Study plan

Name of study plan: Bachelor Specialization Software Engineering, in Czech, 2024

Garantor of the si Program of study Type of study: Ba Required credits: Elective courses Sum of credits in Note on the plan: akademického ro	juaranteed by the department: Welcome page audy branch: Informatika chelor full-time 153 credits: 27					chal
	k: Compulsory courses in the program of credits of the block: 106 ock: PP					
2021 Requirement creat Requirement cour Credits in the gro Note on the lf group: lr B E of in p	b: Compulsory Courses of Bachelor Study Program dits in the group: In this group you have to gain 100 rses in the group: In this group you have to complet up: 106 you plan to profile the specialization Information Security, Ma ternet, Computer Systems and Virtualization, Software Engin I-PSI.21 in your 2nd semester of study. If you plan to profile to ngineering, Computer Science, or Artificial Intelligence, enror f study. If you plan to profile yourself in the Artificial Intelligence your 3rd semester of study. Otherwise, enroll in the course an to profile the specialization Artificial Intelligence or Web I	6 credits ete 20 cou anagement I neering, or W he specializa oll in the cou ice specializa BI-PSI.21 in Engineering,	rses nformati Veb Engi ation Co rse BI-P ation, en your 5th enroll ir	cs, Com neering, mputer (SI.21 in y roll in th n semes n the cou	puter Netw enroll in th Graphics, C your 4th se e course E ter of study rse BI-AA	vorks and the course Computer emester BI-PST.21 y. If you
Code	bur 5th semester of study. Otherwise, enroll in the course BI Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members)	Completion				Role
BI-AG1.21	Tutors, authors and guarantors (gar.) Algorithms and Graphs 1 Dušan Knop, Michal Opler, Ond ej Suchý, Tomáš Valla, Radek Hušek Dušan Knop Dušan Knop (Gar.)	Z,ZK	5	2P+2C	z	PP
BI-AAG.21	Automata and Grammars Jan Holub, Jan Janoušek Jan Holub Jan Holub (Gar.)	Z,ZK	5	2P+2C	Z	PP
BI-BAP.21	Bachelor Thesis Zden k Muziká Zden k Muziká (Gar.)	Z	14		L,Z	PP
BI-BPR.21	Bachelor project Zden k Muziká Zden k Muziká (Gar.)	Z	1	0P+0C	Z,L	PP
BI-DBS.21	Database Systems Michal Valenta, Jan Blizni enko, Ji í Hunka, Monika Borkovcová, Jan Matoušek, Pavel K íž, Št pán Pechman, Dominik Roudný, Jan Bittner, Ji í Hunka Michal Valenta (Gar.)	Z,ZK	5	2P+2R+1L	. L	PP
BI-DML.21	Discrete Mathematics and Logic Ji ina Scholtzová, Daniel Dombek, Jan Sp vák Daniel Dombek Jan Sp vák	Z,ZK	5	2P+1R+1C	Z	PP
BI-KAB.21	(Gar.) Cryptography and Security Ivana Trummová, Tomáš Rabas, Tomáš Zahradnický, Ji í Bu ek, Róbert Lórencz, Julia Plotnikova, David Pokorný, Jakub Tetera Róbert Lórencz Róbert Lórencz (Gar.)	Z,ZK	5	2P+2C	L	PP
BI-LA1.21	Linear Algebra 1 Lud k Kleprlík, Jakub Krásenský, Karel Klouda Lud k Kleprlík Karel Klouda (Gar.)	Z,ZK	5	2P+1R+1C	Z	PP

BI-UOS.21	Unix-like Operating Systems Zden k Muziká, Petr Zemánek, Viktor erný, Michal Hažlinský, Jakub Jan i ka, Miroslav Prágl, Michal Šoch, Jan Trdli ka, Yelena Trofimova, Zden k Muziká Zden k Muziká (Gar.)	KZ	5	2P+2C	Z	PP
BI-TDP.21	Documentation and Presentation Ond ej Guth, Petra Pavlí ková, Dana Vynikarová, Alena Libánská, Tomáš Nová ek Dana Vynikarová Dana Vynikarová (Gar.)	KZ	3	2P+2C	Z,L	PP
BI-GIT.21	SW Development Technologies Petr Pulc, Robin Ob rka Robin Ob rka Petr Pulc (Gar.)	Z	3	2P	Z	PP
BI-TZP.21	Technological Fundamentals of Computers Jan ezní ek, Jaroslav Borecký, Robert Hülle, Martin Kohlík, Vojt ch Miškovský, Martin Novotný, Matúš Olekšák Martin Novotný Martin Novotný (Gar.)	Z,ZK	5	2P+2C	Z	PP
BI-SAP.21	Computer Structure and Architecture Hana Kubátová, Jaroslav Borecký, Petr Fišer, Martin Kohlík Hana Kubátová Hana Kubátová (Gar.)	Z,ZK	5	2P+1R+2C	L	PP
BI-PA2.21	Programming and Algorithmics 2 Radek Hušek, Jan Trávní ek, Josef Vogel, Ladislav Vagner Jan Trávní ek Jan Trávní ek (Gar.)	Z,ZK	7	2P+1R+2C	L	PP
BI-PA1.21	Programming and Algorithmics 1 Radek Hušek, Jan Trávní ek, Miroslav Balík, Josef Vogel, Ladislav Vagner Jan Trávní ek Jan Trávní ek (Gar.)	Z,ZK	7	2P+2R+2C	Z	PP
BI-PST.21	Probability and Statistics Kamil Dedecius, Pavel Hrabák, Jitka Hrabáková, Petr Novák, Jana Vacková Pavel Hrabák Pavel Hrabák (Gar.)	Z,ZK	5	2P+2C	Z	PP
BI-PSI.21	Computer Networks Viktor erný, Michal Hažlinský, Vladimír Smotlacha, Yelena Trofimova, Jan Fesl, Josef Koumar, Petr Hoda , Josef Zápotocký, Michal Polák, Jan Fesl Jan Fesl (Gar.)	Z,ZK	5	2P+1R+1C	L	PP
BI-OSY.21	Operating Systems Petr Zemánek, Ji í Kašpar, Michal Štepanovský, Jan Trdli ka, Pavel Tvrdík, Ladislav Vagner Pavel Tvrdík Michal Štepanovský (Gar.)	Z,ZK	5	2P+1R+1L	L	PP
BI-MA2.21	Mathematical Analysis 2 Pavel Hrabák, Tomáš Kalvoda, Ivo Petr, Petr Olšák, Pavel Paták Tomáš Kalvoda Tomáš Kalvoda (Gar.)	Z,ZK	6	3P+2C	Z	PP
BI-MA1.21	Mathematical Analysis 1 Pavel Hrabák, Tomáš Kalvoda, Ivo Petr, Petr Olšák, Pavel Paták Tomáš Kalvoda Tomáš Kalvoda (Gar.)	Z,ZK	5	2P+1R+1C	L	PP

Characteristics of the courses of this group of Study Plan: Code=BI-PP.21 Name=Compulsory Courses of Bachelor Study Program Informatics, presented in Czech, version 2021

BI-AG1.21 Algorithms and Graphs 1	Z,ZK	5			
The course covers the basics of efficient algorithm design, data structures, and graph theory, belonging to the core knowledge of every computing of	urriculum. It links a	and partially			
develops the knowledge from the course BI-DML.21, in which students acquire the knowledge and skills in combinatorics necessary for evaluating the	ne time and space	complexity of			
algorithms. The course also follows up knowledge from BI-MA1.21, the practical usage of asymptotic mathematics, in particular, the asymptotic notat	tion.				
BI-AAG.21 Automata and Grammars	Z,ZK	5			
Students are introduced to basic theoretical and implementation principles of the following topics: construction, use and mutual transformations of fini	ite automata, regu	lar expressions,			
and regular grammars, context-free grammars, construction and use of pushdown automata, and translation grammars and transducers. They know	the hierarchy of fo	ormal languages			
and they understand the relationships between formal languages and automata. They are introduced to the Turing machine and complexity classes F	P and NP.				
BI-BAP.21 Bachelor Thesis	Z	14			
BI-BPR.21 Bachelor project	Z	1			
1. At the beginning of the semester, the student reserves the topic of the bachelor's thesis and connects with the supervisor. He / she will arrange the	e partial tasks tha	t he / 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 the end of the	semester. 2. The			
external supervisor enters the information on granting the credit using the form "Granting credit from the external supervisor of the final thesis" (http://fit.cvut.cz/student/studijni/formulare)					
The completed and 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 topic of the work that the student					
has reserved is formulated more generally, the tasks assigned to him by the supervisor for the semester should be aimed primarily at fine-tuning the assignment so that the assignment					
can be supplemented and approved at the end of the semester.					
BI-DBS.21 Database Systems	Z,ZK	5			
Students are introduced to the database engine architecture and typical user roles. They are briefly introduced to various database models. They lea	rn to design smal	databases			
(including integrity constraints) using a conceptual model and implement them in a relational database engine. They get a hands-on experience with t	the SQL language	, as well as with			
its theoretical foundation - the relational database model. They learn the principles of normalizing a relational database schema. They understand the fun	ndamental concep	ots of transaction			
processing, controlling parallel user access to a single data source, as well as recovering a database engine from a failure. They are briefly introduce	ed to special ways	of storing data			
in relational databases with respect to speed of access to large quantities of data. This introductory-level course does not cover: Administration of data	tabase systems,	debugging and			
optimizing database applications, distributed database systems, data stores.					
BI-DML.21 Discrete Mathematics and Logic	Z,ZK	5			
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 w	ill be explained.			
Special attention is paid to relations, their general properties, and their types, especially functional relations, equivalences, and partial orders. The co	ourse also lays do	wn the basics of			
combinatorics and number theory, with emphasis on modular arithmetics.					
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	o use cryptograph	ic keys and			
certificates in systems based on them and learn the basics of safe use of symmetric and asymmetric cryptographic systems and hash functions in a	pplications. Withir	labs, students			
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-LA1.21 Linear Algebra 1	Z,ZK	5			
We will introduce students to the basic concepts of linear algebra, such as vectors, matrices, vector spaces. We will define vector spaces over the fie	ld of real and con	plex numbers			
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 elin	mination method (GEM) and show			
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 eiger	nvalues and eigen	vectors of a			
matrix. We will also demonstrate some applications of these concepts in computer science.					

BI-MA1.21 Mathematical Analysis 1	Z,ZK	5
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 number	ers. Then we study	real sequences
and real functions of a real variable. We gradually introduce the notions of limits of sequences and functions, continuous functions, and derivatives of fu	inctions. This theor	etical foundation
is then applied to root-finding problems (iterative method of bisection and Newtons method), construction of cubic interpolation (spline), and formulation	and solution of sir	nple optimization
problems (i.e., the issue of finding extrema of functions). The course is closed with the Landaus asymptotic notation and methods of mathematical desc	cription of complex	ity of algorithms.
BI-MA2.21 Mathematical Analysis 2	Z,ZK	6
The course completes the theme of analysis of real functions of a real variable initiated in BI-MA1 by introducing the Riemann integral. Students will	1 1	-
use the substitution method. The next part of the course is devoted to number series, and Taylor polynomials and series. We apply Taylors theorem t	•	
functions with a prescribed accuracy. Then we study the linear recurrence equations with constant coefficients, the complexity of recursive algorithms	-	-
theorem. Finally, we introduce the student to the theory of multivariate functions. After establishing basic concepts of partial derivative, gradient, and		-
analytical method of localization of local extrema of multivariate functions as well as the numerical descent method. We conclude the course with the in		-
BI-OSY.21 Operating Systems	Z,ZK	5
In this course that is a follow-up of the Unix-like operating systems course students deepen their knowledge in areas of OS kernels, process and thread	1 '	
critical regions, thread scheduling, shared resource allocation and deadlocks, management of virtual memory and data storages, file systems, OS r		
and implement simple multithreaded applications. General principles are illustrated on operating systems Solaris, Linux, or MS Windows.	normornigi inoj u	to able to accigit
BI-PSI.21 Computer Networks	Z.ZK	5
The course introduces students to the principles of computer networking. It covers basic technologies, protocols, and services commonly used in lo	1 '	-
well. The lectures will be amended by proseminars that introduce students into network programming and demonstrate the abilities of advanced net	-	. Students
practically verify configurations and management of network devices in the lab within the environment of the operating systems Linux and Cisco IOS	1	
BI-PST.21 Probability and Statistics	Z,ZK	5
Students will learn the basics of probabilistic thinking, the ability to synthesize prior and posterior information and learn to work with random variable	-	
models of random variable distributions and solve applied probabilistic problems in informatics and computer science. Using the statistical induction	,	
estimations of unknown distributional parameters from random sample characteristics. They will also be introduced to the methods for testing statist	ical hypotheses ar	nd determining
the statistical dependence of two or more random variables.		
BI-PA1.21 Programming and Algorithmics 1	Z,ZK	7
Students gain the ability to formulate algorithms for solving basic problems and write them in the C language. They understand data types (simple, s	structured, pointer	s), expressions,
statements, functions, concept of recursion. They learn to analyse simple cases of algorithm complexity. They know fundamental algorithms for sear	rching, sorting, and	d manipulating
with linked lists and trees.		
BI-PA2.21 Programming and Algorithmics 2	Z,ZK	7
Students know the instruments of object-oriented programming and are able to use them for specifying and implementing abstract data types (stack,	, queue, enlargeat	le array, list, set,
table). They learn these skills using the C++ programming language and are introduced to all C++ features needed in object-oriented programming	(e.g., template pro	ogramming,
copying/moving of objects, operator overloading, inheritance, polymorphism).		
BI-SAP.21 Computer Structure and Architecture	Z.ZK	5
Students will get acquainted with the basic architecture and units of a digital computer, understand the structure, function, and implementation of ar	ithmetic-logic unit	
memory, I/O communication, methods of data transfers between the units. The logic design and the implementation of a program-controlled simple pr	-	
in the labs using programmable circuits (FPGA), a single-chip microcomputer, and modern design (EDA) tools.		
BI-TZP.21 Technological Fundamentals of Computers	Z,ZK	5
Students get acquainted with the fundamentals of digital and analog circuits, as well as basic methods of analyzing them. Students learn how computers		-
level. They are introduced to the function of a transistor. They will understand why processors generate heat, why cooling is necessary, and how to r		
limits to the maximum operating frequency are and how to raise them; why a computer bus needs to be terminated, what happens if it is not; how a		-
(in principle). In the labs, students model the behavior of basic electrical circuits in SW Mathematica.	compater perior e	
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 studer		-
		manon manager
from hell, as Linus Torvalds nicknamed it, and provide a comprehensive guide into its depths, as well as for day-to-day use.	1/7	0
BI-TDP.21 Documentation and Presentation	KZ	3
The course is focused on the basics of creating electronic documentation with emphasis on the creation of technical reports of a larger scope, typical		
learn to create text of a technical report in the LaTeX system, process an electronic presentation using the LaTeX Beamer system, and practically p		
the teacher. The 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 teachin	g. Within the
exercises of the course, an active approach to the creation of individual parts of the bachelor's thesis is assumed.	1	
BI-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	e functions of mult	iuser operating
systems for computers and their networks and clusters. The most popular OS today, Android, has a unix kernel. Students get overview of basic prop	perties of this OS f	amily, such as
processes and threads, access rights and user identity, filters, or handling files in a file system. They learn to use practically these systems at the le		sers who are not
only able to utilize powerful system tools that are available to users, but are also able to automatize routine agenda using the unix scripting interface	e, called shell.	
Name of the block: Compulsory courses in the specialization		
Minimal number of credits of the block: 40		
IVIIIIIIIIAI HUHIDEI OI CIEUILS OI LITE DIOCK. 40		

The role of the block: PS

Code of the group: BI-PS-SI.21

Name of the group: Compulsory courses of specialization Software engineering, version 2021 Requirement credits in the group: In this group you have to gain 40 credits Requirement courses in the group: In this group you have to complete 8 courses Credits in the group: 40 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
BI-KOM.21	Conceptual Modelling Robert Pergl, Marek B lohoubek Robert Pergl Robert Pergl (Gar.)	Z,ZK	5	2P+2C	Z	PS
BI-OOP.21	Object-Oriented Programming Filip K ikava, Petr Máj, Filip íha Filip K ikava Filip K ikava (Gar.)	Z,ZK	5	2P+2C	Z	PS
BI-PPA.21	Programming Paradigms Jan Janoušek, Tomáš Pecka, Petr Máj, Tomáš Jakl Jan Janoušek Jan Janoušek (Gar.)	Z,ZK	5	2P+2R	Z	PS
BI-SWI.21	Software Engineering Michal Valenta, Ji í Mlejnek, Zden k Rybola Zden k Rybola Michal Valenta (Gar.)	Z,ZK	5	2P+1C	L	PS
BI-SP1.21	Team Software Project 1 Michal Valenta, Ji í Chludil, Ji í Mlejnek, Ji í Hunka, Zden k Rybola, Ji í Borský, Jan Matoušek, Radek Richtr, Marek Suchánek, Zden k Rybola Ji í Mlejnek (Gar.)	кz	5	2C	L	PS
BI-SP2.21	Team Software Project 2 Stanislav Kuznetsov, Michal Valenta, Ji í Chludil, Ji í Mlejnek, Ji í Hunka, Zden k Rybola, Ji í Borský, Jan Matoušek, Radek Richtr, Ji í Mlejnek Ji í Mlejnek (Gar.)	кz	5	2C	Z	PS
BI-TJV.21	Java Technology Stanislav Kuznetsov, Jan Blizni enko, Ji í Dan ek, Raian Samerkhanov Ji í Dan ek	Z,ZK	5	2P+2C	Z	PS
BI-IDO.21	Introduction to DevOps Michal Valenta, Ji í Mlejnek, Tomáš Vondra, Zden k Rybola Tomáš Vondra Ji í Mlejnek (Gar.)	Z,ZK	5	2P+2C	Z	PS

Characteristics of the courses of this group of Study Plan: Code=BI-PS-SI.21 Name=Compulsory courses of specialization Software engineering, version 2021

