Recomended pass through the study plan

Name of the pass: Bachelor specialization Information Security, part-time, in Czech, 2021

Faculty/Institute/Others:

Department:

Pass through the study plan: Bachelor Specialization Information Security, part-time, 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 combined

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

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
BIK-DML.21	Discrete Mathematics and Logic Eva Pernecká Eva Pernecká Eva Pernecká (Gar.)	Z,ZK	5	14KP+4KC	Z	PP
BIK-LA1.21	Linear Algebra 1 Karel Klouda Karel Klouda (Gar.)	Z,ZK	5	14KP+4KC	Z	PP
BIK-PA1.21	Programming and Algorithmics 1 Radek Hušek, Josef Vogel, Ladislav Vagner, Jan Trávní ek Jan Trávní ek Jan Trávní ek (Gar.)	Z,ZK	7	14KP+8KC	Z	PP
BIK-TZP.21	Technological Fundamentals of Computers Martin Da hel, Kate ina Hyniová Martin Da hel Martin Da hel (Gar.)	Z,ZK	5	14KP+4KC	Z	PP
BIK-GIT.21	SW Development Technologies Petr Pulc Petr Pulc Petr Pulc (Gar.)	Z	3	14KP	Z	PP
BIK-UOS.21	Unix-like Operating Systems Petr Zemánek, Jakub Žitný Petr Zemánek Petr Zemánek (Gar.)	KZ	5	14KP+4KC	Z	PP

Number of se	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
BIK-DBS.21	Database Systems Michal Valenta, Monika Borkovcová, Andrii Plyskach Monika Borkovcová Monika Borkovcová (Gar.)	Z,ZK	5	14KP+6KC	L	PP
BIK-MA1.21	Mathematical Analysis 1 Petr Olšák Ivo Petr Ivo Petr (Gar.)	Z,ZK	5	14KP+4KC	L	PP
BIK-PSI.21	Computer Networks Vladimír Smotlacha, Yelena Trofimova, Josef Zápotocký Vladimír Smotlacha Vladimír Smotlacha (Gar.)	Z,ZK	5	14KP+4KC	L	PP
BIK-PA2.21	Programming and Algorithmics 2 Radek Hušek, Ond ej Štorc, Josef Vogel, Barbora Kolomazníková, Ladislav Vagner, Jan Trávní ek Jan Trávní ek Jan Trávní ek (Gar.)	Z,ZK	7	14KP+6KC	L	PP
BIK-SAP.21	Computer Structure and Architecture Martin Da hel Martin Da hel Martin Da hel (Gar.)	Z,ZK	5	14KP+6KC	L	PP
		Min. cours.				
BIK-V.2021	ist volitelné p edm ty bakalá ského programu,	0	Min/Max			
	kombinovaná forma výuky, verze 2021 až 2024 BIK-ADW.1,BIK-STO, (see the list of groups below)	Max. cours.	0/31			V
		8				

Number of se	mester: 3				<u> </u>	
Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
BIK-AG1.21	Algorithms and Graphs 1 Radek Hušek, Dušan Knop Dušan Knop (Gar.)	Z,ZK	5	14KP+4KC	Z	PP
BIK-AAG.21	Automata and Grammars Št pán Plachý, Jan Holub Jan Holub (Gar.)	Z,ZK	5	14KP+4KC	Z	PP
BIK-MA2.21	Mathematical Analysis 2 Petr Olšák Tomáš Kalvoda Tomáš Kalvoda (Gar.)	Z,ZK	6	21KP+4KC	Z	PP
BIK-APS.21	Architectures of Computer Systems Michal Štepanovský Michal Štepanovský Michal Štepanovský (Gar.)	Z,ZK	5	14KP+4KC	Z	PS
BIK-UKB.21	Introduction to Cybersecurity Jakub Tetera, Jan B lohoubek Jakub Tetera Jan B lohoubek (Gar.)	Z,ZK	5	21KP+2KC	Z	PS
		Min. cours.				
DUCLOSS	ist volitelné p edm ty bakalá ského programu,	0	Min/Max			
BIK-V.2021	kombinovaná forma výuky, verze 2021 až 2024 BIK-ADW.1,BIK-STO, (see the list of groups below)	Max. cours.	0/31			V
		8				

