level languages. The introduces the principal conting on optimal use of microprocessor's feal and efficient cooperation of software will be discussed x86 specifi				
BI-SEP         World Economy and Business         Z,ZK         44           This course is presented in Czech. The course introduces students of technical university to the international business. It does that predominantly by comparing individual count and key regions of world economy. Students get to know about different religions and durulers, necessary for doing business in diverse societies as well as indexes of economic fees corruption and economic development, which are needed for the right investment decision. Seminars help to improve on the knowledge in the form of discussions based on indiv readings. It is advised to take bachedne level of this course BIE-SEP as a prerequisite.         BI-SIP21         Network Programming         Z         E           BI-SIP21         Network Programming network applications. It consists of 4 parts. The introductory part is focused on low-level programming using BSD sockets.         Bi-SIP21         Z         E           BI-SKL321         Scripting Languages         Z         Z         E           BI-SKL321         Scripting Languages and will get practical experience with shell script programming.         Z,ZK         4           Students gian a general overview of available scripting languages in the assembly and will get practical experience with shell and some other particular scripting languages and will get practical experience with shell script programming.         Z,ZK         4           BI-SQJ         Machine Oriented Languages         Z,ZK         4           BI-SPS.21         Administratin of Computer Networks and Serrives         Z,Z	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 teache	rs. The topics are n	ew for each
This course is presented in Czech. The course introduces students of technical university to the international business. It does that predominantly by comparing individal course and key regions of world economic the course with a enceeded for the right investment decision. Seminars help to improve on the knowledge in the form of discussions based on individate course is to adverse occurse. In the adverse of economic free course introduces the principles and applications of models on discussions based on individate course covers fundamental topics of programming network applications. It consists of 4 parts. The introduces the principles and applications of middleware technologies. The final introduces basic modern models of distributed computing. P2P and blockchain. All topics will be first explained theoretically and then practices in computer labs using a chose programming languages, their syntax, semantics, programming style, data structures, pros and cons. In addition, they gain a deeper ins into sheel and some other particular scripting languages and will get practical experience with hell script or forgramming. The course will gain an ability to create their own programs in the assembly language of the most corrum PC platform focusing on optimal use of microprocessor's flag and efficient cooperation of software with hardware. Next, there will be discussed xeb specifics of the majority of QSes from the explication point of view inhered to higher level languages. The involuces is to deepen the theoretical knowledge of the locurses will be Course will be QSL, advanced Advanced DK, advanced C, Advanced K, advanced C, Advanced C, Advanced C, Adva			1	1
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corruption and economic development, which are needed for the right investment decision. Seminars help to improve on the knowledge in the form of discussions based on indivior         BI-SIP.21       Network Programming       Z       Z         The course covers fundamental topics of programming network applications. It consists of 4 parts. The introductory part is focused on low-level programming using BSD sockets. Second part is devoted to designing communication protocols and their vertification. The third part introduces the principles and applications of middleware technologies. The final introduces basic modern models of distributed computing - P2P and blockchain. All topics will be first explained theoretically and then practices in computer labs using a chese programming style, data structures, pros and cons. In addition, they gain a deepert ins introduces the principles of a structures and some other particular scripting languages and will get practical experience with shell script programming.       Z/ZK       4         BI-SQJ       Machine Oriented Languages       Machine Oriented Languages       Z/ZK       4         Students of the course will gain an ability to create their own programs in the assembly languages of the most common PC platform focusing on optimal use of microprocessor's feat and efficient cooperation of software with hardware. Next, there will be discussed XB beselfics of the environment of network servers administrated under the operating system.       Z       Z       Z       Z       Z       Z       Z       Z       Z       Z       Z       Z       Z       Z       Z       Z       Z       Z       Z				