BI-KOM.21 Conceptual Modelling	Z,ZK	5
The course is focused on developing abstract thinking and precise formulation skills using conceptual models. Students learn skills of discerning key	terms in a domai	n, the ability to
categorize and specify correct relations in complex systems of social reality, mostly enterprises and institutions. Students learn basics of ontological str	ructural modeling	in the OntoUML
notation. Next, they learn how to express business rules and constraints using the OCL language and foundations of OWL/RDF semantic data repres	entation in the Int	ernet. They also
learn the foundations of enterprise engineering, being a discipline for conceptual modelling of enterprises and institutes and their processes. The DEM	O method and the	BPMN notation
will be taught. The course is designed with the respect to continuation in software implementations. Recommended optional follow-up course: BI-ZPI.		
BI-OOP.21 Object-Oriented Programming	Z,ZK	5
Object-oriented programming has been used in the last 50 years to solve computational problems by using graphs of objects that collaborate togethe	er by message pa	ssing. In this
course students get acquainted with the main principles of object-oriented programming and design, used in modern programming languages. The en	nphasis is on prac	tical techniques
for developing software, which includes testing, error handing, refactoring, and application of design pattern.		
BI-PPA.21 Programming Paradigms	Z,ZK	5
The course deals with basic paradigms of high-level programming languages, including their basic execution models, benefits, and disadvantages of	particular approa	ches. Functional
programming paradigm and its basic principles are explained in details. Logic programming is introduced as another way of declarative programming.	. The principles ar	e demonstrated
on lambda calculus and on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern main:	stream programm	ing languages
such as C++ and Java.		
BI-SWI.21 Software Engineering	Z,ZK	5
Students get acquainted with methods of analysis and design of larger software projects that are typically designed and implemented in teams. They	consolidate and	practically verify
their knowledge during the analysis and design of larger software systems that will be developed in the concurrent course BIE-SP1. Students get hand	ds-on experience	with CASE tools
and the second		
using the visual language UML for modeling and solving software problems. Students learn the basics of object-oriented analysis, architecture design	n and testing. With	nin the course,
using the visual language UML for modeling and solving software problems. Students learn the basics of object-oriented analysis, architecture design students also gain a theoretical basis in the field of project management, estimation of costs of software projects, and methods of their development.	•	nin the course,
	•	nin the course,
students also gain a theoretical basis in the field of project management, estimation of costs of software projects, and methods of their development.	KZ	5
students also gain a theoretical basis in the field of project management, estimation of costs of software projects, and methods of their development.BI-SP1.21Team Software Project 1	KZ SIE-SWI course	5 that runs
students also gain a theoretical basis in the field of project management, estimation of costs of software projects, and methods of their development. BI-SP1.21 Team Software Project 1 Students gain hands-on experience with the analysis, design, and prototyping of a large-scale software system. Theoretical support is provided in the	KZ e BIE-SWI course acher, in the role of	5 that runs of the team and
students also gain a theoretical basis in the field of project management, estimation of costs of software projects, and methods of their development. BI-SP1.21 Team Software Project 1 Students gain hands-on experience with the analysis, design, and prototyping of a large-scale software system. Theoretical support is provided in the concurrently and that teaches students necessary techniques and principles. Teams consisting of 4-6 students will work on a specific project. The team	KZ e BIE-SWI course acher, in the role of	5 that runs of the team and
students also gain a theoretical basis in the field of project management, estimation of costs of software projects, and methods of their development. BI-SP1.21 Team Software Project 1 Students gain hands-on experience with the analysis, design, and prototyping of a large-scale software system. Theoretical support is provided in the concurrently and that teaches students necessary techniques and principles. Teams consisting of 4-6 students will work on a specific project. The team project leader, regularly consults with the team (at the seminars) both the formal and material aspects of the software design. The resulting software set of the software design. The resulting software set of the software design.	KZ e BIE-SWI course acher, in the role of	5 that runs of the team and
students also gain a theoretical basis in the field of project management, estimation of costs of software projects, and methods of their development. BI-SP1.21 Team Software Project 1 Students gain hands-on experience with the analysis, design, and prototyping of a large-scale software system. Theoretical support is provided in the concurrently and that teaches students necessary techniques and principles. Teams consisting of 4-6 students will work on a specific project. The teap project leader, regularly consults with the team (at the seminars) both the formal and material aspects of the software design. The resulting software and finished in the BIE-SP2 course.	KZ e BIE-SWI course acher, in the role o artefact will be fu	5 that runs of the team and rther developed 5
students also gain a theoretical basis in the field of project management, estimation of costs of software projects, and methods of their development. BI-SP1.21 Team Software Project 1 Students gain hands-on experience with the analysis, design, and prototyping of a large-scale software system. Theoretical support is provided in the concurrently and that teaches students necessary techniques and principles. Teams consisting of 4-6 students will work on a specific project. The team project leader, regularly consults with the team (at the seminars) both the formal and material aspects of the software design. The resulting software and finished in the BIE-SP2 course. BI-SP2.21 Team Software Project 2	KZ e BIE-SWI course acher, in the role of artefact will be fu KZ	5 that runs of the team and rther developed 5 I course project.
students also gain a theoretical basis in the field of project management, estimation of costs of software projects, and methods of their development. BI-SP1.21 Team Software Project 1 Students gain hands-on experience with the analysis, design, and prototyping of a large-scale software system. Theoretical support is provided in the concurrently and that teaches students necessary techniques and principles. Teams consisting of 4-6 students will work on a specific project. The team of finished in the BIE-SP2 course. BI-SP2.21 Team Software Project 2 Students gain hands-on experience with the iterative development process while working on a large-scale software project. The first iteration is the res	KZ e BIE-SWI course acher, in the role of artefact will be fu KZ ult of the BIE-SP1 rk in teams of 4-6	5 that runs of the team and rther developed 5 I course project.
students also gain a theoretical basis in the field of project management, estimation of costs of software projects, and methods of their development. BI-SP1.21 Team Software Project 1 Students gain hands-on experience with the analysis, design, and prototyping of a large-scale software system. Theoretical support is provided in the concurrently and that teaches students necessary techniques and principles. Teams consisting of 4-6 students will work on a specific project. The team of finished in the BIE-SP2 course. BI-SP2.21 Team Software Project 2 Students gain hands-on experience with the iterative development process while working on a large-scale software project. The first iteration is the rest However, in this follow-up, the functionality, testing, and documentation of the software system being developed will be emphasized. Students will work	KZ e BIE-SWI course acher, in the role of artefact will be fu KZ ult of the BIE-SP1 rk in teams of 4-6	5 that runs of the team and rther developed 5 I course project.
students also gain a theoretical basis in the field of project management, estimation of costs of software projects, and methods of their development. BI-SP1.21 Team Software Project 1 Students gain hands-on experience with the analysis, design, and prototyping of a large-scale software system. Theoretical support is provided in the concurrently and that teaches students necessary techniques and principles. Teams consisting of 4-6 students will work on a specific project. The team of finished in the BIE-SP2 course. BI-SP1.21 Team Software Project 2 Students gain hands-on experience with the iterative development process while working on a large-scale software project. The first iteration is the reset However, in this follow-up, the functionality, testing, and documentation of the software system being developed will be emphasized. Students will work teacher, in the role of the team and project leader, regularly consults with the team (at the seminars) the formal as well as material aspects of their section of the software system being as well as material aspects of the iterative development process while working on a large-scale software project. The first iteration is the reset However, in this follow-up, the functionality, testing, and documentation of the software system being developed will be emphasized. Students will work teacher, in the role of the team and project leader, regularly consults with the team (at the seminars) the formal as well as material aspects of their section is the reset of the team and project leader, regularly consults with the team (at the seminars) the formal as well as material aspects of their section is the reset of the iterative development process while working on a large-scale software project. The first iteration is the reset of the team and project leader, regularly c	KZ e BIE-SWI course acher, in the role of artefact will be fu KZ ult of the BIE-SP1 rk in teams of 4-6 olution. Z,ZK	5 that runs of the team and rther developed 5 I course project. people. The 5
students also gain a theoretical basis in the field of project management, estimation of costs of software projects, and methods of their development. BI-SP1.21 Team Software Project 1 Students gain hands-on experience with the analysis, design, and prototyping of a large-scale software system. Theoretical support is provided in the concurrently and that teaches students necessary techniques and principles. Teams consisting of 4-6 students will work on a specific project. The team of finished in the BIE-SP2 course. BI-SP1.21 Team Software Project 2 Students gain hands-on experience with the iterative development process while working on a large-scale software project. The first iteration is the resultion is the result of the team and project leader, regularly consults, testing, and documentation of the software system being developed will be emphasized. Students will wo teacher, in the role of the team and project leader, regularly consults with the team (at the seminars) the formal as well as material aspects of their seminars) the formal as well as material aspects of the iterative development process.	KZ e BIE-SWI course acher, in the role of artefact will be fu KZ ult of the BIE-SP1 rk in teams of 4-6 olution. Z,ZK	5 that runs of the team and rther developed 5 I course project. people. The 5
students also gain a theoretical basis in the field of project management, estimation of costs of software projects, and methods of their development. BI-SP1.21 Team Software Project 1 Students gain hands-on experience with the analysis, design, and prototyping of a large-scale software system. Theoretical support is provided in the concurrently and that teaches students necessary techniques and principles. Teams consisting of 4-6 students will work on a specific project. The team project leader, regularly consults with the team (at the seminars) both the formal and material aspects of the software design. The resulting software and finished in the BIE-SP2 course. BI-SP2.21 Team Software Project 2 Students gain hands-on experience with the iterative development process while working on a large-scale software project. The first iteration is the resultion is the resultion is the resultion of the software system being developed will be emphasized. Students will wo teacher, in this follow-up, the functionality, testing, and documentation of the software system being developed will be emphasized. Students will wo teacher, in the role of the team and project leader, regularly consults with the team (at the seminars) the formal as well as material aspects of their soft BI-TJV.21 Java Technology The goal is to provide knowledge and skills for developing information systems and applications through concepts used in software development and evelopment and project leader.	KZ e BIE-SWI course acher, in the role of artefact will be fu KZ ult of the BIE-SP1 rk in teams of 4-6 olution. Z,ZK	5 that runs of the team and rther developed 5 I course project. people. The 5
students also gain a theoretical basis in the field of project management, estimation of costs of software projects, and methods of their development. BI-SP1.21 Team Software Project 1 Students gain hands-on experience with the analysis, design, and prototyping of a large-scale software system. Theoretical support is provided in the concurrently and that teaches students necessary techniques and principles. Teams consisting of 4-6 students will work on a specific project. The team of the BIE-SP2 course. BI-SP2.21 Team Software Project 2 Students gain hands-on experience with the iterative development process while working on a large-scale software project. The first iteration is the rese However, in this follow-up, the functionality, testing, and documentation of the software system being developed will be emphasized. Students will wo teacher, in the role of the team and project leader, regularly consults with the team (at the seminars) bether the team (at the seminars) the formal as well as material aspects of their software development and project leader, regularly consults with the team (at the seminars) the formal as well as material aspects of their software project. The first iteration is the rese However, in this follow-up, the functionality, testing, and documentation of the software system being developed will be emphasized. Students will wo teacher, in the role of the team and project leader, regularly consults with the team (at the seminars) the formal as well as material aspects of their soft BI-TJV.21 Java Technology The goal is to provide knowledge and skills for developing information systems and applications through concepts used in software development and efform Java language ecosystem. At the course end, the students are able to develop so	KZ = BIE-SWI course acher, in the role of artefact will be fur KZ ult of the BIE-SP1 rk in teams of 4-6 olution. Z,ZK Experience with lit	5 that runs of the team and rther developed 5 course project. people. The 5 oraries and tools 5
students also gain a theoretical basis in the field of project management, estimation of costs of software projects, and methods of their development. BI-SP1.21 Team Software Project 1 Students gain hands-on experience with the analysis, design, and prototyping of a large-scale software system. Theoretical support is provided in the concurrently and that teaches students necessary techniques and principles. Teams consisting of 4-6 students will work on a specific project. The team of the BIE-SP2 course. BI-SP2.21 Team Software Project 2 Students gain hands-on experience with the iterative development process while working on a large-scale software project. The first iteration is the rese However, in this follow-up, the functionality, testing, and documentation of the software system being developed will be emphasized. Students will wo teacher, in the role of the team and project leader, regularly consults with the team (at the seminars) bether the team (at the seminars) the formal as well as material aspects of their development and regularly consults with the team (at the seminars) the formal as well as material aspects of their development is of the software project. The first iteration is the rese However, in this follow-up, the functionality, testing, and documentation of the software system being developed will be emphasized. Students will wo teacher, in the role of the team and project leader, regularly consults with the team (at the seminars) the formal as well as material aspects of their soft BI-TJV.21 Java Technology The goal is to provide knowledge and skills for developing information systems and applications through concepts used in software development and efform Java language ecosystem. At the course end, the students are able to develop softw	KZ = BIE-SWI course acher, in the role of artefact will be fu KZ ult of the BIE-SP1 rk in teams of 4-6 olution. Z,ZK experience with lite Z,ZK systems and servite	5 that runs of the team and rther developed 5 t course project. people. The 5 oraries and tools 5 ces. The course
students also gain a theoretical basis in the field of project management, estimation of costs of software projects, and methods of their development. BI-SP1.21 Team Software Project 1 Students gain hands-on experience with the analysis, design, and prototyping of a large-scale software system. Theoretical support is provided in the concurrently and that teaches students necessary techniques and principles. Teams consisting of 4-6 students will work on a specific project. The team of this here is the team (at the seminars) both the formal and material aspects of the software design. The resulting software and finished in the BIE-SP2 course. BI-SP2.21 Team Software Project 2 Students gain hands-on experience with the iterative development process while working on a large-scale software project. The first iteration is the result development, the functionality, testing, and documentation of the software system being developed will be emphasized. Students will wo teacher, in the role of the team and project leader, regularly consults with the team (at the seminars) the formal as well as material aspects of their soft BI-TJV.21 Java Technology The goal is to provide knowledge and skills for developing information systems and applications through concepts used in software development and efform Java language ecosystem. At the course end, the students are able to develop software systems in Java platform. BI-IDO.21 Introduction to DevOps The course deals with the topic of DevOps and prepares future developers and administrators for a modern culture of development and operation of software	KZ acher, in the role of acher, in the role of artefact will be fur KZ ult of the BIE-SP1 rk in teams of 4-6 blution. Z,ZK experience with lite Z,ZK systems and servir ilding and deployi	5 that runs of the team and rther developed 5 t course project. people. The 5 oraries and tools 5 ces. The course ng software to
students also gain a theoretical basis in the field of project management, estimation of costs of software projects, and methods of their development. BI-SP1.21 Team Software Project 1 Students gain hands-on experience with the analysis, design, and prototyping of a large-scale software system. Theoretical support is provided in the concurrently and that teaches students necessary techniques and principles. Teams consisting of 4-6 students will work on a specific project. The teap project leader, regularly consults with the team (at the seminars) both the formal and material aspects of the software design. The resulting software and finished in the BIE-SP2 course. BI-SP2.21 Team Software Project 2 Students gain hands-on experience with the iterative development process while working on a large-scale software project. The first iteration is the rest However, in this follow-up, the functionality, testing, and documentation of the software system being developed will be emphasized. Students will wo teacher, in the role of the team and project leader, regularly consults with the team (at the seminars) the formal as well as material aspects of their software development and project leader, regularly consults with the team (at the seminars) the formal as well as material aspects of their software being also to provide knowledge and skills for developing information systems and applications through concepts used in software development and operation of software below software systems in Java platform. BI-TJV.21 Java Technology The goal is to provide knowledge and skills for developing information systems and applications through concepts used in software development and operation of socovers the tools to support software developmen	KZ acher, in the role of acher, in the role of artefact will be fur KZ ult of the BIE-SP1 rk in teams of 4-6 blution. Z,ZK experience with lite Z,ZK systems and servir ilding and deployi	5 that runs of the team and rther developed 5 t course project. people. The 5 oraries and tools 5 ces. The course ng software to
students also gain a theoretical basis in the field of project management, estimation of costs of software projects, and methods of their development. BI-SP1.21 Team Software Project 1 Students gain hands-on experience with the analysis, design, and prototyping of a large-scale software system. Theoretical support is provided in the concurrently and that teaches students necessary techniques and principles. Teams consisting of 4-6 students will work on a specific project. The teap project leader, regularly consults with the team (at the seminars) both the formal and material aspects of the software design. The resulting software and finished in the BIE-SP2 course. BI-SP2.21 Team Software Project 2 Students gain hands-on experience with the iterative development process while working on a large-scale software project. The first iteration is the rese However, in this follow-up, the functionality, testing, and documentation of the software system being developed will be emphasized. Students will wo teacher, in the role of the team and project leader, regularly consults with the team (at the seminars) the formal as well as material aspects of their software development and project leader, regularly consults with the team (at the seminars) the formal as well as material aspects of their software from Java language ecosystem. At the course end, the students are able to develop software systems in Java platform. BI-IDO.21 Introduction to DevOps Introduction to DevOps The course deals with the topic of DevOps and prepares future developers and administrators for a modern culture of development and operation of scovers the tools to support software development, testing and compilation. It also focuses on tools for auto	KZ acher, in the role of acher, in the role of artefact will be fur KZ ult of the BIE-SP1 rk in teams of 4-6 blution. Z,ZK experience with lite Z,ZK systems and servir ilding and deployi	5 that runs of the team and rther developed 5 t course project. people. The 5 oraries and tools 5 ces. The course ng software to

Name of the block: Compulsory elective courses Minimal number of credits of the block: 5 The role of the block: PV

Code of the group: BI-PV-SI.21

Name of the group: Compulsory elective courses of the specialization Software engineering, version 2021 Requirement credits in the group: In this group you have to gain at least 5 credits (at most 15) Requirement courses in the group: In this group you have to complete at least 1 course (at most 3) Credits in the group: 5

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
BI-EPP.21	Economic Business Processes David Buchtela David Buchtela Tomáš Evan (Gar.)	Z,ZK	5	2P+2C	L,Z	PV
BI-FBI.21	Financial Business Intelligence David Buchtela David Buchtela Petra Pavlí ková (Gar.)	Z,ZK	5	2P+2C	Z,L	PV
BI-PAI.21	Law and Informatics Zden k Ku era, Št pánka Havlíková, Dominik Vítek, Martin Samek, Ji í Maršál, Michal Mat jka Št pánka Havlíková Zden k Ku era (Gar.)	ZK	5	2P+2C	L	PV

Characteristics of the courses of this group of Study Plan: Code=BI-PV-SI.21 Name=Compulsory elective courses of the specialization Software engineering, version 2021

BI-EPP.21 Economic Business Processes	Z,ZK	5
The aim of the course is to present typical processes related to the usual life cycle of a company. The course	e focuses mainly on the basic economic and financial asp	ects of business
in the market environment of the Czech Republic and the basics of management. In the course, students are	e acquainted with the typical phases of the company's life	cycle, from the
establishment of the company, through the management of property and capital structure, financing of the c	ompany, determining the cost function of the company ar	d labor costs, to
evaluating the financial health of the company and its eventual rehabilitation or termination.		
BI-FBI.21 Financial Business Intelligence	Z,ZK	5
The aim of the course is to acquaint students primarily with financial accounting as a tool for recording busin	ess operations and documents for business analysis, det	ermining its value
and other indicators for comparison with other companies and management decision process at the tactical		•
for financial management and prediction of business development. Management accounting allows monitorin	g of the financial status and performance of business activ	vities over several
accounting periods, enables a multidimensional view of business data, enables to control effectively factors	affecting the return on invested capital and to use value in	nformation to
assess options related to future business decisions. The principles of management accounting, described in	this course, are the basis of Business Intelligence modu	les in business
information systems, decision support systems, and other knowledge-oriented systems.		
BI-PAI.21 Law and Informatics	ZK	5
The aim of the course is to introduce students into the basic legal instruments that they will encounter in the	ir practice. Students will gain knowledge of doing busines	s in the Czech
Republic and will be alerted to the pitfalls that await them in business from the point of view of law. They will	understand the process of concluding contracts in real a	nd Internet
environment, will know their responsibilities in working with the Internet, will be familiar with the institutes of	intellectual property law, and will be able to use commerce	ial license types
and open-source licenses. Emphasis will also be put on the legal protection of data on the Internet, the regis	stration of Internet domains and protection against their n	nisuse. Students
will also be alerted to such behaviour in the field of IT that can be classified as criminal under the Czech law	. The course will also include analyses of real cases from	practice.

Name of the block: Povinná t lesná výchova, sportovní kurzy Minimal number of credits of the block: 0 The role of the block: PT

Code of the group: BI-PT.24

Name of the group: Physical Education, version 2024

Requirement credits in the group:

Note on the group:

Requirement courses in the group: In this group you have to complete at least 2 courses (at most 7) Credits in the group: 0

The student is obliged to successfully complete two courses of this group.

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
TV1	Physical Education	Z	0	0+2	Z	PT
TVV	Physical education	Z	0	0+2	Z,L	PT
Τ٧Κ1	Physical Education Luboš Neuman Ji í Drnek (Gar.)	Z	1		L,Z	PT
TVV0	Physical education	Z	0	0+2	Z,L	PT
TV2	Physical Education	Z	0	0+2	L	PT
TVKZV	Physical Education Course	Z	0	7dní	Z	PT
TVKLV	Physical Education Course	Z	0	7dní	L	PT

Characteristics of the courses of this group of Study Plan: Code=BI-PT.24 Name=Physical Education, version 2024

TV1	Physical Education	Z	0
TVV	Physical education	Z	0
TVK1	Physical Education	Z	1
TVV0	Physical education	Z	0

TV2	Physical Education	Z	0
TVKZV	Physical Education Course	Z	0
TVKLV	Physical Education Course	Z	0

Name of the block: Povinná zkouška z angli tiny Minimal number of credits of the block: 2 The role of the block: PJ

Code of the group: BI-ZKA.21 Name of the group: English Language Exam Requirement credits in the group: In this group you have to gain at least 2 credits (at most 4) Requirement courses in the group: In this group you have to complete 1 course Credits in the group: 2 BI-ANG, ending with an exam for two credits, is enrolled by students who have completed preparator English Note on the courses and have a credit from the BI-A2L course.
 --
 BI-ANG1, ending with an exam for two credits, group: is enrolled by students who prepared for the exam independently and do not have credit from BI-A2L. These students must complete a credit paper before their own exam. After passing the exam, the student will also be recognized for the course BI-ANGS (Independent preparation for the English exam) for 2 credits.
 --- The BIE-ECC course can be recognized for any active semester after the submission of a external certificate at the level of at least B2 according to the Common European Framework of Reference. Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their Completion Credits Code Scope Semester Role members) Tutors, authors and guarantors (gar.) English Language Examination without Preparatory Courses Kate ina Valentová Kate ina Valentová Kate ina Valentová (Gar.) **BI-ANG1** Z.ZK 2 2D L PJ English language external certificate **BIE-EEC** Ζ 4 2D L PJ Zden k Muziká **Zden k Muziká** Zden k Muziká (Gar.) English Language, Internal Certificate 2 Z.L **BI-ANG** ΖK 2D PJ Kate ina Valentová Kate ina Valentová Kate ina Valentová (Gar.)

Characteristics of the courses of this group of Study Plan: Code=BI-ZKA.21 Name=English Language Exam

BI-ANG1	English Language Examination without Preparatory Courses	Z,ZK	2		
BIE-EEC	English language external certificate	Z	4		
The BIE-ECC course ca	n be recognized for any active semester after the submission of a certificate certificate that demonstrates their proficiency in E	nglish comparabl	e to or exceeding		
the B2 level of the Com	the B2 level of the Common European Framework of Reference for Languages.				
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-ANG					

Name of the block: Elective courses Minimal number of credits of the block: 0 The role of the block: V

Code of the group: BI-V.2021

Name of the group: Purely Elective Courses of Bachelor Programme Informatics, version from 2021/22 till 2024/25

Requirement credits in the group:

Requirement courses in the group:

Credits in the group: 0

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
BI-ADW.1	Windows Administration Ji í Kašpar, Miroslav Prágl Miroslav Prágl (Gar.)	Z,ZK	4	2P+1C	Z	V
BI-ALO	Algebra and Logic Jan Starý Jan Starý Jan Starý (Gar.)	Z,ZK	4	2P+1C	L	V
BI-AVI.21	Algorithms visually Lud k Ku era Lud k Ku era (Gar.)	Z,ZK	4	2P+1C	L	V
BI-A2L	English language, preparation for the B2 level exam Kate ina Valentová Kate ina Valentová Kate ina Valentová (Gar.)	Z	2	2C	L	V
BI-APJ	Aplication Programming in Java <i>Ji í Dan ek</i>	Z,ZK	4	2P+1R+1C	Z	V

NI-AFP	Applied Functional Programming Robert Pergl, Marek Suchánek, Daniel N mec Robert Pergl Robert Pergl (Gar.)	KZ	5	2P+1C	L	v
BIE-ZUM	Artificial Intelligence Fundamentals Pavel Surynek	Z,ZK	4	2P+2C	L	v
BI-BLE	Blender Lukáš Ba inka Lukáš Ba inka Lukáš Ba inka (Gar.)	Z,ZK	4	2P+2C	L	v
NI-DSP	Database Systems in Practes Tomáš Vichta Tomáš Vichta Tomáš Vichta (Gar.)	Z,ZK	4	2P+1C	L	V
BI-STO	Storage and Filesystems	Z,ZK	4	2P+2C	L,Z	v
NI-PSD	Public Services Design David Pešek, Ond ej Brém David Pešek Ond ej Brém (Gar.)	KZ	4	1P+2C		v
BIE-DIF	Differential equations Antonella Marchesiello, Jan Valdman, Ond ej Bouchala Tomáš Kalvoda Ond ej Bouchala (Gar.)	Z,ZK	5	2P+2C	L	v
NI-DZO	Digital Image Processing	Z,ZK	4	2P+1C	L	V
NI-DDM	Distributed Data Mining	KZ	4	3C	L	V
BI-EP1.24	Effective programming 1 Martin Ka er Martin Ka er Martin Ka er (Gar.)	KZ	4	2P+2C	Z	V
BI-EP2	Efficient Programming 2 Martin Ka er Martin Ka er Martin Ka er (Gar.)	KZ	4	2P+2C	L	v
BI-ANGK	English language, contact preparation for the B2 level exam Kate ina Valentová Kate ina Valentová (Gar.)	Z	2	2C	Z,L	v
BI-EJA	Enterprise Java Ji í Dan ek	Z,ZK	4	2P+2C	L	v
BI-EJK	Enterprise Java and Kotlin Ji í Dan ek Ji í Dan ek Ji í Dan ek (Gar.)	Z,ZK	4	2P+2C	L	v
BI-FMU	Financial and Management Accounting David Buchtela	Z,ZK	5	2P+2C	Z	v
BI-HAM	HW accelerated network traffic monitoring Tomáš ejka, Karel Hynek Tomáš ejka Tomáš ejka (Gar.)	KZ	4	2P+1C	L	v
BI-HMI	History of Mathematics and Informatics Alena Šolcová Alena Šolcová (Gar.)	Z,ZK	3	2P+1C	L	v
BI-ARD	Interactive applications on Arduino Jan ezní ek, Ji í Cvr ek, Robert Hülle, Vojt ch Miškovský Robert Hülle Robert Hülle (Gar.)	KZ	4	3C	L	v
NI-IAM	Internet and Multimedia Ji í Melnikov	Z,ZK	4	2P+1C	L	v
BIE-CSI	Introduction to Computer Science Christoph Kirsch Christoph Kirsch Christoph Kirsch (Gar.)	Z	2	2C	Z	v
BIE-IMA2	Introduction to Mathematics 2 Karel Klouda	Z	2	1C	Z	v
BI-CS2	C# language and data access Pavel Št pán Pavel Št pán Pavel Št pán (Gar.)	KZ	4	0P+3C	Z	V
BI-CS3	Language C# - design of web applications Pavel Št pán Pavel Št pán Pavel Št pán (Gar.)	KZ	4	3C	Z	v
BI-SQL.1	Language SQL, advanced Michal Valenta Michal Valenta Michal Valenta (Gar.)	KZ	4	3C	L	v
BI-QAP	Quantum algorithms and programming Tomáš Kalvoda, Ivo Petr Ivo Petr (Gar.)	KZ	5	1P+2C	Z	v
NI-LSM	Statistical Modelling Lab Kamil Dedecius Kamil Dedecius (Gar.)	KZ	5	3C	L	v
BI-HAS	Human Aspects in Cryptography and Security Ivana Trummová Ivana Trummová Ivana Trummová (Gar.)	Z,ZK	5	2P+1C	Z	v
NI-MPL	Managerial Psychology Jan Fiala Jan Fiala Jan Fiala (Gar.)	ZK	2	2P	Z,L	v
NI-MSI	Mathematical Structures in Computer Science Jan Starý	Z,ZK	4	2P+1C	L	v
BI-MPP.21	Methods of interfacing peripheral devices Miroslav Skrbek Miroslav Skrbek Miroslav Skrbek (Gar.)	Z,ZK	5	2P+2C	Z	v
BI-MIT	Mikrotik technologies Jan Fesl Jan Fesl Jan Fesl (Gar.)	KZ	3	1P+2C	Z	v
NI-MOP	Modern Object-Oriented Programming in Pharo Jan Blizni enko Robert Pergl Robert Pergl (Gar.)	KZ	4	3C	Z	v
BI-MVT.21	Modern Visualisation Technologies Ji í Chludil, Petr Pauš Petr Pauš (Gar.)	Z,ZK	5	2P+2C	Z	v
BI-MMP	Multimedia team project Zde ka echová Zde ka echová Zde ka echová (Gar.)	KZ	4	3C	Z,L	v
BI-ORL	Operations Research and Linear Programming Dušan Knop Dušan Knop Dušan Knop (Gar.)	KZ	5	1P+2C	L	v
NI-OLI	Linux Drivers Miroslav Skrbek, Jaroslav Borecký Jaroslav Borecký Miroslav Skrbek (Gar.)	Z,ZK	4	2P+2C	L	v
BI-ACM	Programming Practices 1 Tomáš Valla Tomáš Valla Tomáš Valla (Gar.)	KZ	5	4C	L	v