Number of se	mester: 4					
Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
BIK-KAB.21	Cryptography and Security David Pokorný, Ji í Bu ek, Ji í Dostál, Róbert Lórencz, Ivana Trummová, Jaroslav K íž, František Ková, Filip Kodýtek Róbert Lórencz Róbert Lórencz (Gar.)	Z,ZK	5	14KP+4KC	E L	PP
BIK-OSY.21	Operating Systems Michal Šoch, Pavel Tvrdík, Jan Trdli ka Michal Šoch Michal Šoch (Gar.)	Z,ZK	5	14KP+4KC	L	PP
BIK-ADU.21	Unix Administration Petr Zemánek, Zden k Muziká Petr Zemánek Zden k Muziká (Gar.)	Z,ZK	5	14KP+4KC	L	PS
BIK-BEK.21	Secure Code Josef Kokeš Josef Kokeš (Gar.)	Z,ZK	5	14KP+4KC	L	PS
BIK-EHA.21	Ethical Hacking Ji í Dostál, Andrej Šimko, Martin Kolárik Ji í Dostál Ji í Dostál (Gar.)	Z,ZK	5	14KP+4KC	L	PS
		Min. cours.				
BIK-V.2021	ist volitelné p edm ty bakalá ského programu,	0	Min/Max			
	kombinovaná forma výuky, verze 2021 až 2024 BIK-ADW.1,BIK-STO, (see the list of groups below)	Max. cours.	0/31			V
		8				

Number of ser	mester: 5					
Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	e list of codes of their Completion Cred		Scope	Semester	Role
BIK-BPR.21	Bachelor project Zden k Muziká Zden k Muziká Zden k Muziká (Gar.)	Z	1		Z,L	PP
BIK-PST.21	Probability and Statistics Daniel Vašata Pavel Hrabák Pavel Hrabák (Gar.)	Z,ZK	5	14KP+4KC	Z	PP
BIK-ASB.21	Applied Network Security Ji í Dostál Ji í Dostál Ji í Dostál (Gar.)	Z,ZK	5	14KP+4KC	Z	PS
BIK-HWB.21	Hardware Security Jií Bu ek Jií Bu ek Jií Bu ek (Gar.)	Z,ZK	5	14KP+4KC	Z	PS
BIK-ZSB.21	Basics of System Security Ji í Dostál, Marián Svetlík Ji í Dostál Marián Svetlík (Gar.)	Z,ZK	5	14KP+4KC	Z	PS
		Min. cours.				
DUCIONA	ist volitelné p edm ty bakalá ského programu,	0	Min/Max			
BIK-V.2021	kombinovaná forma výuky, verze 2021 až 2024 BIK-ADW.1,BIK-STO, (see the list of groups below)	Max. cours.	0/31			V
	, , , ,	8				

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
BIK-TDP.21	Documentation and Presentation Tomáš Nová ek, Dana Vynikarová Tomáš Nová ek Dana Vynikarová (Gar.)	KZ	3	14KP+4KC	Z,L	PP
BIK-IB-PV.21	Povinn volitelné p edm ty specializace Informa ní bezpe nost, kombinovaná forma, verze 2021 BIK-TAB.21,BIK-VES, (see the list of groups below)	Min. cours. 1 Max. cours. 3	Min/Max 5/15			PV
BI-ZKA.21	Zkouška z angli tiny 2021 BI-ANG1,BIE-EEC, (see the list of groups below)	Min. cours. 1 Max. cours. 1	Min/Max 2/4			PJ
BIK-V.2021	ist volitelné p edm ty bakalá ského programu, kombinovaná forma výuky, verze 2021 až 2024 BIK-ADW.1,BIK-STO, (see the list of groups below)	Min. cours. 0 Max. cours. 8	Min/Max 0/31			V