readings. It is advised to take bachelor level of this course BIE-SEP as a prerequisite.         BI-SIP.21         Network Programming         Second part is devoted to designing communication protocols and their verification. The third part introductory part is focused on low-level programming using SED sockets.         second part is devoted to designing communication protocols and their verification. Alt topics will be first explained theoretically and then practices in computer labs using a chose programming language environment.         BI-SKJ.21       Scripting Languages       Z,ZK       Z         Students gain a general overview of available scripting languages, their syntax, semantics, programming style, data structures, pros and cons. In addition, they gain a deeper ins into shell and some other particular scripting languages and will get practical experience with shell script programming.       Z,ZK       Z         BI-SOJ       Machine Oriented Languages       Z,ZK       Z         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 of microprocessor's feal and efficient cooperation of software with hardware. Next, there will be discussed x86 specifics of the majority of QSes from the application point of view linked to higher level languages and will get practical skills will be gained by practical shands-on experivitions and the course syllabus requires the knowledge of network technologies and protocols in the environment of network servers administrated under the operating syste       Z,ZK       Z      <				
BI-SIP.21         Network Programming         Z         E           The course covers fundamental topics of programming network applications. It consists of 4 parts. The introductory part is focused on low-level programming using BSD sockets. The final introduces the principles and applications of middleware technologies. The final introduces basic modern models of distributed computing - P2P and blockchain. All topics will be first explained theoretically and then practices in computer labs using a chose programming suguage environment.           BI-SKJ.21         Scripting Languages         ZZK         4           Students gain a general overview of available scripting languages, their syntax, semantics, programming style, data structures, pros and cons. In addition, they gain a deeper ins into shell and some other particular scripting languages of the most common PC platorm focusing on optimal use of microprocessor fseat 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 linked to higher level language. This includedge will be used during reverse engineering, optimization, and evaluation of code security.         EI-SSL         ZZK         4           BI-SPS.21         Administration of Computer Networks and Services         Z.ZK         4           He aim of the course will gain an ability or create their own programs in a tervice and the environment of network servers administrated under the operating systimus and Windows. The course syllabus requires the knowledge of network technologies and protocols in the anyolication protocols and protocols in the anyolication form the point of view linhad-on experiment with advanced relational and non-relati	corruption and eco		iscussions based o	on individual
The course covers fundamental topics of programming network applications. It consists of 4 parts. The introductory part is focused on low-level programming using BSD backets, second part is devoted to designing communication protocols and their verification. The third part introduces the principles and applications of middleware technologies. The final introduces basic modern models of distributed computing - P2P and blockhahn. Alt topics will be first explained theoretically and then practices in computer tabus using a chose. In addition, they gain a deeper final into duces basic modern models of distributed computing - P2P and blockhahn. Alt topics will be first explained theoretically and then practices in computer tabus using a chose. In addition, they gain a deeper final into shell and some other particular scripting languages and will get practical experience with shell script programming. BI-SQJ Machine Oriented Languages 1 Mersot. Some 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 of microprocessor's feal 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 linked to higher level languages in a of the course syllabus requires the knowledge will be courses bit-PS, and BI-CSY. Parcical skills will be gained by practical hands-on experime with real network infrastructure. BI-SQL 1 Language Courses BIE-PS, and BI-CSY. Parcical skills will be gained by practical hands-on experime with ediscussed Languages CL, advanced KC 4 and the course is decidered to providing the students become familiar with advanced relational donon-relational features of SQL language. In particular stored program uritigers, recursive queries, OLAP support, object-relational constructions. Part of the course is decidered to providing the students basic information and practical skifts from the point of view of specialized data structures			, <b>,</b>	-