			[
BI-ACM2	Programming Practices 2 Ond ej Suchý, Tomáš Valla Tomáš Valla Tomáš Valla (Gar.)	KZ	5	4C	Z	V
BI-ACM3	Programming Practices 3 Ond ej Suchý, Tomáš Valla Tomáš Valla (Gar.)	ΚZ	5	4C	L	V
BI-ACM4	Programming Practices 4 Ond ej Suchý, Tomáš Valla Tomáš Valla Ond ej Suchý (Gar.)	KZ	5	4C	Z	V
BI-AND.21	Programming for the Android Operating System Jan Mottl, Jan Vep ek, Marek Kodr, Petr Šíma Jan Mottl Marek Kodr (Gar.)	KZ	4	3C	L	V
BI-CS1	Programming in C# Pavel Št pán, Helena Wallenfelsová Helena Wallenfelsová Pavel Št pán (Gar.)	KZ	4	3C	L,Z	V
BI-PJV	Programming in Java Miroslav Balík, Jan Blizni enko, Ji í Borský, Jan Zimolka Miroslav Balík Miroslav Balík (Gar.)	Z,ZK	4	2P+2C	Z,L	V
BI-PJS.1	JavaScript Programming Old ich Malec	KZ	4	3C	L	V
BI-KOT	Programing in Kotlin Jií Dan ek Jií Dan ek Jií Dan ek (Gar.)	Z,ZK	4	2P+2C	L	V
NI-PSL	Programming in Scala Jií Dan ek Jií Dan ek Jií Dan ek (Gar.)	Z,ZK	4	2P+1C	Z	V
BI-PMA	Programming in Mathematica Zden k Buk Zden k Buk Zden k Buk (Gar.)	Z,ZK	4	2P+2C	Z,L	v
BI-PHP.1	Programing in PHP	KZ	4	3C	Z	v
BI-PS2	Programming in shell 2	Z,ZK	4	2P+2C	L	v
	Lukáš Ba inka Data Preprocessing					
NI-PDD	Marcel Ji ina Marcel Ji ina Marcel Ji ina (Gar.)	Z,ZK	5	2P+1C	Z	V
BI-PKM	Introduction to mathematics Tomáš Kalvoda Tomáš Kalvoda (Gar.)	Z	4		Z	V
NI-REV	Reverse Engineering Josef Kokeš Josef Kokeš (Gar.)	Z,ZK	5	1P+2C	Z	V
BI-SCE1	Computer Engineering Seminar I Hana Kubátová Hana Kubátová (Gar.)	Z	4	2C	L,Z	V
BI-SCE2	Computer Engineering Seminar II Hana Kubátová Hana Kubátová (Gar.)	Z	4	2C	L,Z	v
BI-ST1	Network Technology 1 Alexandru Moucha Alexandru Moucha (Gar.)	Z	3	2C	Z	V
BI-ST2	Network Technology 2 Alexandru Moucha Alexandru Moucha (Gar.)	Z	3	3C	L	V
BI-ST3	Network Technology 3 Alexandru Moucha Alexandru Moucha (Gar.)	Z	3	2C	Z	V
BI-ST4	Network Technology 4 Alexandru Moucha Alexandru Moucha (Gar.)	Z	3	2C	L	V
BI-SKJ.21	Scripting Languages Lukáš Ba inka, Jan Ž árek Lukáš Ba inka Jan Ž árek (Gar.)	Z,ZK	4	2+2	L	V
BI-SOJ	Machine Oriented Languages	Z,ZK	4	2P+2C	L	V
BI-SEP	World Economy and Business Tomáš Evan Tomáš Evan Tomáš Evan (Gar.)	Z,ZK	4	2P+2C	L	v
NI-SYP	Parsing and Compilers Jan Janoušek Jan Janoušek Jan Janoušek (Gar.)	Z,ZK	5	2P+1C	Z	V
BI-GIT	Version control system GIT Petr Pulc	KZ	2	16P	Z,L	V
BIE-SEG	Systems Engineering Christoph Kirsch Christoph Kirsch (Gar.)	Z	0	2C	Z	V
TVK1	Physical Education Luboš Neuman Ji í Drnek (Gar.)	Z	1		L,Z	V
TVV	Physical education	Z	0	0+2	Z,L	V
TV1	Physical Education	Z	0	0+2	Z	v
TVV0	Physical education	Z	0	0+2	Z,L	V
TV2	Physical Education	Z	0	0+2	L	V
TV2K1	Physical Education 2	Z	1		L,Z	V
TVKLV	Physical Education Course	Z	0	7dní	L	V
TVKZV	Physical Education Course	Z	0	7dní	Z	V
BI-TS1	Theoretical Seminar I Dušan Knop, Ond ej Suchý, Tomáš Valla Tomáš Valla Tomáš Valla (Gar.)	Z	4	2C	Z	V
DI 700	Theoretical Seminar II Dušan Knop, Ond ej Suchý, Tomáš Valla Tomáš Valla Ond ej Suchý (Gar.)	Z	4	2C	L	V
BI-TS2	Dusan Knop, Ond el Suchy, Tomas Valla Tomas Valla Ond el Suchvirgalin			+		
BI-TS2 BI-TS3	Disan Knop, ono ej suchý, nomás valia romas valia romas valia ono ej suchý (gal.) Theoretical Seminar III Ond ej Suchý, Tomáš Valla Tomáš Valla (Gar.)	Z	4	2C	Z	V

BI-TDA	Test driven architecture Marek Hakala	KZ	4	2P+1C	Z,L	V
NI-TSP	Testing and Reliability Petr Fišer Martin Da hel Petr Fišer (Gar.)	Z,ZK	5	2P+2C	Z	V
BI-QUA	Quality Assurance Marek Kodr, Martin Pilný, Kate ina Kalášková Kate ina Kalášková Marek Kodr (Gar.)	ΚZ	4	3C	Z	v
FI-TOP	Academic writing Tomáš Nová ek	Z	2	10B	Z	V
BI-CCN	Compiler Construction Christoph Kirsch Christoph Kirsch (Gar.)	Z,ZK	5	2P+1C	L	V
BI-TEX	TeX and Typography Petr Olšák Petr Olšák Petr Olšák (Gar.)	Z,ZK	4	2P+1C	L	V
BI-EHD	Introduction to European Economic History Tomáš Evan Tomáš Evan Tomáš Evan (Gar.)	Z,ZK	3	2P+1C	Z,L	V
BI-KSA	Cultural and Social Anthropology Tomáš Houdek, Alena Libánská, Jakub Šenovský Jakub Šenovský Alena Libánská (Gar.)	ZK	2	2P	Z,L	V
BI-ULI	Introduction to Linux Zden k Muziká, Petr Zemánek, Jan Ž árek Zden k Muziká Zden k Muziká (Gar.)	Z	2	4D	Z	V
BI-OPT	Introduction to Optical Networks Pavel Tvrdík	Z,ZK	4	2P+1C	Z	V
NI-VCC	Virtualization and Cloud Computing Tomáš Vondra, Jan Fesl Tomáš Vondra Tomáš Vondra (Gar.)	Z,ZK	5	2P+1C	L	V
BI-VHS	Virtual game worlds Radek Richtr	ZK	4	2P+2C	Z	V
BI-VR1	Virtual reality I Petr Pauš, Petr Klán Petr Klán (Gar.)	KZ	4	2P+2C	L,Z	V
BI-VR2	Virtual reality II Petr Klán Petr Klán (Gar.)	KZ	3	1P+2C	L	V
BI-VAK.21	Selected Applications of Combinatorics Michal Opler Michal Opler Michal Opler (Gar.)	Z	3	2R	L	V
BI-VMM	Selected Mathematical Methods Marzieh Forough Tomáš Kalvoda Tomáš Kalvoda (Gar.)	Z,ZK	4	2P+2C	L	V
NI-VYC	Computability Jan Starý Jan Starý Jan Starý (Gar.)	Z,ZK	4	2P+2C	L	V
BI-ZS10	Bachelor internship abroad for 10 credits Zden k Muziká Zden k Muziká (Gar.)	Z	10		Z,L	V
BI-ZS20	Bachelor internship abroad for 20 credits Zden k Muziká Zden k Muziká (Gar.)	Z	20		Z,L	V
BI-ZS30	Bachelor internship abroad for 30 credits Zden k Muziká Zden k Muziká (Gar.)	Z	30		Z,L	V
BI-ZIVS	Intelligent Embedded System Fundamentals Miroslav Skrbek Miroslav Skrbek Miroslav Skrbek (Gar.)	KZ	4	1P+3C	Z	V
BI-ZPI	Process engineering Robert Pergl Robert Pergl (Gar.)	KZ	4	1P+2C	L	V
BI-ZNF	PHP Framework Nette - basics Ji í Chludil	KZ	3	2P+1C	L	V
BI-IOS	Fundamentals of iOS Application Development for iPhone and iPad Rostislav Babá ek, Igor Rosocha Martin P Ipitel Martin P Ipitel (Gar.)	ΚZ	4	2C	Z	v
BI-ZWU	Introduction to Web and User Interfaces Lukáš Ba inka Lukáš Ba inka Jakub Klímek (Gar.)	Z,ZK	4	2P+2C	L	V
BI-3DT.1	3D Printing Miroslav Hron ok, Tornáš Sýkora Tomáš Sýkora Miroslav Hron ok (Gar.)	KZ	4	3C	L	V

Characteristics of the courses of this group of Study Plan: Code=BI-V.2021 Name=Purely Elective Courses of Bachelor Programme Informatics, version from 2021/22 till 2024/25

TV1	Physical Education	Z	0
TVV	Physical education	Z	0
TVK1	Physical Education	Z	1
TVV0	Physical education	Z	0
TV2	Physical Education	Z	0
TVKZV	Physical Education Course	Z	0
TVKLV	Physical Education Course	Z	0
BI-ADW.1	Windows Administration	Z,ZK	4
This course is presen	ted in Czech. However, there is an English variant in the program Informatics (B1801 / 4753).		
BI-ALO	Algebra and Logic	Z,ZK	4
The course extends a	nd deepens the study of topics touched upon in the basic course in logic.		
BI-AVI.21	Algorithms visually	Z,ZK	4
The course compleme	ents other algorithm courses at FIT. It brings knowledge about particular important algorithms from different fields of the compute	er science that exte	end substantially
knowledge presented	in BI-AG1 and BI-AG2. A wide scope of covered subject is made possible due to using visualization bz Algovision (www.algovision.o	rg <http: td="" www.al<=""><td>govision.org>)</td></http:>	govision.org>)
that make understand	ling the principles of algorithms easy.		

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 Achieven	1	
active part in the language instructionMeet the requirements for writing assignments - Summary, Abstract, Argumentation PaperSucceed in both		
tests with the success rate set at 70%80% and over in BOTH tests means ORAL EXAM ONLY (no written part). Requirements will be specified by		
class of the term.		g
BI-APJ Aplication Programming in Java	Z,ZK	4
This course is presented in Czech. Advanced technologies in Java.	2,21	-
	V7	5
NI-AFP Applied Functional Programming	KZ	-
This course is presented in Czech. Functional programming represents one of the traditional programming paradigms. Traditional and novel function		
the rise nowadays and the functional paradigm becomes an important construct of traditionally imperative languages (C++, C#, Java). As such, mas	tering this paradic	jm becomes a
necessary competence of a software engineer: the theory and especially the practice.		
BIE-ZUM Artificial Intelligence Fundamentals	Z,ZK	4
Students are introduced to the fundamental problems in the Artificial Intelligence, and the basic methods for their solving. It focuses mainly on the classical students are introduced to the fundamental problems in the Artificial Intelligence, and the basic methods for their solving. It focuses mainly on the classical students are introduced to the fundamental problems in the Artificial Intelligence, and the basic methods for their solving. It focuses mainly on the classical students are introduced to the fundamental problems in the Artificial Intelligence, and the basic methods for their solving. It focuses mainly on the classical students are introduced to the fundamental problems in the Artificial Intelligence, and the basic methods for their solving.		
space search, multi-agent systems, game theory, planning, and machine learning. Modern soft-computing methods, including the evolutionary algor	thms and the neu	ral networks, will
be presented as well.		
BI-BLE Blender	Z,ZK	4
The course extends knowledge of opensource program Blender from BI-MGA (Multimedia and Graphics Applications) course. It is intended for thos	e interested in 3D	graphics and
animation. It offers a complete and practically oriented introduction to Blender environment. Students may continue to BI-PGA (Programming graphi	cs applications) co	ourse.
NI-DSP Database Systems in Practes	Z,ZK	4
This course is presented in Czech.		
BI-STO Storage and Filesystems	Z,ZK	4
The student will learn principles and current solutions of storage systems architecture. The module explains principles of data store, protection, and a	· · ·	•
load balancing and high availability.	i o o o uo	otorago ocanig,
NI-PSD Public Services Design	KZ	4
	1	•
The course will introduce students to specifics of UX, Service design and development for public sector. We will look into the design and development for public sector. We will look into the design and development or public sector. We will look into the design and development or public sector.	-	
suppliers (devs and designesr) as well as clients. In small teams students will work on projects from partner organizations and will try out collaborat	on with client repi	esentatives.
Course is aimed at students-designers as well as clients.	7 71/	
BIE-DIF Differential equations	Z,ZK	5
This course provides a foundational overview of differential equations, starting with basic motivation and examples of ODEs and progressing to essenti		-
of variables. Key theorems on existence and uniqueness establish when solutions can be guaranteed. Linear and system-based ODEs are covered		
polynomial analysis, followed by examples of non-linear models such as predator-prey and epidemiological models to showcase real-world application	-	
partial differential equations (PDEs) extends these concepts to multi-variable contexts. The course will also cover numerical methods for solving OD	Es and PDEs, inc	luding implicit
and explicit Euler methods, Runge-Kutta methods, and finite element methods for both ODEs and PDEs.		
NI-DZO Digital Image Processing	Z,ZK	4
This course presents a comprehensive overview of modern methods for interactive editing of digital images and video. It mainly deals with practical	algorithms that ar	e both easy to
implement and have an interesting theoretical basis. Visually attractive applications provide better understanding of basic theoretical background that i	s also valuable ou	tside the domain
of digital image processing. This course will introduce algorithms solving the following practical applications: edge-aware editing, tone mapping, HDI	२ compression, de	e-blurring in
frequency domain, abstraction, hybrid images, gradient domain editing, seamless image stitching and cloning, digital photo-montage, color-to-gray of	conversion, contex	t enhancement,
interactive as-rigid-as-possible image deformation, free-form image registration, texture synthesis, interactive segmentation, colorization, painting, a	dding depth, alph	a matting.
NI-DDM Distributed Data Mining	KZ	4
Course focuses on state-of-the-art approaches for distributed data mining and parallelization of machine learning algorithms. Students will gain han	ds on experience	with large scale
data processing framework Apache Spark and with existing distributed DM / ML algorithms. They will learn principles of their parallel implementation	ns and will be capa	able to propose
approaches to parallelize other algorithms. The course is prezented in czech language.		
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 inc	1	
with the aim to choose the best one and avoid implementation errors.	ividual problems a	are discussed,
		0
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		
active part in the language instructionMeet the requirements for writing assignments - Summary, Abstract, Argumentation PaperSucceed in both		
tests with the success rate set at 70%80% and over in BOTH tests means ORAL EXAM ONLY (no written part). Requirements will be specified by	individual teacher	's during the first
class of the term.		
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 an	re connected to
a database and are accessed through the web interface.		
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 info		with microservice
architecture, that can be deployed to the cloud.		
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		-
operations in accounts and accounting statements including opening and closing of bookkeeping. The course provides students with a legal modific		
	alion of bookkeep	J,
of economic operations based on current methods of double-entry bookkeeping for enterprising subjects in the Czech Republic. Principles of management		g are base of
of economic operations based on current methods of double-entry bookkeeping for enterprising subjects in the Czech Republic. Principles of manage Business Inteligence moduls in Business information systems.		g are base of
Business Inteligence moduls in Business information systems.	gement accounting	-
Business Inteligence moduls in Business information systems. BI-HAM HW accelerated network traffic monitoring	gement accounting	4
Business Inteligence moduls in Business information systems. BI-HAM HW accelerated network traffic monitoring This course introduces students to modern and widely used technologies and principles in the area of network infrastructure and traffic monitoring.	gement accounting KZ The monitoring an	4 d analysis of
Business Inteligence moduls in Business information systems. BI-HAM HW accelerated network traffic monitoring This course introduces students to modern and widely used technologies and principles in the area of network infrastructure and traffic monitoring. network traffic are mandatory skills to network operators (planning and development of resources and infrastructure) and security analysts alike (as	gement accounting KZ The monitoring an a source of inform	4 d analysis of nation and data
Business Inteligence moduls in Business information systems. BI-HAM HW accelerated network traffic monitoring This course introduces students to modern and widely used technologies and principles in the area of network infrastructure and traffic monitoring. network traffic are mandatory skills to network operators (planning and development of resources and infrastructure) and security analysts alike (as for analysis). The goals of the course are to acquaint students with the modern trends and cornerstone principles in the area of monitoring network	gement accounting KZ The monitoring an a source of inform	4 d analysis of nation and data
Business Inteligence moduls in Business information systems. BI-HAM HW accelerated network traffic monitoring This course introduces students to modern and widely used technologies and principles in the area of network infrastructure and traffic monitoring. network traffic are mandatory skills to network operators (planning and development of resources and infrastructure) and security analysts alike (as for analysis). The goals of the course are to acquaint students with the modern trends and cornerstone principles in the area of monitoring network level and to develop their practical abilities in this field.	gement accounting KZ The monitoring an a source of inform traffic on a hardwa	4 d analysis of nation and data are and software
Business Inteligence moduls in Business information systems. BI-HAM HW accelerated network traffic monitoring This course introduces students to modern and widely used technologies and principles in the area of network infrastructure and traffic monitoring. network traffic are mandatory skills to network operators (planning and development of resources and infrastructure) and security analysts alike (as for analysis). The goals of the course are to acquaint students with the modern trends and cornerstone principles in the area of monitoring network	gement accounting KZ The monitoring an a source of inform	4 d analysis of nation and data