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

Kód		Name of the group of group (for specification	f courses and on see here d	d codes of members of this or below the list of courses)	Com	pletion	Credi	ts Scope	Semester	Role
BI-ZKA	A.21	Zko	uška z angli	tiny 2021		cours. 1 . cours. 1	Min/M 2/4	ax		PJ
BI-ANG1	English La	nguage Examination wit	BIE-EEC	English language external certif		BI-ANG	· [English Langu	age, Internal	Certi
				,	Min.	cours.				
		Povinn volitelné	ánedm tv si	necializace Informa ní		1	Min/M	ax		
BIK-IB-I	JV.21	bezpe nost, l	p edm ty specializace Informa ní ombinovaná forma, verze 2021			. cours.	5/15			PV
						3				
BIK-TAB.21	Application	s of Security in Tech	BIK-VES	Embedded Systems		BIK-ZUN	1.21	Artificial Intelli	l gence Fundar	nen
				-	Min.	cours.				
						0	Min/M	ax		
BIK-V.2	2021	kombinovaná	forma výuky.	alá ského programu, verze 2021 až 2024	Max	. cours.	0/31			v
					- Max	8				
BIK-ADW.1	Windows A	Administration	BIK-STO	Storage and Filesystems		BIE-DIF		Differential eq	uations	
BIK-EJA	Enterprise	Java	BIK-HMI	History of Mathematics and Infor	•	BIK-SQL	.1	Language SQ	L	
BIK-OOP.21	Object-Ori	ented Programming	BIK-PJV	Programming in Java	BIK-PRR.21 Project management		gement			
BIK-PKM	Introductio	n to Mathematics	BIK-TAB.21	Applications of Security in Tech		TVV		Physical education		
TV1	Physical E	ducation	TVV0	Physical education		TV2K1		Physical Educ	ation 2	
BIK-TUR.21	User Interf	ace Design	BIK-KSA	Cultural and Social Anthropology		BIK-ZWU	J	Introduction to	Web and Use	er Int

List of courses of this pass:

Code	Name of the course	Completion	Credits
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	G	
BI-ANG1	English Language Examination without Preparatory Courses	Z,ZK	2
BI-BAP.21	Bachelor Thesis	Z	14