second part is devoted to designing communication protocols and their verification. The third part introduces the principles and applications of middleware technologies. The final introduces basic models of distributed computing - P2P and blockchain. All topics will be first explained theoretically and then practices in computer labs using a chose programming languages, their syntax, semantics, programming style, data structures, pros and cons. In addition, they gain a deeper ins into shell and some other particular scripting languages and will get practical experience with shell script programming. The short 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 of microprocessor's feat and efficient cooperation of software. Next, there will be discussed &8 specifics of the majority of OSes from the application point of view linked to higher level languages and will be courses will be discussed. Bit SPS.21 Administration of Computer Networks and Services Z, ZK 4 5 The aim of the course syllabus requires the knowledge at the level of courses BIE-PSI, BIE-VPS, and BIE-OSY. Practical skills will be gained by practical hands-on experiming the all network infrastructure. BI-SQL 1 Language SQL, advanced Modules 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 or triggers, necursive queries, OLAP support, object-relational constructions. Part of the course is dedicated to practical babase optimication priot of view of specialized data structures. BI-SST 1 Network Technology 2 Z 3 3 3 Students basic information and practical skills from the area of digital and IP networks. The subject is acredited under the Cisco Netacaa CCNA1 + Reamp.S Introduction to Networks and Specifican or Setter data structures is presented in the course. Student	-	5 5	1 – 1	5
Introduces basic modern medels of distributed computing - P2P and blockchain. All topics will be first explained theoretically and then practices in computer labs using a chost programming language environment.         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, they gain a deeper ins into shell and some other particular scripting languages and will get practical experience with shell script programming.       Z,ZK       4         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 of microprocessor's feat and efficient cooperation of software with hardware. Next, there will be discussed x86 specifics of the mojarity of OSes from the application point of view linked to higher level languages and will get practical skills will be gained by practical hands-on experi- tinus and Windows. The course syllabus requires the knowledge of network technologies and protocols in the environment of network servers administrated under the operating syst Linux and Windows. The course syllabus requires the knowledge of the level of courses BIE-PSI, BIE-VPS, and BIE-OSY. Practical skills will be gained by practical hands-on experi- triggers, recursive queries, OLAP support, object-relational familiar with advanced relational and non-relational features of SQL language. In particular stored program with get securise will use denouses QLAP support, object-relational constructions. Part of the course is dedicated to practical database optinization from the point of view of specialized data st				
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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, they gain a deeper ins into shell and some other particular scripting languages and will get practical experience with shell script programming.         Z,ZK         4           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 of microprocessor's feat and efficient cooperation of software with hardware. Next, there will be discussed x86 specifics of the majority of QSes from the application point of view linked to higher level language. This knowledge will be used during reverse engineering, optimization, and evaluation of code security.         Z,ZK         Z           BI-SPS.21         Administration of Computer Networks and Services         Z,ZK         Z           The aim of the course syllabus requires the knowledge at the level of courses BIE-PSI, BIE-VPS, and BIE-OSY. Practical skills will be gained by practical hands-on experi- with real network infrastructure.         KZ         4           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 particular stored program ur triggers, recursive queries, OLAP support, object-relational constructions. Part of the course is dedicated to pr	Introduces basis		inputer labs using a	a chosen
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BI-ST3       Network Technology 3       Z       3         Students will further enhance their knowledge acquired from previous BI-ST1 and BI-ST2 courses. Principles of routing and switching presented during BI-ST1 and BI-ST2 courses get further extended in the course. Students will be able to start fine-tune protocols' settings to gain certain advantages like increased efficiency, predictability, extension beyond simple topology, security, etc.         BI-ST4       Network Technology 4       Z       3	BI-ST2		Z	3
Students will further enhance their knowledge acquired from previous BI-ST1 and BI-ST2 courses. Principles of routing and switching presented during BI-ST1 and BI-ST2 courses.         get further extended in the course. Students will be able to start fine-tune protocols' settings to gain certain advantages like increased efficiency, predictability, extension beyond simple topology, security, etc.         BI-ST4       Network Technology 4       Z       3			<b>T</b>	
get further extended in the course. Students will be able to start fine-tune protocols' settings to gain certain advantages like increased efficiency, predictability, extension beyond simple topology, security, etc.         BI-ST4       Network Technology 4       Z       3			1 – 1	3