BI-ARD	Interactive applications on Arduino	KZ	4
	for students of first grade of bachelor study as introduction to embedded systems. Students will learn how to design simple app		
	peripherals with help of available libraries. The goal of the subject is to show varied software approaches to control embedded		
	PC. Thanks to possible control on higher (objective) layer, this platform is frequently used for artist performance and therefor	e is suitable even	for Web and
Software Engineering		7 71/	4
NI-IAM	Internet and Multimedia	Z,ZK	4 gnolo (input)
	ocused on principles and modern technologies for network transmissions of audiovisual (AV) signals. The syllabus includes a als (output), network communication protocols, device interfaces, codecs, data formats and stereoscopy. We will look at practic	-	
	ns. Within the labs, students will practically assemble AV transmission chains using HW and SW technologies and verify the		
	of AV transmissions. Students will learn how to build Internet infrastructure for end-to-end AV transmissions from the recordin		
for audience.			
BIE-CSI	Introduction to Computer Science	Z	2
	slass on Elementary Computer Science for broad audiences: bachelor students in computer science, students majoring in oth	er fields but intere	sted in computer
science, high-school st	udents, anybody with a background in basic math and the desire to understand the absolute basics of computer science. The	goal of the class	is to introduce
and relate basic princip	les of computer science for students to understand, early on, what computer science is, why things such as high-level progra	amming languages	s and tools are
	and even how, on a basic yet representative and practically relevant level. After taking the class, students are able to answer	-	-
	tions about themselves such as which courses to take next and which books to follow up with, ideally realizing if they are interesting to the second	erested in comput	er science more
than expected, or even			
BIE-IMA2	Introduction to Mathematics 2	Z	2
	ktend knowledge of elementary functions and their properties. Students understand basic mathematical principles and they a	are able to apply tr	iem in particular
examples.		1/7	4
BI-CS2	C# language and data access	KZ	4
	lata access course objective is to introduce students several data access technologies - database, XML, NoSQL - on the Mic ad to retrieve data - Connection, Command, Data Reader and DataAdapter v ADO.NET. Next, they will learn to use current te	-	
	and updating data, integrated directly with the .NET platform languages, which enable LINQ use with Objects, XML and SQ	-	
	ther objective is the Entity Framework - an object-relational mapper that enables .NET developers to work with relational data	· ·	,
	course introduces Code First, Database First, Model First approaches. The students will also get to know the Conceptual Mo		
(XML description).	······································	,	3
BI-CS3	Language C# - design of web applications	KZ	4
	oduced to current technologies in web application development on the .NET platform. They will acquire a comprehensive overvi	ew of the developr	nent possibilities
on thisplatform. They w	ill learn to create WebAPI and to use it by client programs.		
BI-SQL.1	Language SQL, advanced	KZ	4
Module is based on kno	wledge obtained in BI-DBS. Students become familiar with advanced relational and non-relational features of SQL language. I	n particular stored	program unites,
triggers, recursive quer	es, OLAP support, object-relational constructions. Part of the course is dedicated to practical database optimization from the po	pint of view of spec	ialized database
	clusters, index-organized tables, and materialized views. as well as from the point of view query optimization. Execution plan		÷
	rres will usually discuss SQL standard, but many features will be demonstrated on Oracle DBMS. Seminars are based on Ora	acle DBMS and pa	artially on
PostgreSQL.			
BI-QAP	Quantum algorithms and programming	KZ	5
BI-QAP Course aims at giving s	tudents hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic	cs, on which quant	um technologies
BI-QAP Course aims at giving s are based, and algorith	udents hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic ms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel	opment kit Qiskit,	um technologies which is based
BI-QAP Course aims at giving s are based, and algorith on Python language. K	tudents hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic ms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel nowledge of linear algebra at the level of BI-LA1 and BI-LA2 (or BI-LIN) is necessary. Previous completion of BI-MA2 or BI-VI	opment kit Qiskit,	um technologies which is based
BI-QAP Course aims at giving s are based, and algorith on Python language. K might be an advantage	tudents hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic ms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel nowledge of linear algebra at the level of BI-LA1 and BI-LA2 (or BI-LIN) is necessary. Previous completion of BI-MA2 or BI-VI No previous knowledge of physics is assumed.	cs, on which quant opment kit Qiskit, MM and experienc	um technologies which is based ce with Python
BI-QAP Course aims at giving s are based, and algorith on Python language. K might be an advantage NI-LSM	tudents hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic ms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel nowledge of linear algebra at the level of BI-LA1 and BI-LA2 (or BI-LIN) is necessary. Previous completion of BI-MA2 or BI-VI No previous knowledge of physics is assumed. Statistical Modelling Lab	cs, on which quant opment kit Qiskit, MM and experienc	um technologies which is based the with Python 5
BI-QAP Course aims at giving s are based, and algorith on Python language. K might be an advantage NI-LSM The subject is oriented	tudents hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic ms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel nowledge of linear algebra at the level of BI-LA1 and BI-LA2 (or BI-LIN) is necessary. Previous completion of BI-MA2 or BI-VI No previous knowledge of physics is assumed. Statistical Modelling Lab on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is	s, on which quant opment kit Qiskit, MM and experienc KZ s put on the effecti	um technologies which is based e with Python 5 ive use of the
BI-QAP Course aims at giving s are based, and algorith on Python language. K might be an advantage NI-LSM The subject is oriented available information an	tudents hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic ms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel nowledge of linear algebra at the level of BI-LA1 and BI-LA2 (or BI-LIN) is necessary. Previous completion of BI-MA2 or BI-VI No previous knowledge of physics is assumed. Statistical Modelling Lab	s, on which quant opment kit Qiskit, MM and experienc KZ s put on the effecti	um technologies which is based e with Python 5 ive use of the
BI-QAP Course aims at giving s are based, and algorith on Python language. K might be an advantage NI-LSM The subject is oriented available information an	tudents hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic ms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel nowledge of linear algebra at the level of BI-LA1 and BI-LA2 (or BI-LIN) is necessary. Previous completion of BI-MA2 or BI-VI No previous knowledge of physics is assumed. Statistical Modelling Lab on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is not its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms, t is on the border of own research and may result in the topic of final work (diploma or bachelor thesis).	s, on which quant opment kit Qiskit, MM and experience KZ s put on the effecti and analyses of t	um technologies which is based se with Python 5 ive use of the heir properties.
BI-QAP Course aims at giving s are based, and algorith on Python language. K might be an advantage NI-LSM The subject is oriented available information an At this point, the subject BI-HAS	tudents hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic ms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel nowledge of linear algebra at the level of BI-LA1 and BI-LA2 (or BI-LIN) is necessary. Previous completion of BI-MA2 or BI-VI No previous knowledge of physics is assumed. Statistical Modelling Lab on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is id its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms,	s, on which quant opment kit Qiskit, MM and experience KZ s put on the effecti and analyses of t	um technologies which is based are with Python 5 ive use of the heir properties. 5
BI-QAP Course aims at giving s are based, and algorith on Python language. K might be an advantage NI-LSM The subject is oriented available information an At this point, the subject BI-HAS This course is for stude	tudents hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic ms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel nowledge of linear algebra at the level of BI-LA1 and BI-LA2 (or BI-LIN) is necessary. Previous completion of BI-MA2 or BI-VI No previous knowledge of physics is assumed. Statistical Modelling Lab on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is not its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms, t is on the border of own research and may result in the topic of final work (diploma or bachelor thesis). Human Aspects in Cryptography and Security	s, on which quant opment kit Qiskit, MM and experience KZ s put on the effecti and analyses of t	um technologies which is based are with Python 5 ive use of the heir properties. 5
BI-QAP Course aims at giving s are based, and algorith on Python language. K might be an advantage NI-LSM The subject is oriented available information an At this point, the subject BI-HAS This course is for stude	Audents hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic ms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel howledge of linear algebra at the level of BI-LA1 and BI-LA2 (or BI-LIN) is necessary. Previous completion of BI-MA2 or BI-VI No previous knowledge of physics is assumed. Statistical Modelling Lab on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is not its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms, t is on the border of own research and may result in the topic of final work (diploma or bachelor thesis). Human Aspects in Cryptography and Security nts interested not only in technical scope of computer science, but also in making products usable - for users and for develop	s, on which quant opment kit Qiskit, MM and experience KZ s put on the effecti and analyses of t	um technologies which is based are with Python 5 ive use of the heir properties. 5
BI-QAP Course aims at giving s are based, and algorith on Python language. K might be an advantage NI-LSM The subject is oriented available information au At this point, the subject BI-HAS This course is for stude use their gained knowle	 Tudents hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic ms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel nowledge of linear algebra at the level of BI-LA1 and BI-LA2 (or BI-LIN) is necessary. Previous completion of BI-MA2 or BI-VI. No previous knowledge of physics is assumed. Statistical Modelling Lab on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is nodeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms, t is on the border of own research and may result in the topic of final work (diploma or bachelor thesis). Human Aspects in Cryptography and Security nts interested not only in technical scope of computer science, but also in making products usable - for users and for developed to design, plan and analyse their own projects in the context of human-centered security. Managerial Psychology 	ss, on which quant opment kit Qiskit, MM and experience KZ s put on the effecti and analyses of t Z,ZK bers. Students of t	um technologies which is based ze with Python 5 ive use of the heir properties. 5 his course can
BI-QAP Course aims at giving s are based, and algorith on Python language. K might be an advantage NI-LSM The subject is oriented available information an At this point, the subject BI-HAS This course is for stude use their gained knowled NI-MPL NI-MSI	tudents hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic ms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel nowledge of linear algebra at the level of BI-LA1 and BI-LA2 (or BI-LIN) is necessary. Previous completion of BI-MA2 or BI-VI No previous knowledge of physics is assumed. Statistical Modelling Lab on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is no the border of own research and may result in the topic of final work (diploma or bachelor thesis). Human Aspects in Cryptography and Security nts interested not only in technical scope of computer science, but also in making products usable - for users and for develop edge to design, plan and analyse their own projects in the context of human-centered security.	ss, on which quant opment kit Qiskit, MM and experience KZ s put on the effecti and analyses of t Z,ZK bers. Students of t ZK Z,ZK	um technologies which is based the with Python 5 ive use of the heir properties. 5 his course can 2 4
BI-QAP Course aims at giving s are based, and algorith on Python language. K might be an advantage NI-LSM The subject is oriented available information an At this point, the subject BI-HAS This course is for stude use their gained knowled NI-MPL NI-MSI	Tudents hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic ms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel nowledge of linear algebra at the level of BI-LA1 and BI-LA2 (or BI-LIN) is necessary. Previous completion of BI-MA2 or BI-VI. No previous knowledge of physics is assumed. Statistical Modelling Lab on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is in sodeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms, t is on the border of own research and may result in the topic of final work (diploma or bachelor thesis). Human Aspects in Cryptography and Security Instinterested not only in technical scope of computer science, but also in making products usable - for users and for developed to design, plan and analyse their own projects in the context of human-centered security. Managerial Psychology Mathematical Structures in Computer Science s of programming languages. Data types as continuous lattices, Scott topology. Procedures as continuous mappings. The Scott topology.	ss, on which quant opment kit Qiskit, MM and experience KZ s put on the effecti and analyses of t Z,ZK bers. Students of t ZK Z,ZK	um technologies which is based the with Python 5 ive use of the heir properties. 5 his course can 2 4
BI-QAP Course aims at giving s are based, and algorith on Python language. K might be an advantage NI-LSM The subject is oriented available information an At this point, the subject BI-HAS This course is for stude use their gained knowle NI-MPL NI-MSI Mathematical semantic Introduction to category	Tudents hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic ms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel howledge of linear algebra at the level of BI-LA1 and BI-LA2 (or BI-LIN) is necessary. Previous completion of BI-MA2 or BI-VI No previous knowledge of physics is assumed. Statistical Modelling Lab on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is do its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms, t is on the border of own research and may result in the topic of final work (diploma or bachelor thesis). Human Aspects in Cryptography and Security Inst interested not only in technical scope of computer science, but also in making products usable - for users and for develop edge to design, plan and analyse their own projects in the context of human-centered security. Managerial Psychology Mathematical Structures in Computer Science s of programming languages. Data types as continous lattices, Scott topology. Procedures as continuous mappings. The Sco r theory.	s, on which quant opment kit Qiskit, MM and experience KZ s put on the effecti and analyses of t Z,ZK bers. Students of t ZK Z,ZK tt model of lambda	um technologies which is based the with Python 5 ive use of the heir properties. 5 his course can 2 4
BI-QAP Course aims at giving s are based, and algorith on Python language. K might be an advantage NI-LSM The subject is oriented available information an At this point, the subject BI-HAS This course is for stude use their gained knowle NI-MPL NI-MSI Mathematical semantic Introduction to category BI-MPP.21	Tudents hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic ms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel nowledge of linear algebra at the level of BI-LA1 and BI-LA2 (or BI-LIN) is necessary. Previous completion of BI-MA2 or BI-VI. No previous knowledge of physics is assumed. Statistical Modelling Lab on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is in sodeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms, t is on the border of own research and may result in the topic of final work (diploma or bachelor thesis). Human Aspects in Cryptography and Security Instinterested not only in technical scope of computer science, but also in making products usable - for users and for developed to design, plan and analyse their own projects in the context of human-centered security. Managerial Psychology Mathematical Structures in Computer Science s of programming languages. Data types as continuous lattices, Scott topology. Procedures as continuous mappings. The Scott topology.	ss, on which quant opment kit Qiskit, MM and experience KZ s put on the effecti and analyses of t Z,ZK cers. Students of t ZK Z,ZK tt model of lambda	um technologies which is based the with Python 5 ve use of the heir properties. 5 his course can 2 4 a calculus. 5
BI-QAP Course aims at giving s are based, and algorith on Python language. K might be an advantage NI-LSM The subject is oriented available information an At this point, the subject BI-HAS This course is for stude use their gained knowle NI-MPL NI-MSI Mathematical semantic Introduction to category BI-MPP.21 The course is focused of	Tudents hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic ms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel howledge of linear algebra at the level of BI-LA1 and BI-LA2 (or BI-LIN) is necessary. Previous completion of BI-MA2 or BI-VI No previous knowledge of physics is assumed. Statistical Modelling Lab on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is d its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms, t is on the border of own research and may result in the topic of final work (diploma or bachelor thesis). Human Aspects in Cryptography and Security nts interested not only in technical scope of computer science, but also in making products usable - for users and for develop edge to design, plan and analyse their own projects in the context of human-centered security. Managerial Psychology Mathematical Structures in Computer Science s of programming languages. Data types as continuous lattices, Scott topology. Procedures as continuous mappings. The Sco r theory. Methods of interfacing peripheral devices	ss, on which quant opment kit Qiskit, MM and experience kZ s put on the effecti and analyses of t Z,ZK bers. Students of th ZK Z,ZK tt model of lambda z,ZK ersal serial bus (U	um technologies which is based ze with Python 5 ive use of the heir properties. 5 his course can 2 4 a calculus. 5 ISB). The course
BI-QAP Course aims at giving s are based, and algorith on Python language. K might be an advantage NI-LSM The subject is oriented available information an At this point, the subject BI-HAS This course is for stude use their gained knowle NI-MPL NI-MSI Mathematical semantic Introduction to category BI-MPP.21 The course is focused a includes both PC side a	Tudents hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic ms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel howledge of linear algebra at the level of BI-LA1 and BI-LA2 (or BI-LIN) is necessary. Previous completion of BI-MA2 or BI-VI No previous knowledge of physics is assumed. Statistical Modelling Lab on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is do its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms, t is on the border of own research and may result in the topic of final work (diploma or bachelor thesis). Human Aspects in Cryptography and Security nts interested not only in technical scope of computer science, but also in making products usable - for users and for develop edge to design, plan and analyse their own projects in the context of human-centered security. Managerial Psychology Mathematical Structures in Computer Science s of programming languages. Data types as continous lattices, Scott topology. Procedures as continuous mappings. The Sco r theory. Methods of interfacing peripheral devices on methods for interfacing of peripheral devices.	ss, on which quant opment kit Qiskit, MM and experience kZ s put on the effecti and analyses of t Z,ZK bers. Students of th ZK Z,ZK tt model of lambda z,ZK ersal serial bus (U	um technologies which is based ze with Python 5 ive use of the heir properties. 5 his course can 2 4 a calculus. 5 ISB). The course
BI-QAP Course aims at giving s are based, and algorith on Python language. K might be an advantage NI-LSM The subject is oriented available information an At this point, the subject BI-HAS This course is for stude use their gained knowle NI-MPL NI-MSI Mathematical semantic Introduction to category BI-MPP.21 The course is focused of includes both PC side a	The text is and the provided and the programming. We focus on fundaments of quantum mechanics is showing advantages and limitations of quantum computing. During tutorials students work in open-source software develors where a light at the level of BI-LA1 and BI-LA2 (or BI-LIN) is necessary. Previous completion of BI-MA2 or BI-VI. No previous knowledge of physics is assumed. Statistical Modelling Lab Statistical Modelling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms, t is on the border of own research and may result in the topic of final work (diploma or bachelor thesis). Human Aspects in Cryptography and Security Instince text does and analyse their own projects in the context of human-centered security. Managerial Psychology Mathematical Structures in Computer Science s of programming languages. Data types as continous lattices, Scott topology. Procedures as continuous mappings. The Scott theory. Methods of interfacing peripheral devices or theory.	ss, on which quant opment kit Qiskit, MM and experience kZ s put on the effecti and analyses of t Z,ZK bers. Students of th ZK Z,ZK tt model of lambda z,ZK ersal serial bus (U	um technologies which is based ze with Python 5 ive use of the heir properties. 5 his course can 2 4 a calculus. 5 ISB). The course
BI-QAP Course aims at giving s are based, and algorith on Python language. K might be an advantage NI-LSM The subject is oriented available information an At this point, the subject BI-HAS This course is for stude use their gained knowle NI-MPL NI-MSI Mathematical semantic Introduction to category BI-MPP.21 The course is focused of includes both PC side a drivers, simple applicat BI-MIT The main motivation of	Audents hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic ms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel howledge of linear algebra at the level of BI-LA1 and BI-LA2 (or BI-LIN) is necessary. Previous completion of BI-MA2 or BI-VI No previous knowledge of physics is assumed. Statistical Modelling Lab on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is ind its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms, t is on the border of own research and may result in the topic of final work (diploma or bachelor thesis). Human Aspects in Cryptography and Security Its interested not only in technical scope of computer science, but also in making products usable - for users and for develop edge to design, plan and analyse their own projects in the context of human-centered security. Managerial Psychology Mathematical Structures in Computer Science s of programming languages. Data types as continuous lattices, Scott topology. Procedures as continuous mappings. The Sco theory. Methods of interfacing peripheral devices on methods for interfacing of peripheral devices. Interfacing of real peripheral devices is focused on techniques based on Univ and peripheral devices side. Labs are practically oriented. Students gain experience with implementation of relevant parts of to on development, and APIs of selected devices. Mikrotik technologies the subject stands in the introduction of the RouterOS operating system and some network Mikrotik technologies which are	ss, on which quant opment kit Qiskit, MM and experience kZ s put on the effecti and analyses of t Z,ZK bers. Students of th ZK Z,ZK tt model of lambda ersal serial bus (U JSB devices, Linu KZ commonly used by	um technologies which is based ze with Python 5 ive use of the heir properties. 5 his course can 2 4 a calculus. 5 ISB). The course x and Windows 3 y the small and
BI-QAP Course aims at giving s are based, and algorith on Python language. K might be an advantage NI-LSM The subject is oriented available information an At this point, the subject BI-HAS This course is for stude use their gained knowle NI-MPL NI-MSI Mathematical semantic Introduction to categor BI-MPP.21 The course is focused of includes both PC side a drivers, simple applicat BI-MIT The main motivation of middle internet service	Audents hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic ms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel howledge of linear algebra at the level of BI-LA1 and BI-LA2 (or BI-LIN) is necessary. Previous completion of BI-MA2 or BI-VI No previous knowledge of physics is assumed. Statistical Modelling Lab on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is ind its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms, t is on the border of own research and may result in the topic of final work (diploma or bachelor thesis). Human Aspects in Cryptography and Security Its interested not only in technical scope of computer science, but also in making products usable - for users and for develop edge to design, plan and analyse their own projects in the context of human-centered security. Managerial Psychology Mathematical Structures in Computer Science s of programming languages. Data types as continuous lattices, Scott topology. Procedures as continuous mappings. The Sco theory. Methods of interfacing peripheral devices on methods for interfacing of peripheral devices. Interfacing of peripheral devices. Mikrotik technologies the subject stands in the introduction of the RouterOS operating system and some network Mikrotik technologies which are providers (ISPs). The students learn how to use and create the architectures of the network solutions which are based on the providers (ISPs). The students learn how to use and create the architectures of the network solutions which are based on the providers (ISPs). The students learn how to use and create the architectures of the network solutions which are based on the providers (ISPs). The students learn how to use and create the architectures of the network solutions which are based on the providers (ISPs). The	ss, on which quant opment kit Qiskit, MM and experience kZ s put on the effecti and analyses of t Z,ZK bers. Students of th Z,ZK tt model of lambda z,ZK tt model of lambda kz commonly used be e metallic, optical	um technologies which is based ze with Python 5 ive use of the heir properties. 5 his course can 2 4 a calculus. 5 ISB). The course x and Windows 3 y the small and or wireless links
BI-QAP Course aims at giving s are based, and algorith on Python language. K might be an advantage NI-LSM The subject is oriented available information an At this point, the subject BI-HAS This course is for stude use their gained knowle NI-MPL NI-MSI Mathematical semantic Introduction to categor BI-MPP.21 The course is focused of includes both PC side a drivers, simple applicat BI-MIT The main motivation of middle internet service and how to administrate	Audents hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic ms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel nowledge of linear algebra at the level of BI-LA1 and BI-LA2 (or BI-LIN) is necessary. Previous completion of BI-MA2 or BI-VI No previous knowledge of physics is assumed. Statistical Modelling Lab on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is dits modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms, t is on the border of own research and may result in the topic of final work (diploma or bachelor thesis). Human Aspects in Cryptography and Security Ints interested not only in technical scope of computer science, but also in making products usable - for users and for develop edge to design, plan and analyse their own projects in the context of human-centered security. Managerial Psychology Mathematical Structures in Computer Science s of programming languages. Data types as continous lattices, Scott topology. Procedures as continuous mappings. The Sco theory. Methods of interfacing peripheral devices. Interfacing of real peripheral devices is focused on techniques based on Univ and peripheral devices side. Labs are practically oriented. Students gain experience with implementation of relevant parts of U on development, and APIs of selected devices. Mikrotik technologies the subject stands in the introduction of the RouterOS operating system and some network Mikrotik technologies which are providers (ISPs). The students learn how to use and create the architectures of the network solutions which are based on the and practically deploy them. The successful completion of this subject requires the previous knowledge of elementary compute	ss, on which quant opment kit Qiskit, MM and experience kZ s put on the effecti and analyses of t Z,ZK bers. Students of th Z,ZK tt model of lambda z,ZK tt model of lambda kz commonly used be e metallic, optical	um technologies which is based ze with Python 5 ive use of the heir properties. 5 his course can 2 4 a calculus. 5 ISB). The course x and Windows 3 y the small and or wireless links
BI-QAP Course aims at giving s are based, and algorith on Python language. K might be an advantage NI-LSM The subject is oriented available information an At this point, the subject BI-HAS This course is for stude use their gained knowld NI-MPL NI-MSI Mathematical semantic Introduction to category BI-MPP.21 The course is focused of includes both PC side a drivers, simple applicat BI-MIT The main motivation of middle internet service and how to administrate and technologies of the	Audents hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic ms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel nowledge of linear algebra at the level of BI-LA1 and BI-LA2 (or BI-LIN) is necessary. Previous completion of BI-MA2 or BI-VI. No previous knowledge of physics is assumed. Statistical Modelling Lab Interfacing methods and tries to implement them. The stress is do its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms, t is on the border of own research and may result in the topic of final work (diploma or bachelor thesis). Human Aspects in Cryptography and Security Ints interested not only in technical scope of computer science, but also in making products usable - for users and for developed to design, plan and analyse their own projects in the context of human-centered security. Managerial Psychology Mathematical Structures in Computer Science s of programming languages. Data types as continous lattices, Scott topology. Procedures as continuous mappings. The Scot theory. Methods of interfacing of peripheral devices. Mikrotik technologies the subject stands in the introduction of the RouterOS operating system and some network Mikrotik technologies which are providers (ISPs). The students learn how to use and create the architectures of the network solutions which are based on the and practically deploy them. The successful completion of this subject requires the previous knowledge of elementary compute data-link, network and transport layer of the OSI model.	s, on which quant opment kit Qiskit, MM and experience kZ s put on the effecti and analyses of t Z,ZK bers. Students of th Z,ZK tt model of lambda Z,ZK tt model of lambda kT Commonly used be e metallic, optical er networks conce	um technologies which is based the with Python 5 ive use of the heir properties. 5 his course can 2 4 a calculus. 5 ISB). The course x and Windows 3 y the small and or wireless links pts like protocols
BI-QAP Course aims at giving s are based, and algorith on Python language. K might be an advantage NI-LSM The subject is oriented available information an At this point, the subject BI-HAS This course is for stude use their gained knowld NI-MPL NI-MSI Mathematical semantic Introduction to category BI-MPP.21 The course is focused of includes both PC side a drivers, simple applicat BI-MIT The main motivation of middle internet service and how to administrate and technologies of the NI-MOP	Audents hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic ms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel nowledge of linear algebra at the level of BI-LA1 and BI-LA2 (or BI-LIN) is necessary. Previous completion of BI-MA2 or BI-VI No previous knowledge of physics is assumed. Statistical Modelling Lab on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is ad its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms, t is on the border of own research and may result in the topic of final work (diploma or bachelor thesis). Human Aspects in Cryptography and Security nts interested not only in technical scope of computer science, but also in making products usable - for users and for develop edge to design, plan and analyse their own projects in the context of human-centered security. Managerial Psychology Mathematical Structures in Computer Science so for programming languages. Data types as continous lattices, Scott topology. Procedures as continuous mappings. The Sco theory. Methods of interfacing peripheral devices. Interfacing of peripheral devices. Interfacing of real peripheral devices is focused on techniques based on Univ and peripheral devices side. Labs are practically oriented. Students gain experience with implementation of relevant parts of to on development, and APIs of selected devices. Mikrotik technologies the subject stands in the introduction of the RouterOS operating system and some network Mikrotik technologies which are providers (ISPs). The students learn how to use and create the architectures of the network solutions which are based on the and practically deploy them. The successful completion of this subject requires the previous knowledge of elementary compute data-link, network and transport layer of the OSI model. Modern Obj	ss, on which quant opment kit Qiskit, MM and experience kZ s put on the effecti and analyses of t Z,ZK bers. Students of th Z,ZK the model of lambda z,ZK the model of lambda z,ZK ersal serial bus (U USB devices, Linu KZ commonly used by e metallic, optical er networks conce	um technologies which is based the with Python 5 ive use of the heir properties. 5 his course can 2 4 a calculus. 5 ISB). The course x and Windows 3 y the small and or wireless links pts like protocols 4
BI-QAP Course aims at giving s are based, and algorith on Python language. K might be an advantage NI-LSM The subject is oriented available information an At this point, the subject BI-HAS This course is for stude use their gained knowld NI-MPL NI-MSI Mathematical semantic Introduction to category BI-MPP.21 The course is focused of includes both PC side a drivers, simple applicat BI-MIT The main motivation of middle internet service and how to administrate and technologies of the NI-MOP Object-oriented program	Addents hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic ms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel nowledge of linear algebra at the level of BI-LA1 and BI-LA2 (or BI-LIN) is necessary. Previous completion of BI-MA2 or BI-VI No previous knowledge of physics is assumed. Statistical Modelling Lab on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is id its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms, t is on the border of own research and may result in the topic of final work (diploma or bachelor thesis). Human Aspects in Cryptography and Security its interested not only in technical scope of computer science, but also in making products usable - for users and for develop edge to design, plan and analyse their own projects in the context of human-centered security. Managerial Psychology Mathematical Structures in Computer Science s of programming languages. Data types as continous lattices, Scott topology. Procedures as continuous mappings. The Sco theory. Methods for interfacing of peripheral devices on methods for interfacing of peripheral devices. Interfacing of real peripheral devices is focused on techniques based on Univ and peripheral devices side. Labs are practically oriented. Students gain experience with implementation of relevant parts of to on development, and APIs of selected devices. Mikrotik technologies the subject stands in the introduction of the RouterOS operating system and some network Mikrotik technologies which are and practically deploy them. The successful completion of this subject requires the previous knowledge of elementary compute data-link, network and transport layer of the OSI model. Modern Object-Oriented Programming in Pharo mring is currently one of the most widespread paradigms of software creation	ss, on which quant opment kit Qiskit, MM and experience kZ s put on the effecti and analyses of t Z,ZK bers. Students of th Z,ZK the model of lambda Z,ZK the model of lambda z,ZK ersal serial bus (U USB devices, Linu KZ commonly used by e metallic, optical er networks conce KZ ere its ability to na	um technologies which is based ze with Python 5 ive use of the heir properties. 5 his course can 2 4 a calculus. 5 ISB). The course x and Windows 3 y the small and or wireless links pts like protocols 4 tural abstraction
BI-QAP Course aims at giving s are based, and algorith on Python language. K might be an advantage NI-LSM The subject is oriented available information an At this point, the subject BI-HAS This course is for stude use their gained knowld NI-MPL NI-MSI Mathematical semantic Introduction to category BI-MPP.21 The course is focused of includes both PC side a drivers, simple applicat BI-MIT The main motivation of middle internet service and how to administrate and technologies of the NI-MOP Object-oriented program is used to build complexity	Audents hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic ms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel nowledge of linear algebra at the level of BI-LA1 and BI-LA2 (or BI-LIN) is necessary. Previous completion of BI-MA2 or BI-VI No previous knowledge of physics is assumed. Statistical Modelling Lab on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is ind its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms, it is on the border of own research and may result in the topic of final work (diploma or bachelor thesis). Human Aspects in Cryptography and Security its interested not only in technical scope of computer science, but also in making products usable - for users and for develop dege to design, plan and analyse their own projects in the context of human-centered security. Managerial Psychology Mathematical Structures in Computer Science s of programming languages. Data types as continous lattices, Scott topology. Procedures as continuous mappings. The Sco theory. Methods of interfacing of peripheral devices on methods for interfacing of peripheral devices. Interfacing of real peripheral devices is focused on techniques based on Univ and peripheral devices side. Labs are practically oriented. Students gain experience with implementation of relevant parts of I on development, and APIs of selected devices. Mikrotik technologies the subject stands in the introduction of the RouterOS operating system and some network Mikrotik technologies which are providers (ISPs). The students learn how to use and create the architectures of the network solutions which are based on the and practically deploy them. The successful completion of this subject requires the previous knowledge of elementary compute data-link, network and transport layer of the OSI m	ss, on which quant opment kit Qiskit, MM and experience s put on the effecti and analyses of t Z,ZK bers. Students of th Z,ZK the model of lambda Z,ZK the model of lambda Z,ZK the model of lambda Z,ZK the model of lambda commonly used by e metallic, optical er networks conce KZ ere its ability to na skills of design and	um technologies which is based ze with Python 5 ive use of the heir properties. 5 his course can 2 4 a calculus. 5 ISB). The course x and Windows 3 y the small and or wireless links pts like protocols 4 tural abstraction d implementation
BI-QAP Course aims at giving s are based, and algorith on Python language. K might be an advantage NI-LSM The subject is oriented available information an At this point, the subject BI-HAS This course is for stude use their gained knowld NI-MPL NI-MSI Mathematical semantic Introduction to category BI-MPP.21 The course is focused of includes both PC side a drivers, simple applicat BI-MIT The main motivation of middle internet service and how to administrate and technologies of the NI-MOP Object-oriented program is used to build complex of object systems in motivation of	Audents hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic ms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel howledge of linear algebra at the level of BI-LA1 and BI-LA2 (or BI-LIN) is necessary. Previous completion of BI-MA2 or BI-VI No previous knowledge of physics is assumed. Statistical Modelling Lab on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is d its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms, t is on the border of own research and may result in the topic of final work (diploma or bachelor thesis). Human Aspects in Cryptography and Security nts interested not only in technical scope of computer science, but also in making products usable - for users and for develop edge to design, plan and analyse their own projects in the context of human-centered security. Managerial Psychology Mathematical Structures in Computer Science s of programming languages. Data types as continous lattices, Scott topology. Procedures as continuous mappings. The Sco r theory. Methods for interfacing peripheral devices. Interfacing of real peripheral devices is focused on techniques based on Univ and peripheral devices side. Labs are practically oriented. Students gain experience with implementation of relevant parts of t on development, and APIs of selected devices. Mikrotik technologies the subject stands in the introduction of the RouterOS operating system and some network Mikrotik technologies which are a providers (ISPs). The students learn how to use and create the architectures of the network solutions which are based on the and practically deploy them. The successful completion of this subject requires the previous knowledge of elementary compute data-link, network and transport layer of the OSI model. Modern Object-Oriented Programming in Pharo	ss, on which quant opment kit Qiskit, MM and experience s put on the effecti and analyses of t Z,ZK bers. Students of th Z,ZK tt model of lambda Z,ZK tt model of lambda Z,ZK tt model of lambda commonly used by e metallic, optical er networks conce KZ ere its ability to na skills of design and t needs and areas	um technologies which is based ze with Python 5 ive use of the heir properties. 5 his course can 2 4 a calculus. 5 ISB). The course x and Windows 3 y the small and or wireless links pts like protocols 4 tural abstraction d implementation s of interest. In
BI-QAP Course aims at giving s are based, and algorith on Python language. K might be an advantage NI-LSM The subject is oriented available information an At this point, the subject BI-HAS This course is for stude use their gained knowld NI-MPL NI-MSI Mathematical semantic Introduction to categor BI-MPP.21 The course is focused of includes both PC side a drivers, simple applicat BI-MIT The main motivation of middle internet service and how to administrate and technologies of the NI-MOP Object-oriented program is used to build complex of object systems in mo-	Audents hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic ms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel howledge of linear algebra at the level of BI-LA1 and BI-LA2 (or BI-LIN) is necessary. Previous completion of BI-MA2 or BI-VI No previous knowledge of physics is assumed. Statistical Modelling Lab on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is d its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms, t is on the border of own research and may result in the topic of final work (diploma or bachelor thesis). Human Aspects in Cryptography and Security Ins interested not only in technical scope of computer science, but also in making products usable - for users and for develop edge to design, plan and analyse their own projects in the context of human-centered security. Managerial Psychology Mathematical Structures in Computer Science s of programming languages. Data types as continous lattices, Scott topology. Procedures as continuous mappings. The Sco r theory. Methods of interfacing peripheral devices. Mikrotik technologies the subject stands in the introduction of the RouterOS operating system and some network Mikrotik technologies which are providers (ISPs). The students learn how to use and create the architectures of the network solutions which are based on the and practically deploy them. The successful completion of this subject requires the previous knowledge of elementary comput data-link, network and transport layer of the OSI model. Modern Object-Oriented Programming in Pharo ming is currently one of the most widespread paradigms of software creation, especially enterprise information systems, wh modern applications. In this course, we build on the knowledge acquired in the course BI-OOP and aim to further deepen the s	s, on which quant opment kit Qiskit, MM and experience kZ s put on the effecti and analyses of t Z,ZK bers. Students of th Z,ZK the model of lambda Z,ZK the model of lambda z,ZK the model of lambda kit model of lambda commonly used by e metallic, optical er networks conce KZ ere its ability to na skills of design and t needs and areas ork on interesting p	um technologies which is based ze with Python 5 ive use of the heir properties. 5 his course can 2 4 a calculus. 5 ISB). The course x and Windows 3 y the small and or wireless links pts like protocols 4 tural abstraction 5 interest. In projects and OO
BI-QAP Course aims at giving s are based, and algorith on Python language. K might be an advantage NI-LSM The subject is oriented available information an At this point, the subject BI-HAS This course is for stude use their gained knowld NI-MPL NI-MSI Mathematical semantic Introduction to category BI-MPP.21 The course is focused of includes both PC side a drivers, simple applicat BI-MIT The main motivation of middle internet service and how to administrate and technologies of the NI-MOP Object-oriented program is used to build complex of object systems in mo- addition to deepening of technologies in terms of	Audents hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic ms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel howledge of linear algebra at the level of BI-LA1 and BI-LA2 (or BI-LIN) is necessary. Previous completion of BI-MA2 or BI-VI No previous knowledge of physics is assumed. Statistical Modelling Lab on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is d its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms, t is on the border of own research and may result in the topic of final work (diploma or bachelor thesis). Human Aspects in Cryptography and Security nts interested not only in technical scope of computer science, but also in making products usable - for users and for develop dege to design, plan and analyse their own projects in the context of human-centered security. Managerial Psychology Mathematical Structures in Computer Science s of programming languages. Data types as continous lattices, Scott topology. Procedures as continuous mappings. The Sco theory. Methods of interfacing peripheral devices on methods for interfacing of peripheral devices. Interfacing of real peripheral devices is focused on techniques based on Univ and peripheral devices side. Labs are practically oriented. Students gain experience with implementation of relevant parts of to on development, and APIs of selected devices. Mikrotik technologies the subject stands in the introduction of the RouterOS operating system and some network Mikrotik technologies which are and practically deploy them. The successful completion of this subject requires the previous knowledge of elementary compute data-link, network and transport layer of the OSI model. Modern Object-Oriented Programming in Pharo ming is currently one of the most widespread paradigms of software creation, es	ss, on which quant opment kit Qiskit, MM and experience kZ s put on the effecti and analyses of t Z,ZK bers. Students of th Z,ZK the model of lambda Z,ZK the model of lambda Z,ZK the model of lambda z,ZK the model of lambda commonly used by e metallic, optical ere its ability to na skills of design and t needs and areas ork on interesting p vement in the Pha	um technologies which is based ze with Python 5 ive use of the heir properties. 5 his course can 2 4 a calculus. 5 ISB). The course x and Windows 3 y the small and or wireless links pts like protocols 4 tural abstraction d implementation s of interest. In projects and OO ro Consortium.
BI-QAP Course aims at giving s are based, and algorith on Python language. K might be an advantage NI-LSM The subject is oriented available information an At this point, the subject BI-HAS This course is for stude use their gained knowld NI-MPL NI-MSI Mathematical semantic Introduction to category BI-MPP.21 The course is focused of includes both PC side a drivers, simple applicat BI-MIT The main motivation of middle internet service and how to administrate and technologies of the NI-MOP Object-oriented program is used to build complex of object systems in mo- addition to deepening of technologies in terms of BI-MVT.21	Audents hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic ms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel howledge of linear algebra at the level of BI-LA1 and BI-LA2 (or BI-LIN) is necessary. Previous completion of BI-MA2 or BI-VI No previous knowledge of physics is assumed. Statistical Modelling Lab on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is ad its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms, tis on the border of own research and may result in the topic of final work (diploma or bachelor thesis). Human Aspects in Cryptography and Security Its interested not only in technical scope of computer science, but also in making products usable - for users and for develop edge to design, plan and analyse their own projects in the context of human-centered security. Managerial Psychology Mathematical Structures in Computer Science s of programming languages. Data types as continous lattices, Scott topology. Procedures as continuous mappings. The Sco theory. Methods of interfacing peripheral devices. Interfacing of peripheral devices. Mikrotik technologies the subject stands in the introduction of the RouterOS operating system and some network Mikrotik technologies which are to providers (ISPs). The students learn how to use and create the architectures of the network solutions which are based on the and practically deploy them. The successful completion of this subject requires the previous knowledge of elementary compute data-link, network and transport layer of the OSI model. Modern Object-Oriented Programming in Pharo ming is currently one of the most widespread paradigms of software creation, especially enterprise information systems, whi modern applications. In this course, we build on the knowledge acquired in the course	ss, on which quant opment kit Qiskit, MM and experience kZ s put on the effecti and analyses of t Z,ZK bers. Students of th Z,ZK the model of lambda Z,ZK the model of lambda Z,ZK the model of lambda commonly used by e metallic, optical ere its ability to na skills of design and t needs and areas ork on interesting p vement in the Pha Z,ZK	um technologies which is based ze with Python 5 ive use of the heir properties. 5 his course can 2 4 a calculus. 5 ISB). The course x and Windows 3 y the small and or wireless links pts like protocols 4 tural abstraction t implementation s of interest. In projects and OO ro Consortium. 5
BI-QAP Course aims at giving s are based, and algorith on Python language. K might be an advantage NI-LSM The subject is oriented available information an At this point, the subject BI-HAS This course is for stude use their gained knowld NI-MPL NI-MSI Mathematical semantic Introduction to category BI-MPP.21 The course is focused of includes both PC side a drivers, simple applicat BI-MIT The main motivation of middle internet service and how to administrate and technologies of the NI-MOP Object-oriented program is used to build complex of object systems in mo- addition to deepening of technologies in terms of BI-MVT.21 The goal of the course	Audents hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic mis showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel howledge of linear algebra at the level of BI-LA1 and BI-LA2 (or BI-LIN) is necessary. Previous completion of BI-MA2 or BI-VI No previous knowledge of physics is assumed. Statistical Modelling Lab on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is ind its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms, tis on the border of own research and may result in the topic of final work (diploma or bachelor thesis). Human Aspects in Cryptography and Security Its interested not only in technical scope of computer science, but also in making products usable - for users and for develop dege to design, plan and analyse their own projects in the context of human-centered security. Managerial Psychology Mathematical Structures in Computer Science s of programming languages. Data types as continous lattices, Scott topology. Procedures as continuous mappings. The Sco theory. Methods of interfacing peripheral devices in methods for interfacing peripheral devices. Interfacing of real peripheral devices is focused on techniques based on Univ and peripheral devices side. Labs are practically oriented. Students gain experience with implementation of relevant parts of I on development, and APIs of selected devices. Mikrotik technologies the subject stands in the introduction of the RouterOS operating system and some network Mikrotik technologies which are based on the and practically deploy them. The successful completion of this subject requires the previous knowledge of elementary compute data-link, network and transport layer of the OSI model. Modern Object-Oriented Programming in Pharo ming is currently one of the most widespread paradigms of	ss, on which quant opment kit Qiskit, MM and experience kZ s put on the effecti and analyses of t Z,ZK bers. Students of th Z,ZK tt model of lambda Z,ZK tt model of lambda Z,ZK usB devices, Linu KZ commonly used by e metallic, optical ere its ability to na skills of design and t needs and areas ork on interesting p vement in the Pha Z,ZK ugmented reality, v	um technologies which is based ze with Python 5 ive use of the heir properties. 5 his course can 2 4 a calculus. 5 SB). The course x and Windows 3 y the small and or wireless links pts like protocols 4 tural abstraction 5 interest. In projects and OO ro Consortium. 5 visualization on
BI-QAP Course aims at giving s are based, and algorith on Python language. K might be an advantage NI-LSM The subject is oriented available information an At this point, the subject BI-HAS This course is for stude use their gained knowld NI-MPL NI-MSI Mathematical semantic Introduction to category BI-MPP.21 The course is focused of includes both PC side a drivers, simple applicat BI-MIT The main motivation of middle internet service and how to administrate and technologies of the NI-MOP Object-oriented program is used to build complex of object systems in mo- addition to deepening of technologies in terms of BI-MVT.21 The goal of the course high resolution displays	Audents hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic ms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel howledge of linear algebra at the level of BI-LA1 and BI-LA2 (or BI-LIN) is necessary. Previous completion of BI-MA2 or BI-VI No previous knowledge of physics is assumed. Statistical Modelling Lab on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is ad its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms, tis on the border of own research and may result in the topic of final work (diploma or bachelor thesis). Human Aspects in Cryptography and Security Its interested not only in technical scope of computer science, but also in making products usable - for users and for develop edge to design, plan and analyse their own projects in the context of human-centered security. Managerial Psychology Mathematical Structures in Computer Science s of programming languages. Data types as continous lattices, Scott topology. Procedures as continuous mappings. The Sco theory. Methods of interfacing peripheral devices. Interfacing of peripheral devices. Mikrotik technologies the subject stands in the introduction of the RouterOS operating system and some network Mikrotik technologies which are to providers (ISPs). The students learn how to use and create the architectures of the network solutions which are based on the and practically deploy them. The successful completion of this subject requires the previous knowledge of elementary compute data-link, network and transport layer of the OSI model. Modern Object-Oriented Programming in Pharo ming is currently one of the most widespread paradigms of software creation, especially enterprise information systems, whi modern applications. In this course, we build on the knowledge acquired in the course	ss, on which quant opment kit Qiskit, MM and experience kZ s put on the effecti and analyses of t Z,ZK bers. Students of th Z,ZK tt model of lambda Z,ZK tt model of lambda Z,ZK usB devices, Linu KZ commonly used by e metallic, optical ere its ability to na skills of design and t needs and areas ork on interesting p vement in the Pha Z,ZK ugmented reality, v	um technologies which is based ze with Python 5 ive use of the heir properties. 5 his course can 2 4 a calculus. 5 SB). The course x and Windows 3 y the small and or wireless links pts like protocols 4 tural abstraction 5 interest. In projects and OO ro Consortium. 5 visualization on