BIE-DIF	Differential equations	Z,ZK	5
This course provide	es a foundational overview of differential equations, starting with basic motivation and examples of ODEs and progressing to essential s		e separation
of variables. Key	theorems on existence and uniqueness establish when solutions can be guaranteed. Linear and system-based ODEs are covered wi	th methods like cha	aracteristic
polynomial analy	vsis, followed by examples of non-linear models such as predator-prey and epidemiological models to showcase real-world application	ns. Finally, an intro	duction to
partial differentia	l equations (PDEs) extends these concepts to multi-variable contexts. The course will also cover numerical methods for solving ODEs	and PDEs, includi	ing implicit
	and explicit Euler methods, Runge-Kutta methods, and finite element methods for both ODEs and PDEs.		
BIE-EEC	English language external certificate	Z	4
The BIE-ECC cour	se can be recognized for any active semester after the submission of a certificate certificate that demonstrates their proficiency in Engli	sh comparable to c	or exceeding
	the B2 level of the Common European Framework of Reference for Languages.	7 71/	-
BIK-AAG.21	Automata and Grammars	Z,ZK	5
	Juced to basic theoretical and implementation principles of the following topics: construction, use and mutual transformations of finite a nars, translation finite automata, construction and use of pushdown automata, hierarchy of formal languages. Knowledge acquired thr	-	
	to creation of algorithms for pattern matching, data compression, translation, simple parsing, and creation of digital circuits	0	s applicable
BIK-ADU.21	Unix Administration	Z,ZK	5
	the internal structure of the UNIX operating system, with the administration of its basic subsystems and with the security principles. They		
	administrator roles. They will get theoretical and practical knowledge of user management and administration, of users access rights,		
	ory, network services and remote access, and in the areas of system deployment and virtualization. In the labs, they will verify the know	-	-
· · · · · · · · · · · ·	specific examples from practice.		
BIK-ADW.1	Windows Administration	Z,ZK	4
	This course is presented in Czech.	_,	1 -
BIK-AG1.21	Algorithms and Graphs 1	Z,ZK	5
	resented in Czech. The course covers the basics from the efficient algorithm design, data structures, and graph theory, belonging to t		e of every
computing curricul	um. Students learn techniques of proofs of correctness of algorithms and techniques of asymptotic mathematics for estimation of their	complexity in the	best, worse,
or average case (th	ne course includes basics from probability theory needed for understanding randomized algorithms). Within exercises students learn ap	plications of studied	d algorithms
	for solving practical problems.		
BIK-APS.21	Architectures of Computer Systems	Z,ZK	5
Students will lea	in the construction principles of internal architecture of computers with universal processors at the level of machine instructions. Specific	cial emphasis is giv	ven on the
pipelined instruction	n processing and on the memory hierarchy. Students will understand the basic concepts of RISC and CISC architectures and the princ	ciples of instruction	n processing
not only in scala	r 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 cour	se further elaborates the principles and architectures of shared memory multiprocessor and multicore systems and the memory cohe	rence and consiste	ency in such
	systems.		
BIK-ASB.21	Applied Network Security	Z,ZK	5
	urse is to introduce selected topics from computer networks in terms of cybersecurity. These topics extend the basic knowledge gaine		
security applicat	tions like the public key infrastructure, encrypted network protocols, link and network layer security or wireless networks. After finishin	g the course stude	ent will get
	knowledge of security applications in computer networks.	7 71/	
BIK-BEK.21	Secure Code earn how to assess security risks and how to take them into account in the design phase of their own code and solutions. After getting fa	Z,ZK	5
	s gain practical experience with running programs with reduced privileges and methods of specifying these privileges, since not every		- 1
	vileges. Dangers inherent in buffer overflows will be practically demonstrated. Students will be introduced to the principles of securing		
	database systems, web, remote procedure calls, and sockets in general. The module concludes with Denial of Service attacks and the		
BIK-BPR.21	Bachelor project	Z	1
1. At the beginnir	g of the semester, the student reserves the topic of the bachelor's thesis and connects with the supervisor. He / she will arrange the	partial tasks that h	e / she will