simple topology, security, etc.       BI-ST4     Network Technology 4     Z     3				
BI-ST4 Network Technology 4 Z 3	get further exten		ictability, extension	beyond a
Students will further enhance their knowledge already acquired from providue DL CT4. DL CT2 and DL CT2 accurace Drinsiples of reuting and avitables provide a division DL CT4.	-		-	3
		her enhance their knowledge already acquired from previous BI-ST1, BI-ST2, and BI-ST3 courses. Principles of routing and switching		
BI-ST2 courses got further extended in BI-ST3. Students were able to start fine-tune protocols' settings to gain certain advantages like increased efficiency, predictability, extense beyond a simple topology, security, etc. This module teaches students to configure and fine-tune Wide Area Networks and to experience a completely other type of network (Networks)).	-	· · · · · ·		

	ble Access) which radically differs from well-known Ethernet (broadcast) type of networks. Students will also manage router and switcl emergency procedures. Also the security aspect is treated; students will learn possible intra- and inter-network attacks and the mitigati network running.		•
BI-STO	Storage and Filesystems	Z,ZK	4
	arn principles and current solutions of storage systems architecture. The module explains principles of data store, protection, and arch load balancing and high availability.		-
BI-TDA	Test driven architecture	KZ	4
	bock arriver are interested of block of the stand deploy software with tools like GitLab, Docker, Kubernetes, and more that a		-
	ourse has a strong connection on courses like BI(E)-SI1 and BI(E)-SI2. The main goal of this course is to learn by examples that occu		-
BI-TDP.21	Documentation and Presentation	KZ	3
The course is focu	used on the basics of creating electronic documentation with emphasis on the creation of technical reports of a larger scope, typically f	inal university these	es. Students
	t of a technical report in the LaTeX system, process an electronic presentation using the LaTeX Beamer system, and practically pre		
	e course is intended primarily for those students who have chosen the topic of their bachelor's thesis or will choose it within the first 14 exercises of the course, an active approach to the creation of individual parts of the bachelor's thesis is assumed.		
BI-TEX	TeX and Typography	Z,ZK	4
	sented in Czech. This course gives basics of programming in TeX (plain TeX, ConTeXt, LaTeX, OpTeX, LuaTeX). Te second part of the rules.	1	typographic
BI-TPS.21	Computer Networks Technologies	Z,ZK	5
	duces students with basic and advanced technologies, components, and interfaces of contemporary computer networks at the physic	-	-
with the most imp	tures provide theoretical foundations of these technologies and explain relevant physical principles. In the labs, the respective technologies and explain relevant physical principles. In the labs, the respective technologies and explain relevant physical principles. In the labs, the respective technologies and explain relevant physical principles. In the labs, the respective technologies and explain relevant physical principles. In the labs, the respective technologies and explain relevant physical principles. In the labs, the respective technologies and explain relevant physical principles. In the labs, the respective technologies and explain relevant physical principles. In the labs, the respective technologies and explain relevant physical principles. In the labs, the respective technologies and explain relevant physical principles. In the labs, the respective technologies and explain relevant physical principles. In the labs, the respective technologies are principles and explain relevant physical principles. In the labs, the respective technologies are physical	0	ss networks,
BI-TS1	Theoretical Seminar I	Z	4
	ar is intended for students which want to come in deeper contact with contemporary theoretical computer science. It is mostly a classic		
are treated individ	lually 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
_	ar is intended for students which want to come in deeper contact with contemporary theoretical computer science. It is mostly a classic		
	lually 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.		
BI-TS3	Theoretical Seminar III	Z	4
Theoretical semin	ar 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	he students
are treated individ	lually 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-TS4	Theoretical Seminar IV	Z	4
	ar is intended for students which want to come in deeper contact with contemporary theoretical computer science. It is mostly a classic		
are treated individ	lually 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-TZP.21	Technological Fundamentals of Computers	Z,ZK	5
	ainted with the fundamentals of digital and analog circuits, as well as basic methods of analyzing them. Students learn how computers	1 '	-
	troduced to the function of a transistor. They will understand why processors generate heat, why cooling is necessary, and how to reduce		
limits to the maxin	mum 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 supp	ly looks like
	(in principle). In the labs, students model the behavior of basic electrical circuits in SW Mathematica.		