BI-MMP This course is presente	Multimedia team project d in Czech.	KZ	4
BI-ORL	Operations Research and Linear Programming	KZ	5
-	oduce students to the issues of operational research and primarily to the practical application of linear programming as a fun rimarily focuses on the use of engineering methods (with a mathematical background) to solve practical problems (such as m	-	ation technique.
NI-OLI	Linux Drivers	Z,ZK	4
	stem is an important operating system for personal computer and also for embedded systems. Systems on chip and combining		
-	of peripheral subsystems requiring specific software drivers. This course is an advanced course in the Linux driver development		tudents. The
course provides knowle	dge of Linux operating system architecture, principles of development of various types drivers, including practical experience	KZ	5
-	Programming Practices 1 se for preparing talented student for representation in international programming contests.	Γ\Ζ	5
BI-ACM2	Programming Practices 2	KZ	5
	se for preparing talented student for representation in international programming contests.		
BI-ACM3	Programming Practices 3	KZ	5
BI-ACM4	se for preparing talented student for representation in international programming contests. Programming Practices 4	KZ	5
	se for preparing talented student for representation in international programming contests.		
BI-AND.21	Programming for the Android Operating System	KZ	4
This course is presente		1/7	
BI-CS1	Programming in C# is to introduce .NET Framework as a multi-language development platform. Then, programming language C#, its fundamenta	KZ	4
-	, definitions and calls of functions will be discussed. Attention is focused on the object oriented programming in C# - class de		
	properties, static members, Garbage Collector, inheritance and polymorphism, collections, delegates, and generics. Debuggi	ing and exceptior	processing, as
well as work with files a		7 71/	
BI-PJV This course is presente	Programming in Java d in Czech. However, there is an English variant in the program Informatics (B1801 / 4753).	Z,ZK	4
BI-PJS.1	JavaScript Programming	ΚZ	4
	is an introduction to Javascript programming. Students will learn also best practices and will use tool that eases development	nt in Javascript. Th	ne course is
	nts of BIE-WSI-WI.2015 branch of study and do not have required knowledge to register for BIE-TWA.1. They should register for	or this course in th	neir 4th semester
of study. BI-KOT	Programing in Kotlin	Z,ZK	4
-	cally-styled object-functional language that exploits the extensive Java language ecosystem while delivering a number of adv		
	va compliant and allows for mixed projects that preserve existing parts written in Java, and continue with the development of		
	plate code. Last but not least, Kotlin is suitable for designing of DSLs (Domain-Specific Languages).		
NI-PSL	Programming in Scala The modern programming language Scala which exploits object-functional paradigm. Scala comprises advance language feat	Z,ZK	4
	y. Scala enables to use of applications functional patterns e.g. H-List, Monads, etc. Scala is used by many powerful frameworks		-
Scalaz, etc.		Ç	
BI-PMA	Programming in Mathematica	Z,ZK	4
	g with modern technical and scientific software. Students will learn how to use different programming styles (functional progra amic interactive applications and visualisations, data processing and presentations.	amming, rule-base	ed programming,
BI-PHP.1	Programing in PHP	KZ	4
	Czech Main goal of the course is an introduction to PHP - language and technology. Students will learn also best practices a		-
	e course is recommended for students of BIE-WSI-WI.2015 branch of study and do not have required knowledge to register	for BIE-TWA.1.T	hey should
-	n their 3rd semester of study.	7 71/	
BI-PS2 Students gain a genera	Programming in shell 2 I overview of available scripting languages, their syntax, semantics, programming style, data structures, pros and cons. In ad	Z,ZK	4 deeper insight
	er particular scripting languages and will get practical experience with shell script programming.		·
NI-PDD	Data Preprocessing	Z,ZK	5
	re raw data for further processing and analysis. They learn what algorithms can be used to extract information from various da		-
time series, etc., and lea	arn the skills to apply these theoretical concepts to solve specific problems in individual projects - e.g., extraction of character	ristics from image	es or from web
BI-PKM	Introduction to mathematics	Z	4
This course is presente			
NI-REV	Reverse Engineering	Z,ZK	5
	inted with the essentials of reverse engineering of computer software. They will learn how processes start and what happens Inderstand how executable files are organized and how they interact with 3rd party libraries. Another part of the course is dec		
	C++. Students will also understand principles of disassemblers and obfuscation techniques. A part of the course will also be d		
	ing work and which methods can be used to detect it. One of the lectures will be dedicated to the latest trends on the comput	er malware scene	e. The focus of
	ninars, where students will solve practically oriented tasks from the real world.	-	
BI-SCE1 The Seminar of Comput	Computer Engineering Seminar I The Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance	Z to failures and a	4 attacks Students
	ally within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of t		
	ssional literature and/or work in K N laboratories. The capacity of the subject is limited by the possibilities of the seminar tead	chers. The topics	are new for each
semester.	Computer Engineering Sominar II	Z	4
BI-SCE2 The Seminar of Comput	Computer Engineering Seminar II ter Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance		
	ally within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of t		
	ssional literature and/or work in K N laboratories. The capacity of the subject is limited by the possibilities of the seminar tead	chers. The topics	are new for each
semester.			