perform during the	semester to process the assignment. If he completes these tasks, the supervisor will award him a credit from the subject BI-BPR at t	he end of the sem	ester. 2. The
external supervisor	r enters the information on granting the credit using the form "Granting credit from the external supervisor of the final thesis" (http://fit.cvu	t.cz/student/studijn	i/formulare).
	d signed form must be delivered in person or by email to the SZZ coordinator, who will arrange for the credit to be granted. 3. If the top		
has reserved is for	mulated more generally, the tasks assigned to him by the supervisor for the semester should be aimed primarily at fine-tuning the assigned to him by the supervisor for the semester should be aimed primarily at fine-tuning the assigned to him by the supervisor for the semester should be aimed primarily at fine-tuning the assigned to him by the supervisor for the semester should be aimed primarily at fine-tuning the assigned to him by the supervisor for the semester should be aimed primarily at fine-tuning the assigned to him by the supervisor for the semester should be aimed primarily at fine-tuning the assigned to him by the supervisor for the semester should be aimed primarily at fine-tuning the assigned to him by the supervisor for the semester should be added by the supervisor for the semester should be added by the supervisor for the semester should be added by the supervisor for the semester should be added by the supervisor for the semester should be added by the supervisor for the semester should be added by the supervisor for the semester should be added by the supervisor for the semester should be added by the supervisor for the semester should be added by the supervisor for the semester should be added by the semester should by the semester should be added by the semester should	gnment so that the	assignment
	can be supplemented and approved at the end of the semester.		
BIK-DBS.21	Database Systems	Z,ZK	5
	iainted with the architecture of the database engine and typical user roles. They learn to design the structure of a smaller data store (
	I model and then implement them in a relational database engine. They get acquainted with the SQL language and also with its theoret		
model. They will g	et acquainted with the principles of relational database schema normalization. They understand the basic concepts of transaction pro user access to a single data source. At the end of the course, students will be introduced to alternative nonrelational database n	•	or or parallel
BIK-DML.21	Discrete Mathematics and Logic		5
	DISCIPLE Mathematics and Logic cquainted with the basic concepts of propositional logic and predicate logic and learn to work with their laws. Necessary concepts fro	Z,ZK	
-	s paid to relations, their general properties, and their types, especially functional relations, equivalences, and partial orders. The cours		
	combinatorics and number theory, with emphasis on modular arithmetics.		
BIK-EHA.21	Ethical Hacking	Z,ZK	5
	professional and academic introduction to computer and information security using the ethical hacking approach, which enables improv	· ·	
-	et when discovering vulnerabilities, hands-on experience with different attacks, facilitates linking theory and practice in significant area		
	can therefore be utilized by (future) security professionals, (informed) decision-makers, (savvy) users and developers alike	-	-
BIK-EJA	Enterprise Java	KZ	4
	Java technologies (Jakarta EE, Microprofile, etc.) which are used for the development of EIS (Enterprise Information Systems). These	1	
pe	rsistent data, are accessible to clients via the REST API and are created in the microservice architecture and deployed into orchestra	ted containers.	
BIK-GIT.21	SW Development Technologies	Z	3
	ed at one of the rudimental team software development technology - version control. To be more specific, we will introduce students to	o Git, the informati	
	from hell, as Linus Torvalds nicknamed it, and provide a comprehensive guide into its depths, as well as for day-to-day use	<u>}.</u>	
BIK-HMI	History of Mathematics and Informatics	ZK	3
	This course is presented in Czech.		
BIK-HWB.21	Hardware Security	Z,ZK	5
The course deals w	ith hardware resources used to ensure security of computer systems including embedded ones. Students become familiar with the operative	ating principles of cr	ryptographic
modules, security f	eatures of modern processors, and storage media protection through encryption. They will gain knowledge about vulnerabilities of HW res	sources, including s	side-channel