BI-ULI	Introduction to Linux	Z	2
Students become	e familiar with the basics of the Linux operating system using e-learning form. They learn to work with the command line and become		commands
	and techniques of a Unix-like system. Topics can be studied first theoretically and then practically verified in a virtual machine (te	,	_
BI-UOS.21	Unix-like Operating Systems	KZ	5
	ng systems represent a large family mostly open-source codes that kept bringing during the history of computers efficient innovative fu puters and their networks and clusters. The most popular OS today, Android, has a unix kernel. Students get overview of basic proper		
	reads, access rights and user identity, filters, or handling files in a file system. They learn to use practically these systems at the level		
	le to utilize powerful system tools that are available to users, but are also able to automatize routine agenda using the unix scripting in		
BI-VAK.21	Selected Applications of Combinatorics	Z	3
	to introduce students in an accessible form to various branches of theoretical computer science and combinatorics. In contrast to the b	asic courses, we a	
	ations to theory. Together, we will first refresh the basic knowledge needed to design and analyze algorithms and introduce some basic		
	rticipation of students, we will focus on solving popular and easily formulated problems from various areas of (not only theoretical) info		
will select proble	erns to be solved will include, for example, graph theory, combinatorial and algorithmic game theory, approximation algorithms, optimiz	ation and more. St	udents will
	also try to implement solutions to the studied problems with a special focus on the effective use of existing tools.	7 71/	-
BI-VDC.21	Virtualization and Data Centers	Z,ZK	5
	urse is to familiarize students with technology basis of cloud computer systems. It shows principles and techniques used in design and Ich as various kinds of virtualization and high availability of servers, storages, and software layers. The course guides through data ce		
	brid clouds. Student learn current trends in the architecture of IT infrastructure and its configuration for classic and cloud applications.	-	
	dation, and operation of complex infrastructures for modern applications with respect to scalability and protection against overloads, c		
BI-VHS	Virtual game worlds	ZK	4
	students to create a complex virtual world. The course is a continuation of basic graphical courses (MGA, PGR, BLE,). This current students to create a complex virtual world.	1	1
complemented b	y the theory of game design, principles of writing dialogues and characters in order to create a functional and complex virtual world. T		followed by
	the course MI-PVR with the task of converting scenes and their dynamics into a fully virtual environment suitable for VR devi	-	1
BI-VMM	Selected Mathematical Methods	Z,ZK	4
-	ns with an introduction to the analysis of complex functions of a complex variable. Next, we present the Lebesgue integral. We then ac		
	er, we introduce and study the properties of the Discrete Fourier Transform (DFT) and its fast implementation (FFT). We discuss the w the linear programming problem in more detail and its solution using the Simplex algorithm. Each topic is demonstrated with interesting		ve examine
	are mean programming providing in more detail and its solution using the omplex algorithm. Each topic is demonstrated With interesting	ig champies.	

The secures buildes	Selected Topics in Computer Networking	Z,ZK	5
	ipon the Computer Networks course (BI-PSI), obligatory for the program. Students will learn in detail principles, protocols, and technology	0	
	al area networks up to Internet, with focus on switching, routing, security, and virtualization. The emphasis will be on gaining practical	-	eal network
	vices in the lab and learning important methods of local area and wide area networks from the viewpoint of functionality, performance		4
BI-VR1	Virtual reality I Jal Reality (VR), virtual reality operating system and virtual reality creation. Another objective is to meet the rules and requirements of	KZ	
	es on the ways of teaching using virtual reality technologies and interactive activities in educational virtual 3D worlds. It improves con		
	and shared social activities.		
BI-VR2	Virtual reality II	KZ	3
Continuation of the	course Virtual Reality I. The new course focuses on collaborative telepresence, spatial computing and social life of avatars. The obje	ctive is to develop	applications
	for computer science and gamification in various social metaverse and desktop engines.		
BI-ZIVS	Intelligent Embedded System Fundamentals	KZ	4
-	ed system fundamentals course is focused on high-level technology embedded systems integrating artificial intelligence. The aim of t robot control and development of applications in a graphical development environment. Lectures provide fundamentals of motion contr		
	avigation and development tools. In labs, students program a set of basic task by using the robot simulator and real hardware to get p	, 0	
	technologies.		