BI-ST1 Network Technology 1	Z	3
The subject is oriented to providing the students basic information and practical skills from the area of digital and IP networks. The subject is acredit	ed under the Cisc	o Netacad -
CCNA1 - R&S Introduction to Networks.		
BI-ST2 Network Technology 2	Z	3
This course is presented in Czech.		-
BI-ST3 Network Technology 3	7	3
Students will further enhance their knowledge acquired from previous BI-ST1 and BI-ST2 courses. Principles of routing and switching presented durin	-	
get further extended in the course. Students will be able to start fine-tune protocols' settings to gain certain advantages like increased efficiency, pre	-	
simple topology, security, etc.	,	
BI-ST4 Network Technology 4	7	3
Students will further enhance their knowledge already acquired from previous BI-ST1, BI-ST2, and BI-ST3 courses. Principles of routing and switchi	- 1	-
BI-ST2 courses got further extended in BI-ST3. Students were able to start fine-tune protocols' settings to gain certain advantages like increased eff		-
beyond a simple topology, security, etc. This module teaches students to configure and fine-tune Wide Area Networks and to experience a complete		-
Broadcast Multiple Access) which radically differs from well-known Ethernet (broadcast) type of networks. Students will also manage router and swit	, ,,	
recoveries, and emergency procedures. Also the security aspect is treated; students will learn possible intra- and inter-network attacks and the mitig	-	
network running.	ation ways while i	namaning the
	7 71/	4
BI-SKJ.21 Scripting Languages	Z,ZK	·
Students gain a general overview of available scripting languages, their syntax, semantics, programming style, data structures, pros and cons. In ad	ullion, they gain a	deeper insigni
into shell and some other particular scripting languages and will get practical experience with shell script programming.	7 714	
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 optima	-	
and efficient cooperation of software with hardware. Next, there will be discussed x86 specifics of the majority of OSes from the application point of vie	w linked to higher	level languages.
This knowledge will be used during reverse engineering, optimization, and evaluation of code security.		
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 indivi	dual countries
and key regions of world economy. Students get to know about different religions and cultures, necessary for doing business in diverse societies as we		
corruption and economic development, which are needed for the right investment decision. Seminars help to improve on the knowledge in the form of	of discussions bas	ed on individual
readings. It is advised to take bachelor level of this course BIE-SEP as a prerequisite.		
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	of various variants	and applications
of LR parsing and are introduced to special applications of parsers, such as incremental and parallel parsing.		
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 pr	actically. In this pa	rticular system
even the implementation details will be shown. Students will be challenged to use Git as users, project managers, team leaders as well as Git serve	administrators.	
BIE-SEG Systems Engineering	Z	0
This is an introductory class on systems engineering for bachelor students in computer science. The goal of the class is to introduce basic principles	of operating syste	ems for students
to understand processor and memory virtualization. Seeing and actually understanding virtualization is the overarching theme of the class. After tak		
understand the difference between processes and threads as well as emulation and virtualization, what virtual memory is and how it works, what co	-	
parallelism, and how processes and threads synchronize efficiently to overcome concurrency for communication.		
TV2K1 Physical Education 2	Z	1
	Z Z	4
	-	·
Theoretical seminar is intended for students which want to come in deeper contact with contemporary theoretical computer science. It is mostly a cla		· .
are treated individually and concern themselves with interesting topics from the latest research in the area. Therefore, an integral part of the course is		nunc papers anu
other scholarly literature. The capacity is limited by the the potentials of the teachers of the seminar.		
BI-TS2 Theoretical Seminar II	Z	4
Theoretical seminar is intended for students which want to come in deeper contact with contemporary theoretical computer science. It is mostly a cla		
are treated individually and concern themselves with interesting topics from the latest research in the area. Therefore, an integral part of the course is	s a work with scier	ntific papers and
other scholarly literature. The capacity is limited by the the potentials of the teachers of the seminar.		
BI-TS3 Theoretical Seminar III	Z	4
Theoretical seminar is intended for students which want to come in deeper contact with contemporary theoretical computer science. It is mostly a cla	ssical reading gro	up. The students
are treated individually and concern themselves with interesting topics from the latest research in the area. Therefore, an integral part of the course is	s a work with scier	ntific 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
Theoretical seminar is intended for students which want to come in deeper contact with contemporary theoretical computer science. It is mostly a cla	ssical reading gro	up. The students
are treated individually and concern themselves with interesting topics from the latest research in the area. Therefore, an integral part of the course is	s a work with scier	ntific papers and
other scholarly literature. The capacity is limited by the the potentials of the teachers of the seminar.		
BI-TDA Test driven architecture	KZ	4
The course is focused on practical examples of how to develop, test, and deploy software with tools like GitLab, Docker, Kubernetes, and more that		the DevOps
world. This course 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 occur	I I	-
NI-TSP Testing and Reliability	are well known in	oject.
	are well known in n the semester pr	-
	are well known in n the semester pr Z,ZK	5
Students will gain knowledge about circuit testing and about methods for increasing reliability and security. They will get practical skills to be able to	are well known in n the semester pr Z,ZK prepare a test set	5 with the help of
	are well known in n the semester pr Z,ZK prepare a test set	5 with the help of
Students will gain knowledge about circuit testing and about methods for increasing reliability and security. They will get practical skills to be able to the intuitive path sensitization and to use an ATPG for automatic test generation. They will be able to design easily testable circuits and systems with will be able to compute, analyze, and control the reliability and availability of the designed circuits.	are well known in n the semester pr Z,ZK orepare a test set built-in-self-test e	5 with the help of equipment. They
Students will gain knowledge about circuit testing and about methods for increasing reliability and security. They will get practical skills to be able to the intuitive path sensitization and to use an ATPG for automatic test generation. They will be able to design easily testable circuits and systems with will be able to compute, analyze, and control the reliability and availability of the designed circuits. BI-QUA Quality Assurance	are well known in n the semester pr Z,ZK orepare a test set built-in-self-test e KZ	5 with the help of equipment. They 4
Students will gain knowledge about circuit testing and about methods for increasing reliability and security. They will get practical skills to be able to the intuitive path sensitization and to use an ATPG for automatic test generation. They will be able to design easily testable circuits and systems with will be able to compute, analyze, and control the reliability and availability of the designed circuits. BI-QUA Quality Assurance This course introduces students to the fundamentals of testing and quality management. Students will learn what the role of a tester is in the context.	are well known in n the semester pr Z,ZK orepare a test set built-in-self-test e KZ t of different types	5 with the help of equipment. They 4 of software
Students will gain knowledge about circuit testing and about methods for increasing reliability and security. They will get practical skills to be able to the intuitive path sensitization and to use an ATPG for automatic test generation. They will be able to design easily testable circuits and systems with will be able to compute, analyze, and control the reliability and availability of the designed circuits. BI-QUA Quality Assurance This course introduces students to the fundamentals of testing and quality management. Students will learn what the role of a tester is in the contex development and will experience hands-on application testing using both manual and automated testing. At the end of the semester, the student shows and students have a student shows and students have a student shows a student show a student student shows a student	are well known in n the semester pr Z,ZK orepare a test set built-in-self-test e KZ t of different types build be prepared t	5 with the help of equipment. They 4 of software o perform a test
Students will gain knowledge about circuit testing and about methods for increasing reliability and security. They will get practical skills to be able to the intuitive path sensitization and to use an ATPG for automatic test generation. They will be able to design easily testable circuits and systems with will be able to compute, analyze, and control the reliability and availability of the designed circuits. BI-QUA Quality Assurance This course introduces students to the fundamentals of testing and quality management. Students will learn what the role of a tester is in the contex development and will experience hands-on application testing using both manual and automated testing. At the end of the semester, the student sho analysis, design a set of test scenarios, prepare test data, automate an appropriate portion of the scenarios, and prepare a report on the bugs found	are well known in n the semester pr Z,ZK orepare a test set built-in-self-test e KZ t of different types build be prepared t	5 with the help of equipment. They 4 of software o perform a test der test.
Students will gain knowledge about circuit testing and about methods for increasing reliability and security. They will get practical skills to be able to the intuitive path sensitization and to use an ATPG for automatic test generation. They will be able to design easily testable circuits and systems with will be able to compute, analyze, and control the reliability and availability of the designed circuits. BI-QUA Quality Assurance This course introduces students to the fundamentals of testing and quality management. Students will learn what the role of a tester is in the contex development and will experience hands-on application testing using both manual and automated testing. At the end of the semester, the student sho analysis, design a set of test scenarios, prepare test data, automate an appropriate portion of the scenarios, and prepare a report on the bugs found FI-TOP Academic writing	are well known in n the semester pr Z,ZK prepare a test set built-in-self-test e KZ tof different types build be prepared t t in the product ur Z	5 with the help of equipment. They 4 of software o perform a test der test. 2
Students will gain knowledge about circuit testing and about methods for increasing reliability and security. They will get practical skills to be able to the intuitive path sensitization and to use an ATPG for automatic test generation. They will be able to design easily testable circuits and systems with will be able to compute, analyze, and control the reliability and availability of the designed circuits. BI-QUA Quality Assurance This course introduces students to the fundamentals of testing and quality management. Students will learn what the role of a tester is in the contex development and will experience hands-on application testing using both manual and automated testing. At the end of the semester, the student sho analysis, design a set of test scenarios, prepare test data, automate an appropriate portion of the scenarios, and prepare a report on the bugs found FI-TOP Academic writing Publishing is an important and required part of research activity. It is not only about obtaining research results but also about applying them in the formation of the scenarios.	are well known in n the semester pr Z,ZK prepare a test set built-in-self-test e KZ tof different types build be prepared t t in the product ur Z rm of publication.	5 with the help of equipment. They of software o perform a test der test. 2 Writing scientific
Students will gain knowledge about circuit testing and about methods for increasing reliability and security. They will get practical skills to be able to the intuitive path sensitization and to use an ATPG for automatic test generation. They will be able to design easily testable circuits and systems with will be able to compute, analyze, and control the reliability and availability of the designed circuits. BI-QUA Quality Assurance This course introduces students to the fundamentals of testing and quality management. Students will learn what the role of a tester is in the contex development and will experience hands-on application testing using both manual and automated testing. At the end of the semester, the student sho analysis, design a set of test scenarios, prepare test data, automate an appropriate portion of the scenarios, and prepare a report on the bugs found FI-TOP Academic writing Publishing is an important and required part of research activity. It is not only about obtaining research results but also about applying them in the for 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 original students are specified but also in the preparation of a bachelor's or master's thesis.	are well known in n the semester pr Z,ZK prepare a test set built-in-self-test e KZ to f different types build be prepared t t in the product ur Z rm of publication. course, students w	5 with the help of equipment. They of software o perform a test der test. 2 Writing scientific <i>i</i> ill learn how to
Students will gain knowledge about circuit testing and about methods for increasing reliability and security. They will get practical skills to be able to the intuitive path sensitization and to use an ATPG for automatic test generation. They will be able to design easily testable circuits and systems with will be able to compute, analyze, and control the reliability and availability of the designed circuits. BI-QUA Quality Assurance This course introduces students to the fundamentals of testing and quality management. Students will learn what the role of a tester is in the contex development and will experience hands-on application testing using both manual and automated testing. At the end of the semester, the student sho analysis, design a set of test scenarios, prepare test data, automate an appropriate portion of the scenarios, and prepare a report on the bugs found FI-TOP Academic writing Publishing is an important and required part of research activity. It is not only about obtaining research results but also about applying them in the for 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 own write a scientific article, what parts such an article should have, and how the peer review process works. Students will also try their hand at presenting	are well known in n the semester pr Z,ZK prepare a test set built-in-self-test e KZ to f different types build be prepared t t in the product ur Z rm of publication. course, students w an article and rev	5 with the help of equipment. They of software o perform a test der test. 2 Writing scientific <i>i</i> ill learn how to iewing someone
Students will gain knowledge about circuit testing and about methods for increasing reliability and security. They will get practical skills to be able to the intuitive path sensitization and to use an ATPG for automatic test generation. They will be able to design easily testable circuits and systems with will be able to compute, analyze, and control the reliability and availability of the designed circuits. BI-QUA Quality Assurance This course introduces students to the fundamentals of testing and quality management. Students will learn what the role of a tester is in the contex development and will experience hands-on application testing using both manual and automated testing. At the end of the semester, the student sho analysis, design a set of test scenarios, prepare test data, automate an appropriate portion of the scenarios, and prepare a report on the bugs found FI-TOP Academic writing Publishing is an important and required part of research activity. It is not only about obtaining research results but also about applying them in the for 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 original students are specified but also in the preparation of a bachelor's or master's thesis.	are well known in n the semester pr Z,ZK prepare a test set built-in-self-test e KZ to f different types build be prepared t t in the product ur Z rm of publication. course, students w an article and rev	5 with the help of equipment. They of software o perform a test der test. 2 Writing scientific <i>i</i> ill learn how to iewing someone