BIK-MA12 Cryptography and Security Z.X 5 BIK-MA21 Cryptography and Security Z.X 5 BIK-MA21 Characterize and any security of any an over end or security and any any end or security and any end or security and any end or security and any end or security any end or security any end or security and any end or security	attacks and tamperir	ng with hardware during manufacture. Students will have an overview of contact and contactless smart card technology including a for multi-factor authentication (biometrics). Students will understand methods of efficient implementations of ciphers.	pplications and rel	lated topics
Students and understand the mathematical boundarios of cryptographic aging in overview of curried cryptographic aging and constraints of the space of the comparison of the student of the curried of the current of the	BIK-KAB.21		Z.ZK	5
Bit Key SA Collutional and Social Anthropology ZX 2 Bit Key SA Collutional and Social Anthropology is a scientific discipline design the discretized of the word - scampes from inforce/gobial research the nor collect as the fit on the science and the scien	Students will under	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	· ·	c keys and
BIK-K6X Cultural and Social Anthropology ZK 2 BIK-K6X Collared anthropology ZK 2 BIK-M221 Linear Algebra Collared Algebra Collared Algebra BIK-L0121 Linear Algebra Collared Algebra CZK S BIK-L0121 Linear Algebra Use and the collared collared algebra CZK S BIK-L0121 Linear Algebra Use and the collared collared algebra CZK S BIK-L0121 Linear Algebra Use and the collared collared algebra CZK S BIK-L0121 Linear Algebra Use and the collared collared collared algebra EXK S CZK S BIK-M0121 Mathematical Analysis Mathematical Analysis CZK S T CZK S T T CZK S T CZK	certificates in system	as based on them and learn the basics of safe use of symmetric and asymmetric cryptographic systems and hash functions in appl	ications. Within lat	bs, students
The one semistar mount mount a mutual and adults and adults and aturning administer dualing with the direct of the mount - exempting from interpologies attemates to board in manifest graph attemates to other internanities. Larget a first interpologies attemates to the discont space on the interpologies attemates to be and complex numbers and a spreaders dual to the discont internation method. The discont is and the discont interpologies attemates to a specific discont interpologies attemates to a specific discont interpologies attemates and a spreaders dual to the discont interpologies attemates and a spreaders dual to the discont interpologies attemates and a spreaders dual to the discont interpologies attemates attemates and the discont interpologies attemates attemates attemates and the discont interpologies attemates atte		tical skills in using standard cryptographic methods with an emphasis on security and will also get acquainted with the basic proce	dures of cryptanal	ysis.
antergroupside research from our callure as well as from the "south" once (priors trends), migrater, dipolarization, magnetic polarization, and end calcum, language, hearth, heard well of the all colors is an interesting all arrants to ord threminolis, study 11 arrants is construmenting, study 11 arrants, study 11 ar				
Bitk L1.21 Lincer Algebra 1 Z.ZK 5 We will instance students to the basic corcepts of larear algebra, such as vectors, matrices, wetors passes. We will define vector spaces. We will also learn to find of and and complex numbers and as correlation fields. We will also learn to find and complex numbers and as correlation fields. We will also learn to find and complex numbers and as correlation fields. We will also learn to find and complex numbers and algorithmic to site systems. The interaction of the components is non-static system of the complex of			-	
BIK-LA121 Under Algebra 1 ZZK 5 We all introduce matches the basic concepts of lease and dimension, wheth yearset. We will define vector spaces over the field of earl water components of lease and dimension and learn to solve systems of linear equations using CB4. We will all be sent to find segmentize and experimentation method (SEM) was allow the concepts in concepts in concepts expected on a distribution of the segmentizes and lease on the distribution of the segmentizes and lease on the segmentize and lease on the segmentize and lease on the segmentizes and lease ond lease on the segmentizes and lease on the segmentizes	anthropological resea		lture, language, he	ealth, history,
We will instruct analysis of the basic coroupts of imare algebra, such as vectors, militrees, vector spaces, we will define the age-assists attimution tend (ESM) and those the correspits of the advectors of a markit. We will also clears the find of the advectors of a markit. We will also clears the find of the advectors of a markit. We will also clears the find of the advectors of a markit. We will also clears the find of the advectors of a markit. We will also clears the find of the advectors of a markit. We will also clears the find of the advectors and the advectors and the advectors and the advectors and the advectors. The how the advectors and the advectors advectors. There advectors advector				
and also core rinke fields. We will present the concepts of basis and denses and also is not to able systems of these responsive single Gaussian bind algorizations and early the to concept on the dense markets. We will also derive that also and single Gaussian bind algorizations and early the finances and presents or a stark well also derive that also and single Gaussian bind algorizations and early the concepts in computer science. Birk MA12 Mathematical Analysis 1 Mathematical Analysis 1 Birk MA221 Mathematical Analysis 1 Birk MA221 Mathematical Analysis 1 Birk MA221 Mathematical Analysis 2 Birk MA221 ZAK 5 Birk MA221 Dire birt all provide the birk of the subset all provide the	1	•	, ,	-
the convection with linear manifolds. We define the regularity of matrices and team to find their investions using GEX. We will also learn to find eigenvalues and eigenvectors of a matrix. We value determines a competion computer values concepts in computer values. The set to set as tequences and real functions of a new values and team to an observation of any value set to the set of a new values of a set sequences and tread functions of a new values and team to an observation and team observations. This there are study or all sequences and functions, continuous hunclins, and derivations of a computer of a set of a new value of an and values of a new value of an and values of a new value of an and values of a new value of a set of new value of a set of new values of a new value of a set of new values of a new value of a set of new value of a new value of a new value of a set of new values of a new value of a new value of a set of new value of a new value of a new value of new values of new values of a new value of a new value of a new value of new values of new values of a new value of new values of new			-	