BI-ZNF	PHP Framework Nette - basics	KZ	3
	he basics of PHP framework Nette. They will learn how to practically work with MVP architecture and various libraries of this Czech po		he resulting
	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 p	•	
	used notations (UML, BPMN, BORM). The focus in this subject lies in training of practical skills of formalisation and modelling of busi	•	U U
CASE tools. The ro	ole of process engineering for information systems development is discussed as well as its importance in the overall context of inform an enterprise.	lation and business	s strategy or
BI-ZS10	Bachelor internship abroad for 10 credits	Z	10
	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.		
internship. Auxiliary	courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Every 10 credits core	respond to 4 weeks	s of full-time
employment with a	foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can be divided internship is 30 credits.	to two subjects if th	e internship
	exceeds the academic year's dead-line.		
BI-ZS20	Bachelor internship abroad for 20 credits	Z	20
	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 profession of courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Every 10 credits cor		
	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.		
BI-ZS30	Bachelor internship abroad for 30 credits	Z	30
	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 profession	onal content and ex	tent of the
internship. Auxiliary	an of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of the profession of 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	onal content and ex respond to 4 weeks	ttent of the s of full-time
internship. Auxiliary	an of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of the profession	onal content and ex respond to 4 weeks	ttent of the s of full-time
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FI-TOP	Academic writing	Z	2	
	portant and required part of research activity. It is not only about obtaining research results but also about applying them in the form	of publication. Writ	ing scientific	
publications can 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 course, students will learn how to				
write a scientific art	icle, what parts such an article should have, and how the peer review process works. Students will also try their hand at presenting an	article and reviewi	ng someone	
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 of the semester of the semester.	ates will be determ	ined based	
	on the availability of enrolled students.		1	
FIT-ACM1	Programming Practices 1	KZ	5	
	This is a selective course for preparing talented student for representation in international programming contests.			
FIT-ACM2	Programming Practices 2	KZ	5	
	This is a selective course for preparing talented student for representation in international programming contests.			
FIT-ACM3	Programming Practices 3	KZ	5	
	This is a selective course for preparing talented student for representation in international programming contests.	1/7		
FIT-ACM4	Programming Practices 4	KZ	5	
	This is a selective course for preparing talented student for representation in international programming contests.	<b>V7</b>	F	
FIT-ACM5	Programming Practices 5 This is a selective course for preparing talented student for representation in international programming contests.	KZ	5	
FIT-ACM6		KZ	5	
FTI-ACIVIO	Programming Practices 6 This is a selective course for preparing talented student for representation in international programming contests.		5	
FIT-SEP	World Economy and Business	Z,ZK	4	
	sented in Czech. The course introduces students of technical university to the international business. It does that predominantly by c	1	1 -	
	world economy. Students get to know about different religions and cultures, necessary for doing business in diverse societies as well as			
	nomic development, which are needed for the right investment decision. Seminars help to improve on the knowledge in the form of d			
	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	
The course introdu	Lices a selection of themes from the European economic history. It gives the student basic knowledge about forming of the global eco		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	e economic	
	pire to fragmentation of the Middle Ages, from destruction of WWII to the current affairs, the development of modern financial institut	-		
does not cover de	tailed economic history of particular European countries but rather the impact of trade and role of particular events, institutions and o	organizations in his	story. Class	
	meetings will consist of a mixture of lecture and discussion.			
NI-AFP	Applied Functional Programming	KZ .	5	
	ented in Czech. Functional programming represents one of the traditional programming paradigms. Traditional and novel functional p s and the functional paradigm becomes an important construct of traditionally imperative languages (C++, C#, Java). As such, master			
the fise howadays	necessary competence of a software engineer: the theory and especially the practice.	nng this paradigm	becomes a	
NI-DDM	Distributed Data Mining	КZ	4	
	Distributed Data Mining			
Course focuses on	, state-of-the-art approaches for distributed data mining and parallelization of machine learning algorithms. Students will gain hands (	n experience with	1 -	
	state-of-the-art approaches for distributed data mining and parallelization of machine learning algorithms. Students will gain hands of a mework Apache Spark and with existing distributed DM / ML algorithms. They will learn principles of their parallel implementations a		large scale	
	state-of-the-art approaches for distributed data mining and parallelization of machine learning algorithms. Students will gain hands of amework Apache Spark and with existing distributed DM / ML algorithms. They will learn principles of their parallel implementations a approaches to parallelize other algorithms. The course is prezented in czech language.		large scale	
data processing fra	amework Apache Spark and with existing distributed DM / ML algorithms. They will learn principles of their parallel implementations a approaches to parallelize other algorithms. The course is prezented in czech language.	and will be capable	large scale	
	amework Apache Spark and with existing distributed DM / ML algorithms. They will learn principles of their parallel implementations a		large scale to propose	
data processing fra	amework Apache Spark and with existing distributed DM / ML algorithms. They will learn principles of their parallel implementations a approaches to parallelize other algorithms. The course is prezented in czech language. Database Systems in Practes	and will be capable	large scale to propose	
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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	ources, such as im	ages, texts,	
time series, etc., and learn the skills to apply these theoretical concepts to solve specific problems in individual projects - e.g., extraction of characteristics from images or from web				
	pages.			