This is an introductory	Compiler Construction	Z,ZK	5
	lass on compiler construction for bachelor students in computer science. The goal of the class is to introduce basic principles	· · ·	students to
understand the design	and implementation of programming languages. Seeing and actually understanding self-compilation is the overarching theme	of the class.	
BI-TEX	TeX and Typography	Z,ZK	4
This course is presente	d in Czech. This course gives basics of programming in TeX (plain TeX, ConTeXt, LaTeX, OpTeX, LuaTeX). Te second part of t	he course focuse	s on typographic
rules.			
BI-EHD	Introduction to European Economic History	Z,ZK	3
This course is presente	d in Czech. However, there is an English variant in the program Informatics (B1801 / 4753).	· .	
BI-KSA	Cultural and Social Anthropology	ZK	2
The one-semester cou	se aims to acquaint students with the basics of social and cultural anthropology as a scientific discipline dealing with the diver	rsity of the world	- examples from
anthropological researc	h from our "exotic" cultures (topics: kinship, religion, social exclusion, migration, globalization, , material culture, language, he	alth, history, deat	th, etc) will be
shown. The course is p	esented in Czech.		
BI-ULI	Introduction to Linux	Z	2
Students become famil	ar with the basics of the Linux operating system using e-learning form. They learn to work with the command line and become	e familiar with bas	sic commands
and techniques of a Ur	x-like system. Topics can be studied first theoretically and then practically verified in a virtual machine (terminal).		
BI-OPT	Introduction to Optical Networks	Z,ZK	4
Students get basic over	view of optical networking technology with the emphasis on practical utilization in Internet and in network infrastructures, on p	ossible problems	with deployment
of optical network tech	ology and on their solutions. The course will include the history of optical communications, an overview of passive componen	ts (optical fibres,	multiplexors,
dispersion compensate	rs, and others), and an overview of active components (optical switches and amplifiers, high-speed coherent transmission sys	stems). The cours	e will also cover
the most up-to-date top	ics presented at premium research conferences, such as ECOC or OFC. Attention will also be paid to new applications, such	as the accurate t	ime on Internet,
ultrastable frequency tr	ansfer, or sensor networks. The labs will focus on real work with optical components and on measurement of their parameters	. Students will so	lve real tasks
from practice.			
NI-VCC	Virtualization and Cloud Computing	Z,ZK	5
Students will gain know	edge of architectures of large computer systems that are used in data centers and computer infrastructure of companies and	l organizations. T	hey will get
acquainted with virtuali	ration principles, tools and technologies that serve to facilitate and automate configuration, testing and monitoring, and to effic	ciently operate ar	nd optimize the
performance paramete	s of modern computer systems. Theoretically and practically, they will get acquainted with containerization as the most effecti	ive technology too	day for the
management of comple	x computer systems and with specific technologies of cloud systems. Finally, they will learn the principles and gain practical skill	Is in the use of mo	odern integration
and development tools	(Continuous integration and development).		
BI-VHS	Virtual game worlds	ZK	4
The course leads stude	nts to create a complex virtual world. The course is a continuation of basic graphical courses (MGA, PGR, BLE,). This current s	tudents knowledg	e is furthermore
complemented by the t	neory of game design, principles of writing dialogues and characters in order to create a functional and complex virtual world.	The course can b	be followed by
the course MI-PVR with	the task of converting scenes and their dynamics into a fully virtual environment suitable for VR devices.		
BI-VR1	Virtual reality I	KZ	4
Introduction to Virtual F	eality (VR), virtual reality operating system and virtual reality creation. Another objective is to meet the rules and requirements	s of virtual worlds	communication.
The course focuses on	the ways of teaching using virtual reality technologies and interactive activities in educational virtual 3D worlds. It improves co	omputational think	king, empathy
and shared social activ	ties.		
BI-VR2	Virtual reality II	KZ	3
Continuation of the cou	se Virtual Reality I. The new course focuses on collaborative telepresence, spatial computing and social life of avatars. The of	bjective is to deve	elop applications
for computer science a	ad gamification in various social metaverse and desktop engines.		
BI-VAK.21	Selected Applications of Combinatorics	Z	3
	duce students in an accessible form to various branches of theoretical computer science and combinatorics. In contrast to the	– 1	-
		e basic courses, \	we approach the
	to theory. Together, we will first refresh the basic knowledge needed to design and analyze algorithms and introduce some ba		
	to theory. Together, we will first refresh the basic knowledge needed to design and analyze algorithms and introduce some basic theoretical) in the source of the source o	asic data structure	es. Furthermore,
with the active participa		asic data structure nformatics. Areas	es. Furthermore, from which we
with the active participation will select problems to	tion of students, we will focus on solving popular and easily formulated problems from various areas of (not only theoretical) in	asic data structure nformatics. Areas	es. Furthermore, from which we
with the active participa will select problems to also try to implement s	tion of students, we will focus on solving popular and easily formulated problems from various areas of (not only theoretical) in the solved will include, for example, graph theory, combinatorial and algorithmic game theory, approximation algorithms, optimi valutions to the studied problems with a special focus on the effective use of existing tools.	asic data structure nformatics. Areas ization and more.	es. Furthermore, from which we
with the active participa will select problems to also try to implement s BI-VMM	tion of students, we will focus on solving popular and easily formulated problems from various areas of (not only theoretical) in the solved will include, for example, graph theory, combinatorial and algorithmic game theory, approximation algorithms, optimi solutions to the studied problems with a special focus on the effective use of existing tools. Selected Mathematical Methods	asic data structure nformatics. Areas ization and more. Z,ZK	es. Furthermore, a from which we Students will 4
with the active participa will select problems to also try to implement s BI-VMM The lecture begins with	tion of students, we will focus on solving popular and easily formulated problems from various areas of (not only theoretical) in the solved will include, for example, graph theory, combinatorial and algorithmic game theory, approximation algorithms, optimi valutions to the studied problems with a special focus on the effective use of existing tools.	asic data structure nformatics. Areas ization and more. Z,ZK address Fourier s	es. Furthermore, from which we Students will 4 eries and their
with the active participa will select problems to also try to implement s BI-VMM The lecture begins with properties. Further, we	tion of students, we will focus on solving popular and easily formulated problems from various areas of (not only theoretical) in the solved will include, for example, graph theory, combinatorial and algorithmic game theory, approximation algorithms, optimi olutions to the studied problems with a special focus on the effective use of existing tools. Selected Mathematical Methods an introduction to the analysis of complex functions of a complex variable. Next, we present the Lebesgue integral. We then a	asic data structure nformatics. Areas ization and more. Z,ZK address Fourier s	es. Furthermore, from which we Students will 4 eries and their
with the active participa will select problems to also try to implement s BI-VMM The lecture begins with properties. Further, we	tion of students, we will focus on solving popular and easily formulated problems from various areas of (not only theoretical) in the solved will include, for example, graph theory, combinatorial and algorithmic game theory, approximation algorithms, optimi- olutions to the studied problems with a special focus on the effective use of existing tools. Selected Mathematical Methods an introduction to the analysis of complex functions of a complex variable. Next, we present the Lebesgue integral. We then a introduce and study the properties of the Discrete Fourier Transform (DFT) and its fast implementation (FFT). We discuss the problem in more detail and its solution using the Simplex algorithm. Each topic is demonstrated with interesting examples.	asic data structure nformatics. Areas ization and more. Z,ZK address Fourier s wavelet transform	es. Furthermore, from which we Students will 4 eries and their
with the active participa will select problems to also try to implement s BI-VMM The lecture begins with properties. Further, we the linear programming NI-VYC	tion of students, we will focus on solving popular and easily formulated problems from various areas of (not only theoretical) in the solved will include, for example, graph theory, combinatorial and algorithmic game theory, approximation algorithms, optimi olutions to the studied problems with a special focus on the effective use of existing tools. Selected Mathematical Methods an introduction to the analysis of complex functions of a complex variable. Next, we present the Lebesgue integral. We then a introduce and study the properties of the Discrete Fourier Transform (DFT) and its fast implementation (FFT). We discuss the	asic data structure nformatics. Areas ization and more. Z,ZK address Fourier s	es. Furthermore, from which we Students will 4 eries and their n. We examine
with the active participa will select problems to also try to implement s BI-VMM The lecture begins with properties. Further, we the linear programming NI-VYC Classical theory of rect	tion of students, we will focus on solving popular and easily formulated problems from various areas of (not only theoretical) in the solved will include, for example, graph theory, combinatorial and algorithmic game theory, approximation algorithms, optimically on the studied problems with a special focus on the effective use of existing tools. Selected Mathematical Methods an introduction to the analysis of complex functions of a complex variable. Next, we present the Lebesgue integral. We then a introduce and study the properties of the Discrete Fourier Transform (DFT) and its fast implementation (FFT). We discuss the problem in more detail and its solution using the Simplex algorithm. Each topic is demonstrated with interesting examples. Computability rsive functions and effective computability.	asic data structure nformatics. Areas ization and more. Z,ZK address Fourier s wavelet transform Z,ZK	es. Furthermore, 6 from which we Students will 4 eries and their n. We examine 4
with the active participa will select problems to also try to implement s BI-VMM The lecture begins with properties. Further, we the linear programming NI-VYC Classical theory of rect BI-ZS10	tion of students, we will focus on solving popular and easily formulated problems from various areas of (not only theoretical) in the solved will include, for example, graph theory, combinatorial and algorithmic game theory, approximation algorithms, optimications to the studied problems with a special focus on the effective use of existing tools. Selected Mathematical Methods an introduction to the analysis of complex functions of a complex variable. Next, we present the Lebesgue integral. We then a nitroduce and study the properties of the Discrete Fourier Transform (DFT) and its fast implementation (FFT). We discuss the problem in more detail and its solution using the Simplex algorithm. Each topic is demonstrated with interesting examples. Computability rsive functions and effective computability. Bachelor internship abroad for 10 credits	asic data structure nformatics. Areas ization and more. Z,ZK address Fourier s wavelet transform Z,ZK Z	es. Furthermore, 6 from which we Students will 4 eries and their n. We examine 4 10
with the active participa will select problems to also try to implement s BI-VMM The lecture begins with properties. Further, we the linear programming NI-VYC Classical theory of rect BI-ZS10 Each student can once	tion of students, we will focus on solving popular and easily formulated problems from various areas of (not only theoretical) in the solved will include, for example, graph theory, combinatorial and algorithmic game theory, approximation algorithms, optimi blutions to the studied problems with a special focus on the effective use of existing tools. Selected Mathematical Methods an introduction to the analysis of complex functions of a complex variable. Next, we present the Lebesgue integral. We then a nitroduce and study the properties of the Discrete Fourier Transform (DFT) and its fast implementation (FFT). We discuss the problem in more detail and its solution using the Simplex algorithm. Each topic is demonstrated with interesting examples. Computability rsive functions and effective computability. Bachelor internship abroad for 10 credits within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scientific and/or r	asic data structure nformatics. Areas ization and more. Z,ZK address Fourier so wavelet transform Z,ZK Z research institutio	es. Furthermore, 6 from which we Students will 4 eries and their n. We examine 4 10 n. Before the
with the active participa will select problems to also try to implement s BI-VMM The lecture begins with properties. Further, we the linear programming NI-VYC Classical theory of rect BI-ZS10 Each student can once internship the Dean of	tion of students, we will focus on solving popular and easily formulated problems from various areas of (not only theoretical) in the solved will include, for example, graph theory, combinatorial and algorithmic game theory, approximation algorithms, optimi blutions to the studied problems with a special focus on the effective use of existing tools. Selected Mathematical Methods an introduction to the analysis of complex functions of a complex variable. Next, we present the Lebesgue integral. We then a nitroduce and study the properties of the Discrete Fourier Transform (DFT) and its fast implementation (FFT). We discuss the problem in more detail and its solution using the Simplex algorithm. Each topic is demonstrated with interesting examples. Computability rside for the computability. Bachelor internship abroad for 10 credits within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scientific and/or r he FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of the professional	asic data structure nformatics. Areas ization and more. Z,ZK address Fourier s wavelet transform Z,ZK Z research institutio sional content and	es. Furthermore, 6 from which we Students will 4 eries and their n. We examine 4 10 n. Before the d extent of the
with the active participa will select problems to also try to implement s BI-VMM The lecture begins with properties. Further, we the linear programming NI-VYC Classical theory of rect BI-ZS10 Each student can once internship the Dean of internship. Auxiliary cou	tion of students, we will focus on solving popular and easily formulated problems from various areas of (not only theoretical) in the solved will include, for example, graph theory, combinatorial and algorithmic game theory, approximation algorithms, optimications to the studied problems with a special focus on the effective use of existing tools. Selected Mathematical Methods an introduction to the analysis of complex functions of a complex variable. Next, we present the Lebesgue integral. We then a nitroduce and study the properties of the Discrete Fourier Transform (DFT) and its fast implementation (FFT). We discuss the problem in more detail and its solution using the Simplex algorithm. Each topic is demonstrated with interesting examples. Computability rsive functions and effective computability. Bachelor internship abroad for 10 credits within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scientific and/or r he FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of the profess rses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Every 10 credits	asic data structure nformatics. Areas ization and more. Z,ZK address Fourier s wavelet transform Z,ZK Z research institutio sional content and correspond to 4 w	es. Furthermore, 6 from which we Students will 4 eries and their n. We examine 4 10 n. Before the d extent of the veeks of full-time
with the active participa will select problems to also try to implement s BI-VMM The lecture begins with properties. Further, we the linear programming NI-VYC Classical theory of rect BI-ZS10 Each student can once internship the Dean of internship. Auxiliary con	tion of students, we will focus on solving popular and easily formulated problems from various areas of (not only theoretical) in the solved will include, for example, graph theory, combinatorial and algorithmic game theory, approximation algorithms, optimises of the studied problems with a special focus on the effective use of existing tools. Selected Mathematical Methods an introduction to the analysis of complex functions of a complex variable. Next, we present the Lebesgue integral. We then a nitroduce and study the properties of the Discrete Fourier Transform (DFT) and its fast implementation (FFT). We discuss the problem in more detail and its solution using the Simplex algorithm. Each topic is demonstrated with interesting examples. Computability rsive functions and effective computability. Bachelor internship abroad for 10 credits within his / her bachelor's study affairs assesses the professional content. The student must provide evidence of the profess rses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Every 10 credits or institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can be divided	asic data structure nformatics. Areas ization and more. Z,ZK address Fourier s wavelet transform Z,ZK Z research institutio sional content and correspond to 4 w	es. Furthermore, 6 from which we Students will 4 eries and their n. We examine 4 10 n. Before the d extent of the veeks of full-time
with the active participa will select problems to also try to implement s BI-VMM The lecture begins with properties. Further, we the linear programming NI-VYC Classical theory of rect BI-ZS10 Each student can once internship the Dean of internship. Auxiliary con employment with a fore exceeds the academic	tion of students, we will focus on solving popular and easily formulated problems from various areas of (not only theoretical) in the solved will include, for example, graph theory, combinatorial and algorithmic game theory, approximation algorithms, optimi- buttors to the studied problems with a special focus on the effective use of existing tools. Selected Mathematical Methods an introduction to the analysis of complex functions of a complex variable. Next, we present the Lebesgue integral. We then a ntroduce and study the properties of the Discrete Fourier Transform (DFT) and its fast implementation (FFT). We discuss the problem in more detail and its solution using the Simplex algorithm. Each topic is demonstrated with interesting examples. Computability rsive functions and effective computability. Bachelor internship abroad for 10 credits within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scientific and/or r he FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of the profess rses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Every 10 credits of gn institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can be divided year's dead-line.	asic data structure nformatics. Areas ization and more. Z,ZK address Fourier s wavelet transform Z,ZK Z research institutio sional content and correspond to 4 w	es. Furthermore, 6 from which we Students will 4 eries and their n. We examine 4 10 n. Before the d extent of the veeks of full-time
with the active participa will select problems to also try to implement s BI-VMM The lecture begins with properties. Further, we the linear programming NI-VYC Classical theory of rect BI-ZS10 Each student can once internship the Dean of internship. Auxiliary con employment with a fore exceeds the academic BI-ZS20	tion of students, we will focus on solving popular and easily formulated problems from various areas of (not only theoretical) in the solved will include, for example, graph theory, combinatorial and algorithmic game theory, approximation algorithms, optimises of the studied problems with a special focus on the effective use of existing tools. Selected Mathematical Methods an introduction to the analysis of complex functions of a complex variable. Next, we present the Lebesgue integral. We then a nitroduce and study the properties of the Discrete Fourier Transform (DFT) and its fast implementation (FFT). We discuss the problem in more detail and its solution using the Simplex algorithm. Each topic is demonstrated with interesting examples. Computability rsive functions and effective computability. Bachelor internship abroad for 10 credits within his / her bachelor's study affairs assesses the professional content. The student must provide evidence of the profess rses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Every 10 credits or institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can be divided	asic data structure nformatics. Areas ization and more. Z,ZK address Fourier s wavelet transform Z,ZK Z research institutio sional content and correspond to 4 w into two subjects Z	es. Furthermore, s from which we Students will 4 eries and their n. We examine 4 10 n. Before the d extent of the veeks of full-time s if the internship 20
with the active participa will select problems to also try to implement s BI-VMM The lecture begins with properties. Further, we the linear programming NI-VYC Classical theory of rect BI-ZS10 Each student can once internship the Dean of internship. Auxiliary con employment with a fore exceeds the academic BI-ZS20 Each student can once	tion of students, we will focus on solving popular and easily formulated problems from various areas of (not only theoretical) in the solved will include, for example, graph theory, combinatorial and algorithmic game theory, approximation algorithms, optimi- blutions to the studied problems with a special focus on the effective use of existing tools. Selected Mathematical Methods an introduction to the analysis of complex functions of a complex variable. Next, we present the Lebesgue integral. We then a ntroduce and study the properties of the Discrete Fourier Transform (DFT) and its fast implementation (FFT). We discuss the problem in more detail and its solution using the Simplex algorithm. Each topic is demonstrated with interesting examples. Computability rsive functions and effective computability. Bachelor internship abroad for 10 credits within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scientific and/or r he FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of the profess rses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Every 10 credits gn institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can be divided year's dead-line. Bachelor internship abroad for 20 credits	asic data structure nformatics. Areas ization and more. Z,ZK address Fourier so wavelet transform Z,ZK Z research institutio sional content and correspond to 4 w into two subjects Z research institutio	es. Furthermore, s from which we Students will 4 eries and their n. We examine 4 10 n. Before the d extent of the veeks of full-time s if the internship 20 n. Before the
with the active participa will select problems to also try to implement s BI-VMM The lecture begins with properties. Further, we the linear programming NI-VYC Classical theory of rect BI-ZS10 Each student can once internship the Dean of internship. Auxiliary con employment with a fore exceeds the academic BI-ZS20 Each student can once internship the Dean of	tion of students, we will focus on solving popular and easily formulated problems from various areas of (not only theoretical) in the solved will include, for example, graph theory, combinatorial and algorithmic game theory, approximation algorithms, optimi olutions to the studied problems with a special focus on the effective use of existing tools. Selected Mathematical Methods an introduction to the analysis of complex functions of a complex variable. Next, we present the Lebesgue integral. We then a ntroduce and study the properties of the Discrete Fourier Transform (DFT) and its fast implementation (FFT). We discuss the problem in more detail and its solution using the Simplex algorithm. Each topic is demonstrated with interesting examples. Computability rsive functions and effective computability. Bachelor internship abroad for 10 credits within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scientific and/or r he FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of the profess rses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Every 10 credits og in institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can be divided year's dead-line. Bachelor internship abroad for 20 credits within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scientific and/or r he FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of the profess rses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Every 10 credits of gn institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can be divided year's dead-line.	asic data structure nformatics. Areas ization and more. Z,ZK address Fourier s wavelet transform Z,ZK Z research institutio sional content and correspond to 4 w into two subjects Z research institutio sional content and content and correspond to 4 w	es. Furthermore, s from which we Students will 4 eries and their n. We examine 4 10 n. Before the d extent of the veeks of full-time s if the internship 20 n. Before the d extent of the
with the active participa will select problems to also try to implement s BI-VMM The lecture begins with properties. Further, we the linear programming NI-VYC Classical theory of rect BI-ZS10 Each student can once internship the Dean of internship. Auxiliary con employment with a fore exceeds the academic BI-ZS20 Each student can once internship the Dean of internship the Dean of internship. Auxiliary con	tion of students, we will focus on solving popular and easily formulated problems from various areas of (not only theoretical) in the solved will include, for example, graph theory, combinatorial and algorithmic game theory, approximation algorithms, optimi olutions to the studied problems with a special focus on the effective use of existing tools. Selected Mathematical Methods an introduction to the analysis of complex functions of a complex variable. Next, we present the Lebesgue integral. We then a ntroduce and study the properties of the Discrete Fourier Transform (DFT) and its fast implementation (FFT). We discuss the problem in more detail and its solution using the Simplex algorithm. Each topic is demonstrated with interesting examples. Computability rsive functions and effective computability. Bachelor internship abroad for 10 credits within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scientific and/or r he FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of the profess rses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Every 10 credits og in institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can be divided year's dead-line. Bachelor internship abroad for 20 credits within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scientific and/or r he FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of the profess rse Bl-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Every 10 credits of gn institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can be divided year's dead-line. Bachelor internship abroad for 20 credits within his / her bachelor's study programme have a	asic data structure nformatics. Areas ization and more. Z,ZK address Fourier s wavelet transform Z,ZK Z research institutio correspond to 4 w into two subjects Z research institutio correspond to 4 w	es. Furthermore, s from which we Students will 4 eries and their n. We examine 4 10 n. Before the d extent of the veeks of full-time s if the internship 20 n. Before the d extent of the veeks of full-time
with the active participa will select problems to also try to implement s BI-VMM The lecture begins with properties. Further, we the linear programming NI-VYC Classical theory of rect BI-ZS10 Each student can once internship the Dean of internship. Auxiliary con employment with a fore exceeds the academic BI-ZS20 Each student can once internship the Dean of internship the Dean of internship. Auxiliary con	tion of students, we will focus on solving popular and easily formulated problems from various areas of (not only theoretical) in the solved will include, for example, graph theory, combinatorial and algorithmic game theory, approximation algorithms, optimi olutions to the studied problems with a special focus on the effective use of existing tools. Selected Mathematical Methods an introduction to the analysis of complex functions of a complex variable. Next, we present the Lebesgue integral. We then a introduce and study the properties of the Discrete Fourier Transform (DFT) and its fast implementation (FFT). We discuss the problem in more detail and its solution using the Simplex algorithm. Each topic is demonstrated with interesting examples. Computability rsive functions and effective computability. Bachelor internship abroad for 10 credits within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scientific and/or r he FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of the profess rses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Every 10 credits o gn institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can be divided <i>y</i> ear's dead-line. Bachelor internship abroad for 20 credits within his / her bachelor's study affairs assesses the professional content. The student must provide evidence of the profess rses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Every 10 credits of gn institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can be divided rar's dead-line. Bachelor internship abroad for 20 credits within his / her bachelor's study affairs assesses the professional content. The student must provide evidence of the profess rses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the ev	asic data structure nformatics. Areas ization and more. Z,ZK address Fourier s wavelet transform Z,ZK Z research institutio correspond to 4 w into two subjects Z research institutio correspond to 4 w	es. Furthermore, s from which we Students will 4 eries and their n. We examine 4 10 n. Before the d extent of the veeks of full-time s if the internship 20 n. Before the d extent of the veeks of full-time
with the active participa will select problems to also try to implement s BI-VMM The lecture begins with properties. Further, we the linear programming NI-VYC Classical theory of rect BI-ZS10 Each student can once internship the Dean of internship. Auxiliary con employment with a fore exceeds the academic BI-ZS20 Each student can once internship the Dean of internship the Dean of internship. Auxiliary con employment with a fore exceeds the academic	tion of students, we will focus on solving popular and easily formulated problems from various areas of (not only theoretical) in the solved will include, for example, graph theory, combinatorial and algorithmic game theory, approximation algorithms, optimi olutions to the studied problems with a special focus on the effective use of existing tools. Selected Mathematical Methods an introduction to the analysis of complex functions of a complex variable. Next, we present the Lebesgue integral. We then a introduce and study the properties of the Discrete Fourier Transform (DFT) and its fast implementation (FFT). We discuss the problem in more detail and its solution using the Simplex algorithm. Each topic is demonstrated with interesting examples. Computability rsive functions and effective computability. Bachelor internship abroad for 10 credits within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scientific and/or r he FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of the profess rses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Every 10 credits o gn institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can be divided <i>y</i> ear's dead-line. Bachelor internship abroad for 20 credits within his / her bachelor's study affairs assesses the professional content. The student must provide evidence of the profess rses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Every 10 credits of gn institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can be divided rar's dead-line. Bachelor internship abroad for 20 credits within his / her bachelor's study affairs assesses the professional content. The student must provide evidence of the profess rses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the ev	asic data structure nformatics. Areas ization and more. Z,ZK address Fourier s wavelet transform Z,ZK Z research institutio correspond to 4 w into two subjects Z research institutio correspond to 4 w	es. Furthermore, s from which we Students will 4 eries and their n. We examine 4 10 n. Before the d extent of the veeks of full-time s if the internship 20 n. Before the d extent of the veeks of full-time
with the active participa will select problems to also try to implement s BI-VMM The lecture begins with properties. Further, we the linear programming NI-VYC Classical theory of rect BI-ZS10 Each student can once internship the Dean of internship. Auxiliary con exceeds the academic BI-ZS20 Each student can once internship the Dean of internship the Dean of internship the Dean of internship the Dean of internship the Dean of internship. Auxiliary con employment with a fore exceeds the academic BI-ZS30	tion of students, we will focus on solving popular and easily formulated problems from various areas of (not only theoretical) in the solved will include, for example, graph theory, combinatorial and algorithmic game theory, approximation algorithms, optimi olutions to the studied problems with a special focus on the effective use of existing tools. Selected Mathematical Methods an introduction to the analysis of complex functions of a complex variable. Next, we present the Lebesgue integral. We then a nitroduce and study the properties of the Discrete Fourier Transform (DFT) and its fast implementation (FFT). We discuss the problem in more detail and its solution using the Simplex algorithm. Each topic is demonstrated with interesting examples. Computability rsive functions and effective computability. Bachelor internship abroad for 10 credits within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scientific and/or r he FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of the profess rses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Every 10 credits or gn institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can be divided vear's dead-line. Bachelor internship abroad for 20 credits within his / her bachelor's study affairs assesses the professional content. The student must provide evidence of the profess rses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Every 10 credits or gn institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can be divided gn institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can be divided gn institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can	asic data structure nformatics. Areas ization and more. Z,ZK address Fourier s wavelet transform Z,ZK Z research institutio correspond to 4 w into two subjects correspond to 4 w into two subjects Z research institution correspond to 4 w into two subjects	es. Furthermore, s from which we Students will 4 eries and their n. We examine 4 10 n. Before the d extent of the veeks of full-time s if the internship 20 n. Before the d extent of the veeks of full-time d extent of the veeks of full-time
with the active participa will select problems to also try to implement s BI-VMM The lecture begins with properties. Further, we the linear programming NI-VYC Classical theory of rect BI-ZS10 Each student can once internship the Dean of internship. Auxiliary con employment with a fore exceeds the academic BI-ZS20 Each student can once internship the Dean of internship the Dean of internship the Dean of internship. Auxiliary con employment with a fore exceeds the academic BI-ZS30 Each student can once	tion of students, we will focus on solving popular and easily formulated problems from various areas of (not only theoretical) in the solved will include, for example, graph theory, combinatorial and algorithmic game theory, approximation algorithms, optimi obtions to the studied problems with a special focus on the effective use of existing tools. Selected Mathematical Methods an introduction to the analysis of complex functions of a complex variable. Next, we present the Lebesgue integral. We then a nitroduce and study the properties of the Discrete Fourier Transform (DFT) and its fast implementation (FFT). We discuss the problem in more detail and its solution using the Simplex algorithm. Each topic is demonstrated with interesting examples. Computability rsive functions and effective computability. Bachelor internship abroad for 10 credits within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scientific and/or r he FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of the profess rses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Every 10 credits or gn institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can be divided rear's dead-line. Bachelor internship abroad for 20 credits within his / her bachelor's study affairs assesses the professional content. The student must provide evidence of the profess rses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Every 10 credits or gn institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can be divided year's dead-line. Bachelor internship abroad for 30 credits	asic data structure nformatics. Areas ization and more. Z,ZK address Fourier s wavelet transform Z,ZK Z research institution correspond to 4 w l into two subjects research institution correspond to 4 w l into two subjects Z research institution correspond to 4 w l into two subjects Z research institution	es. Furthermore, s from which we Students will 4 eries and their n. We examine 4 10 n. Before the d extent of the veeks of full-time s if the internship 20 n. Before the d extent of the veeks of full-time if the internship 30 n. Before the
with the active participa will select problems to also try to implement s BI-VMM The lecture begins with properties. Further, we the linear programming NI-VYC Classical theory of rect BI-ZS10 Each student can once internship the Dean of internship. Auxiliary con employment with a fore exceeds the academic BI-ZS20 Each student can once internship the Dean of internship. Auxiliary con employment with a fore exceeds the academic BI-ZS30 Each student can once internship the Dean of	tion of students, we will focus on solving popular and easily formulated problems from various areas of (not only theoretical) in the solved will include, for example, graph theory, combinatorial and algorithmic game theory, approximation algorithms, optimi olutions to the studied problems with a special focus on the effective use of existing tools. Selected Mathematical Methods an introduction to the analysis of complex functions of a complex variable. Next, we present the Lebesgue integral. We then a ntroduce and study the properties of the Discrete Fourier Transform (DFT) and its fast implementation (FFT). We discuss the problem in more detail and its solution using the Simplex algorithm. Each topic is demonstrated with interesting examples. Computability rsive functions and effective computability. Bachelor internship abroad for 10 credits within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scientific and/or r he FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of the profess rses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Every 10 credits gin institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can be divided year's dead-line. Bachelor internship abroad for 20 credits within his / her bachelor's study affairs assesses the professional content. The student must provide evidence of the profess rses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Every 10 credits of prime FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of the profess rses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Every 10 credits of pin institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount ca	asic data structure nformatics. Areas ization and more. Z,ZK address Fourier s wavelet transform Z,ZK Z research institution correspond to 4 w l into two subjects correspond to 4 w l into two subjects z research institution correspond to 4 w l into two subjects Z research institution correspond to 4 w l into two subjects	es. Furthermore, s from which we Students will 4 eries and their n. We examine 4 10 n. Before the d extent of the veeks of full-time s if the internship 20 n. Before the d extent of the veeks of full-time if the internship 30 n. Before the d extent of the
with the active participa will select problems to also try to implement s BI-VMM The lecture begins with properties. Further, we the linear programming NI-VYC Classical theory of rect BI-ZS10 Each student can once internship the Dean of internship. Auxiliary con exceeds the academic BI-ZS20 Each student can once internship the Dean of internship the Dean of internship. Auxiliary con employment with a fore exceeds the academic BI-ZS30 Each student can once internship the Dean of internship the Dean of	tion of students, we will focus on solving popular and easily formulated problems from various areas of (not only theoretical) in the solved will include, for example, graph theory, combinatorial and algorithmic game theory, approximation algorithms, optimi autions to the studied problems with a special focus on the effective use of existing tools. Selected Mathematical Methods an introduction to the analysis of complex functions of a complex variable. Next, we present the Lebesgue integral. We then a ntroduce and study the properties of the Discrete Fourier Transform (DFT) and its fast implementation (FFT). We discuss the problem in more detail and its solution using the Simplex algorithm. Each topic is demonstrated with interesting examples. Computability rsive functions and effective computability. Bachelor internship abroad for 10 credits within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scientific and/or r he FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of the profess rses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Every 10 credits of in institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can be divided rear's dead-line. Bachelor internship abroad for 20 credits within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scientific and/or r he FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of the profess rses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Every 10 credits of gn institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can be divided rear's dead-line. Bachelor internship abroad for 30 credits within his / her bachelor's study programme have a	asic data structure nformatics. Areas ization and more. Z,ZK address Fourier s wavelet transform Z,ZK Z research institution correspond to 4 w into two subjects Z research institution correspond to 4 w into two subjects Z research institution correspond to 4 w into two subjects Z research institution correspond to 4 w	es. Furthermore, s from which we Students will 4 eries and their n. We examine 4 10 n. Before the d extent of the veeks of full-time s if the internship 20 n. Before the d extent of the veeks of full-time if the internship 30 n. Before the d extent of the veeks of full-time
with the active participa will select problems to also try to implement s BI-VMM The lecture begins with properties. Further, we the linear programming NI-VYC Classical theory of rect BI-ZS10 Each student can once internship the Dean of internship. Auxiliary con exceeds the academic BI-ZS20 Each student can once internship the Dean of internship the Dean of internship. Auxiliary con employment with a fore exceeds the academic BI-ZS30 Each student can once internship the Dean of internship the Dean of	tion of students, we will focus on solving popular and easily formulated problems from various areas of (not only theoretical) in the solved will include, for example, graph theory, combinatorial and algorithmic game theory, approximation algorithms, optimi ilutions to the studied problems with a special focus on the effective use of existing tools. Selected Mathematical Methods an introduction to the analysis of complex functions of a complex variable. Next, we present the Lebesgue integral. We then a nitroduce and study the properties of the Discrete Fourier Transform (DFT) and its fast implementation (FFT). We discuss the problem in more detail and its solution using the Simplex algorithm. Each topic is demonstrated with interesting examples. Computability rsive functions and effective computability. Bachelor internship abroad for 10 credits within his / her bachelor's study affairs assesses the professional content. The student must provide evidence of the profess ress BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Every 10 credits of gn institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can be divided rear's dead-line. Bachelor internship abroad for 20 credits within his / her bachelor's study affairs assesses the professional content. The student must provide evidence of the profess ress BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Every 10 credits of profess institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can be divided rear's dead-line. Bachelor internship abroad for 20 credits within his / her bachelor's study affairs assesses the professional content. The student must provide evidence of the profess ress BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Every 10 credits of gn institution. The maximum number of credits a student	asic data structure nformatics. Areas ization and more. Z,ZK address Fourier s wavelet transform Z,ZK Z research institution correspond to 4 w into two subjects Z research institution correspond to 4 w into two subjects Z research institution correspond to 4 w into two subjects Z research institution correspond to 4 w	es. Furthermore, s from which we Students will 4 eries and their n. We examine 4 10 n. Before the d extent of the veeks of full-time s if the internship 20 n. Before the d extent of the veeks of full-time if the internship 30 n. Before the d extent of the veeks of full-time