Instruction of these concepts of the concepts restores. Image: Concepts of the concept			-	
BIK-MAL21 Mathematical Analysis 1 Z,ZK 5 We begin the course by introducing students to the set of emprises and the products, and we note in differences with the set of machine numbers. This meresteal bunchadows are read hunclions, continuous hunclion, and derivatives of functional methods the expected in control control discret discretion (Figure 9. Interview). The course is cleased with the Landaus asymptote notation and methods of mathematical discretion of complexity of agortments of the course is cleased with the Landaus asymptote notation and methods of mathematical discretion of complexity of agortments and step to the course is cleased with the Landaus asymptote notation and methods of mathematical discretion of complexity of agortment and step to the course is cleased with the Landaus asymptote notation and methods of mathematical discretion of complexity of agortment and step to the course in the order of the course is cleased with the landaus asymptote notation and methods of mathematical analysis of real functions of a method with discretion functions and methods of functions of the complexity of the course is discretion of the course is discretion of the course bit bit bit of the course bit of the course bit of the cour			alues and eigenve	
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BIK-TAB.21	Applications of Security in Technology	Z,ZK	5
The goal of the co	urse is to introduce students to selected topics from cybersecurity technical applications that are utilized in different industries. Stude	nts get a broader d	overview of
	cybersecurity applications and extend their knowledge from the cryptology, the secure code, and system, network, and hardware	security.	
BIK-TDP.21	Documentation and Presentation	KZ	3
The course is focus	ed on the basics of creating electronic documentation with emphasis on the creation of technical reports of a larger scope, typically fir	nal university these	es. Students
learn to create text	of a technical report in the LaTeX system, process an electronic presentation using the LaTeX Beamer system, and practically prese	nt it in front of clas	smates and
the teacher. The o	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	days of teaching.	Nithin the
	exercises of the course, an active approach to the creation of individual parts of the bachelor's thesis is assumed.		
BIK-TUR.21	User Interface Design	Z,ZK	5
Students gain a ba	asic overview of methods for designing and testing common user interfaces. They get experience to solve the problems where softwa	ire and other produ	ucts do not
communicate with t	the user optimally, since the needs and characteristics of users are not taken into account during product development. Students gair	n an overview of m	ethods that
	bring users into the development process to ensure optimal interface for them.		
BIK-TZP.21	Technological Fundamentals of Computers	Z,ZK	5
Students get acqua	inted with the fundamentals of digital and analog circuits, as well as basic methods of analyzing them. Students learn how computer st	ructures look like a	at the lowest
level. They are intro	pduced to the function of a transistor. They will understand why processors generate heat, why cooling is necessary, and how to redu	ce the consumptio	n; what the
limits to the maxim	um operating frequency are and how to raise them; why a computer bus needs to be terminated, what happens if it is not; how a com	nputer power suppl	y looks like
	(in principle). In the labs, students model the behavior of basic electrical circuits in SW Mathematica.		
BIK-UKB.21	Introduction to Cybersecurity	Z,ZK	5
The goal of the cou	urse is to provide students with the introduction of basic concepts in modern approach to cybersecurity. Students will get a basic over		cyberspace
	and attacker techniques, security mechanisms in networks, operating systems and applications, as well as of basic cyberspace reg	julations.	
BIK-UOS.21	Unix-like Operating Systems	KZ	5
Unix-like operating	systems represent a large family mostly open-source codes that kept bringing during the history of computers efficient innovative fun	nctions of multiuse	r operating
systems for compu	uters and their networks and clusters. The most popular OS today, Android, has a unix kernel. Students get overview of basic propert	ies of this OS fami	ly, such as
processes and thre	ads, access rights and user identity, filters, or handling files in a file system. They learn to use practically these systems at the level o	f advanced users	who are not
,	to utilize powerful system tools that are available to users, but are also able to automatize routine agenda using the unix scripting int	erface, called shel	Ι.
BIK-VES	Embedded Systems	Z,ZK	5
Students learn to de	esign embedded systems and develop software for them. They get basic knowledge of the most common microcontrollers and embedd	ed processors, the	ir integrated
	peripheral circuits, programming methods, and applications. They get practical skills with development kits and tools.		
BIK-ZSB.21	Basics of System Security	Z,ZK	5
The goal of the co	urse is to provide introduction to basic concepts in security of computer systems. Further, the course introduces the basics of forensi	c analysis and rela	ated topics
such as malware a	nalysis or incident response. After finishing the course student will get both theoretical and practical knowledge in the area of moder	n operating system	ns security,
	as well as skills needed for independent work in the area of operating system security incident analysis.		
BIK-ZUM.21	Artificial Intelligence Fundamentals	Z,ZK	5
Students are introdu	uced to the fundamental problems in the Artificial Intelligence, and the basic methods for their solving. It focuses mainly on the classica	al tasks from the ar	eas of state
space search, multi	-agent systems, game theory, planning, and machine learning. Modern soft-computing methods, including the evolutionary algorithms	s and the neural ne	etworks, will
	be presented as well.		
BIK-ZWU	Introduction to Web and User Interfaces	Z,ZK	4
	This course is presented in Czech.		
TV1	Physical Education	Z	0
TV2K1	Physical Education 2	Z	1
TVV	Physical education	Z	0
TVV0	Physical education	Z	0
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For updated information see <u>http://bilakniha.cvut.cz/en/FF.html</u> Generated: day 2025-08-12, time 09:45.