NI-PSD	Public Services Design	KZ	4	
	oduce students to specifics of UX, Service design and development for public sector. We will look into the design and development p		•	
suppliers (devs a	ind designesr) as well as clients. In small teams students will work on projects from partner organizations and will try out collaboration	n with client represe	entatives.	
	Course is aimed at students-designers as well as clients.	r		
NI-PSL	Programming in Scala	Z,ZK	4	
	uces the modern programming language Scala which exploits object-functional paradigm. Scala comprises advance language feature		-	
advance standard l	ibrary. Scala enables to use of applications functional patterns e.g. H-List, Monads, etc. Scala is used by many powerful frameworks and	l libraries e.g. Play, (	Cassandra,	
	Scalaz, etc.			
NI-REV	Reverse Engineering	Z,ZK	5	
	equainted with the essentials of reverse engineering of computer software. They will learn how processes start and what happens before			
	will understand how executable files are organized and how they interact with 3rd party libraries. Another part of the course is dedicated and how they interact with 3rd party libraries.			
	tten in C++. Students will also understand principles of disassemblers and obfuscation techniques. A part of the course will also be de			
debuggers and de	ebugging work and which methods can be used to detect it. One of the lectures will be dedicated to the latest trends on the computer	malware scene. Th	ie focus of	
	the course is on the seminars, where students will solve practically oriented tasks from the real world.		_	
NI-SYP	Parsing and Compilers	Z,ZK	5	
The module builds	upon the knowledge of fundamentals of automata theory, formal language and formal translation theories. Students gain knowledge of va	rious variants and a	applications	
	of LR parsing and are introduced to special applications of parsers, such as incremental and parallel parsing.			
NI-TSP	Testing and Reliability	Z,ZK	5	
-	knowledge about circuit testing and about methods for increasing reliability and security. They will get practical skills to be able to pre			
the intuitive path se	ensitization and to use an ATPG for automatic test generation. They will be able to design easily testable circuits and systems with bu	ilt-in-self-test equip	ment. They	
	will be able to compute, analyze, and control the reliability and availability of the designed circuits.			
NI-VCC	Virtualization and Cloud Computing	Z,ZK	5	
-	n knowledge of architectures of large computer systems that are used in data centers and computer infrastructure of companies and	-		
acquainted with virtualization principles, tools and technologies that serve to facilitate and automate configuration, testing and monitoring, and to efficiently operate and optimize the				
	rameters of modern computer systems. Theoretically and practically, they will get acquainted with containerization as the most effect		-	
management of col	mplex computer systems and with specific technologies of cloud systems. Finally, they will learn the principles and gain practical skills in and development tools (Continuous integration and development).	the use of modern	integration	
		7 71/	4	
NI-VYC	Computability	Z,ZK	4	
	Classical theory of recursive functions and effective computability.	_		
TV1	Physical Education	Z	0	
TV2	Physical Education	Z	0	
TV2K1	Physical Education 2	Z	1	
TVK1	Physical Education	Z	1	
TVKLV		—	•	
	Physical Education Course	Z	0	
TVKEV				
	Physical Education Course	Z	0	

For updated information see <u>http://bilakniha.cvut.cz/en/FF.html</u> Generated: day 2025-07-31, time 08:34.