	elligent Embedded System Fundamentals				KZ	4
	n fundamentals course is focused on high-level technology embedded systems integra	-	-			
	trol and development of applications in a graphical development environment. Lectures and development tools. In labs, students program a set of basic task by using the robol	•			•	
echnologies.	······································			5.1		
1	ocess engineering				KZ	4
	ntals of process engineering in this subject. Students will get necessary foundations fo	-		-	-	-
	ations (UML, BPMN, BORM). The focus in this subject lies in training of practical skills ess engineering for information systems development is discussed as well as its impo			-		-
an enterprise.						, en areg
BI-ZNF PH	P Framework Nette - basics				KZ	3
-	of PHP framework Nette. They will learn how to practically work with MVP architecture	and various librar	ies of this C	zech popul	ar framework. T	he resul
	the efficient creation of a web backend in PHP language. ndamentals of iOS Application Development for iPhone and iPad				KZ	4
This course is presented in (I		4
	roduction to Web and User Interfaces			Z	Z,ZK	4
This course is presented in (· .	
BI-3DT.1 3D	Printing				KZ	4
ada af tha arou						
ode of the grou						
lame of the grou	ip: Elective vocational Courses for a Bachelor Species	cialization	BI-SI.2	21, vers	ion 2021	
lequirement cre	dits in the group:					
	rses in the group:					
redits in the gro	up: 0					
lote on the grou	•					
	Name of the course / Name of the group of courses					
Code	(in case of groups of courses the list of codes of their	Completion	Cradite	Scono	Semester	Rol
Jue	members)	completion	Creuits	Scope	Semester	NON
	Tutors, authors and guarantors (gar.)					
BI-ADU.21	Unix Administration Zden k Muziká, Petr Zemánek, Miroslav Prágl Zden k Muziká Zden k	Z,ZK	5	2P+2C	L	V
	Muziká (Gar.)					
BI-AWD.21	Web and Database Server Administration Michal Valenta, Lukáš Ba inka Lukáš Ba inka Michal Valenta (Gar.)	Z,ZK	5	2P+2C	Z	V
	Algorithms and Graphs 2					
BI-AG2.21	Dušan Knop, Michal Opler, Ond ej Suchý, Tomáš Valla, Radek Hušek Ond ej	Z,ZK	5	2P+2C	L	V
	Suchý Ond ej Suchý (Gar.) Applied Network Security					
BI-ASB.21	Yelena Trofimova, Ji í Dostál, Jakub Tetera, Michal Polák, Martin Šutovský,	Z,ZK	5	2P+2C	Z	V
	Martin Mandík Ji í Dostál Ji í Dostál (Gar.)					
BI-APS.21	Architectures of Computer Systems Michal Štepanovský, Pavel Tvrdík Michal Štepanovský Pavel Tvrdík (Gar.)	Z,ZK	5	2P+2C	Z	V
BI-BEK.21	Secure Code	Z,ZK	5	2P+2C	L	V
	Josef Kokeš Josef Kokeš Josef Kokeš (Gar.)					
BI-BIG.21	DB Technologies for Big Data Monika Borkovcová Monika Borkovcová (Gar.)	KZ	5	2P+2C	Z,L	V
BI-EPP.21	Economic Business Processes	Z,ZK	5	2P+2C	L,Z	V
	David Buchtela David Buchtela Tomáš Evan (Gar.)	_,			_,_	· ·
					L	V
BI-EHA.21	Ethical Hacking Ji í Dostál, Martin Kolárik, Andrej Šimko Ji í Dostál Ji í Dostál (Gar.)	Z,ZK	5	2P+2C	-	
	Ethical Hacking Ji í Dostál, Martin Kolárik, Andrej Šimko Ji í Dostál Ji í Dostál (Gar.) Financial Business Intelligence		5 5			V
3I-FBI.21	Ethical Hacking Ji í Dostál, Martin Kolárik, Andrej Šimko Ji í Dostál Ji í Dostál (Gar.) Financial Business Intelligence David Buchtela David Buchtela Petra Pavlí ková (Gar.)	Z,ZK	5	2P+2C	Z,L	V
BI-EHA.21 BI-FBI.21 BI-HWB.21	Ethical Hacking Ji í Dostál, Martin Kolárik, Andrej Šimko Ji í Dostál Ji í Dostál (Gar.) Financial Business Intelligence					V V
BI-FBI.21 BI-HWB.21	Ethical Hacking Ji í Dostál, Martin Kolárik, Andrej Šimko Ji í Dostál Ji í Dostál (Gar.) Financial Business Intelligence David Buchtela David Buchtela Petra Pavlí ková (Gar.) Hardware Security Ji í Bu ek Ji í Bu ek Ji í Bu ek (Gar.) Internet of Things	Z,ZK Z,ZK	5 5	2P+2C 2P+2C	Z,L Z	V
BI-FBI.21	Ethical Hacking Ji í Dostál, Martin Kolárik, Andrej Šimko Ji í Dostál Ji í Dostál (Gar.) Financial Business Intelligence David Buchtela David Buchtela Petra Pavlí ková (Gar.) Hardware Security Ji í Bu ek Ji í Bu ek Ji í Bu ek (Gar.) Internet of Things Viktor erný, Lenka Kosková T ísková Lenka Kosková T ísková Lenka	Z,ZK	5	2P+2C	Z,L	
BI-FBI.21 BI-HWB.21 BI-IOT.21	Ethical Hacking Ji í Dostál, Martin Kolárik, Andrej Šimko Ji í Dostál Ji í Dostál (Gar.) Financial Business Intelligence David Buchtela David Buchtela Petra Pavlí ková (Gar.) Hardware Security Ji í Bu ek Ji í Bu ek Ji í Bu ek (Gar.) Internet of Things Viktor erný, Lenka Kosková T ísková Lenka Kosková T ísková (Gar.)	Z,ZK Z,ZK Z,ZK	5 5 5	2P+2C 2P+2C 2P+2C	Z,L Z Z	V V
BI-FBI.21 BI-HWB.21	Ethical Hacking Ji í Dostál, Martin Kolárik, Andrej Šimko Ji í Dostál Ji í Dostál (Gar.) Financial Business Intelligence David Buchtela David Buchtela Petra Pavlí ková (Gar.) Hardware Security Ji í Bu ek Ji í Bu ek Ji í Bu ek (Gar.) Internet of Things Viktor erný, Lenka Kosková T ísková Lenka Kosková T ísková Lenka	Z,ZK Z,ZK	5 5	2P+2C 2P+2C	Z,L Z	V
BI-FBI.21 BI-HWB.21 BI-IOT.21 BI-JPO.21	Ethical Hacking Ji í Dostál, Martin Kolárik, Andrej Šimko Ji í Dostál Ji í Dostál (Gar.) Financial Business Intelligence David Buchtela David Buchtela Petra Pavlí ková (Gar.) Hardware Security Ji í Bu ek Ji í Bu ek Ji í Bu ek (Gar.) Internet of Things Viktor erný, Lenka Kosková T ísková Lenka Kosková T ísková (Gar.) Computer Units Pavel Kubalík Pavel Kubalík (Gar.) Linear Algebra 2	Z,ZK Z,ZK Z,ZK Z,ZK	5 5 5 5	2P+2C 2P+2C 2P+2C 2P+2C 2P+2C	Z,L Z Z Z	v v v
BI-FBI.21 BI-HWB.21 BI-IOT.21	Ethical Hacking Ji í Dostál, Martin Kolárik, Andrej Šimko Ji í Dostál Ji í Dostál (Gar.) Financial Business Intelligence David Buchtela David Buchtela Petra Pavlí ková (Gar.) Hardware Security Ji í Bu ek Ji í Bu ek Ji í Bu ek (Gar.) Internet of Things Viktor erný, Lenka Kosková T ísková Lenka Kosková T ísková (Gar.) Computer Units Pavel Kubalík Pavel Kubalík Pavel Kubalík (Gar.)	Z,ZK Z,ZK Z,ZK	5 5 5	2P+2C 2P+2C 2P+2C	Z,L Z Z	V V
3I-FBI.21 3I-HWB.21 3I-IOT.21 3I-JPO.21 3I-LA2.21	Ethical Hacking Ji í Dostál, Martin Kolárik, Andrej Šimko Ji í Dostál Ji í Dostál (Gar.) Financial Business Intelligence David Buchtela David Buchtela Petra Pavlí ková (Gar.) Hardware Security Ji í Bu ek Ji í Bu ek Ji í Bu ek (Gar.) Internet of Things Viktor erný, Lenka Kosková T ísková Lenka Kosková T ísková Lenka Kosková T ísková (Gar.) Computer Units Pavel Kubalík Pavel Kubalík Pavel Kubalík (Gar.) Linear Algebra 2 Daniel Dombek, Lud k Kleprlík, Karel Klouda, Marta Nollová, Jakub Šístek Lud k Kleprlík Karel Klouda (Gar.) Mathematical Logic	Z,ZK Z,ZK Z,ZK Z,ZK Z,ZK	5 5 5 5 5	2P+2C 2P+2C 2P+2C 2P+2C 2P+2C 2P+2C	Z,L Z Z Z L	V V V V
BI-FBI.21 BI-HWB.21 BI-IOT.21 BI-JPO.21	Ethical Hacking Ji í Dostál, Martin Kolárik, Andrej Šimko Ji í Dostál Ji í Dostál (Gar.) Financial Business Intelligence David Buchtela David Buchtela Petra Pavlí ková (Gar.) Hardware Security Ji í Bu ek Ji í Bu ek Ji í Bu ek (Gar.) Internet of Things Víktor erný; Lenka Kosková T ísková Lenka Kosková T ísková (Gar.) Computer Units Pavel Kubalík Pavel Kubalík Pavel Kubalík (Gar.) Linear Algebra 2 Daniel Dombek, Lud k Kleprlík, Karel Klouda, Marta Nollová, Jakub Šístek Lud k Kleprlík Karel Klouda (Gar.)	Z,ZK Z,ZK Z,ZK Z,ZK	5 5 5 5	2P+2C 2P+2C 2P+2C 2P+2C 2P+2C	Z,L Z Z Z	V V V

Z,ZK

ΚZ

Z,ZK

5

3

5

2P+2C

1P+1C

2P+2C

Ζ

Ζ

Ζ

V

V

V

Methods of interfacing peripheral devices Miroslav Skrbek Miroslav Skrbek (Gar.)

Modern Visualisation Technologies Ji í Chludil, Petr Pauš Petr Pauš (Gar.)

Modern Data Formats Petr Pauš Petr Pauš (Gar.)

BI-MPP.21

BI-MDF.21

BI-MVT.21

	Multimedia and Cranking Applications			1 1		
BI-MGA.21	Multimedia and Graphics Applications Ji í Chludil, Lukáš Ba inka, Jan Buriánek, Šimon Tan v Lukáš Ba inka Ji í Chludil (Gar.)	Z,ZK	5	2P+2C	Z	V
BI-PGR.21	Computer graphics programming Petr Felkel, Jaroslav Sloup Jaroslav Sloup Petr Felkel (Gar.)	Z,ZK	5	2P+2C	L	v
BI-PRS.21	Practical Statistics Kamil Dedecius, Petr Novák Petr Novák Petr Novák (Gar.)	KZ	5	1P+2C	L	V
BI-PNO.21	Practical Digital Design Martin Novotný Martin Novotný Martin Novotný (Gar.)	KZ	5	2P+2C	Z	V
BI-PAI.21	Law and Informatics Zden k Ku era, Št pánka Havlíková, Dominik Vítek, Martin Samek, Ji í Maršál, Michal Mat jka Št pánka Havlíková Zden k Ku era (Gar.)	ZK	5	2P+2C	L	V
BI-PJP.21	Programming Languages and Compilers Jan Janoušek, Tomáš Pecka Jan Janoušek (Gar.)	Z,ZK	5	2P+1C	L	V
BI-PGA.21	Programming of Graphic Applications Ji í Chludil, Radek Richtr Radek Richtr Radek Richtr (Gar.)	Z,ZK	5	2P+2C	Z	V
BI-PJS.21	JavaScript Programming Martin Kolárik, Nikita Mironov Monika Borkovcová Monika Borkovcová (Gar.)	KZ	5	3C	L	V
BI-PYT.21	Python Programming Martin Šlapák, Ji í Hanuš, Ond ej Bouchala, Mohamed Bettaz, Jan Šafa ík Martin Šlapák Martin Šlapák (Gar.)	ΚZ	5	3C	Z,L	V
BI-PRR.21	Project management David Pešek David Pešek Petra Pavlí ková (Gar.)	Z,ZK	5	2P+2C	Z,L	V
BI-SIP.21	Network Programming Jan Fest Jan Fest Jan Fest (Gar.)	Z	5	2P+2C	Z	V
BI-SPS.21	Administration of Computer Networks and Services Jan Kubr, Libor Dostálek Pavel Tvrdík Libor Dostálek (Gar.)	Z,ZK	5	2P+2S	Z	V
BI-ML1.21	Machine Learning 1 Karel Klouda, Daniel Vašata Daniel Vašata (Gar.)	Z,ZK	5	2P+2C	Z	V
BI-ML2.21	Machine Learning 2 Daniel Vašata Daniel Vašata (Gar.)	Z,ZK	5	2P+2C	L	V
BI-SVZ.21	Machine vision and image processing Marcel Ji ina, Jakub Novák, David Kramný, Justýna Frommová Jakub Novák Marcel Ji ina (Gar.)	Z,ZK	5	2P+2C	L,Z	v
BI-SRC.21	Real-time systems Hana Kubátová, Ji í Vysko il Jaroslav Borecký Hana Kubátová (Gar.)	Z,ZK	5	2P+2C	Z	V
BI-TAB.21	Applications of Security in Technology Ji í Dostál, Jan B lohoubek, Martin Kolárik, Martin Pozd na Ji í Dostál Ji í Dostál (Gar.)	Z,ZK	5	2P+2C	L	V
BI-TPS.21	Computer Networks Technologies Vladimír Smotlacha, Josef Koumar Vladimír Smotlacha Vladimír Smotlacha (Gar.)	Z,ZK	5	2P+2S	Z	V
BI-TIS.21	Information Systems Pavel Náplava Pavel Náplava (Gar.)	Z,ZK	5	2P+2C	Z	V
BI-TUR.21	User Interface Design Jan Schmidt Jan Schmidt (Gar.)	Z,ZK	5	2P+2C	L	V
BI-TWA.21	Design of Web Applications David Bernhauer David Bernhauer (Gar.)	Z,ZK	5	2P+2C	Z	V
BI-UKB.21	Introduction to Cybersecurity Ivana Trummová, Jan B lohoubek, David Pokorný, Jakub Tetera, František Ková, Martin Mandík, Tomáš Lu ák David Pokorný Jan B lohoubek (Gar.)	Z,ZK	5	3P+1C	Z	V
BI-VES.21	Embedded Systems Miroslav Skrbek Miroslav Skrbek (Gar.)	Z,ZK	5	2P+2C	L	V
BI-VDC.21	Virtualization and Data Centers Ji í Kašpar Ji í Kašpar Ji í Kašpar (Gar.)	Z,ZK	5	2P+2C	L	v
BI-VIZ.21	Data Visualization Magda Friedjungová Magda Friedjungová Magda Friedjungová (Gar.)	KZ	5	3P	Z	V
BI-VPS.21	Selected Topics in Computer Networking Alexandru Moucha, Mohamed Bettaz Pavel Tvrdík Mohamed Bettaz (Gar.)	Z,ZK	5	2P+2C	L	V
BI-VWM.21	Searching the Web and Multimedia Databases Ji í Novák, Tomáš Skopal Ji í Novák Tomáš Skopal (Gar.)	Z,ZK	5	2P+1C	L	V
BI-FEM.21	Fundamentals of Economics Tomáš Evan Tomáš Evan (Gar.)	Z,ZK	5	2P+2C	Z	V
BI-ZRS.21	Basics of System Control Kate ina Hyniová Kate ina Hyniová (Gar.)	Z,ZK	5	2P+2C	Z	V
BI-ZSB.21	Basics of System Security Marián Svetlík, Martin Šutovský, Dominik Novák, Ladislav Marko Simona Forn sek Simona Forn sek (Gar.)	Z,ZK	5	2P+2C	Z	V
BI-ZUM.21	Artificial Intelligence Fundamentals Pavel Surynek Pavel Surynek (Gar.)	Z,ZK	5	2P+2C	L	v

Characteristics of the courses of this group of Study Plan: Code=BI-SI-VO.21 Name=Elective vocational Courses for a Bachelor Specialization BI-SI.21, version 2021

BI-EPP.21 Economic Business Processes		Z,ZK	5
The aim of the course is to present typical processes related to the usual life cycle of a company. T	he course focuses mainly on the basic economic	and financial asp	ects of business
in the market environment of the Czech Republic and the basics of management. In the course, stu			
establishment of the company, through the management of property and capital structure, financin	g of the company, determining the cost function of	the company and	d labor costs, to
evaluating the financial health of the company and its eventual rehabilitation or termination.			n
BI-FBI.21 Financial Business Intelligence		Z,ZK	5
The aim of the course is to acquaint students primarily with financial accounting as a tool for record		-	-
and other indicators for comparison with other companies and management decision process at the	-	-	-
for financial management and prediction of business development. Management accounting allows accounting periods, enables a multidimensional view of business data, enables to control effectivel			
assess options related to future business decisions. The principles of management accounting, de			
information systems, decision support systems, and other knowledge-oriented systems.		neingenee modul	
BI-PAI.21 Law and Informatics		ZK	5
The aim of the course is to introduce students into the basic legal instruments that they will encour	ا ter in their practice. Students will gain knowledge	1	-
Republic and will be alerted to the pitfalls that await them in business from the point of view of law.		-	
environment, will know their responsibilities in working with the Internet, will be familiar with the ins			
and open-source licenses. Emphasis will also be put on the legal protection of data on the Internet	, the registration of Internet domains and protectic	on against their m	isuse. Students
will also be alerted to such behaviour in the field of IT that can be classified as criminal under the 0	Czech law. The course will also include analyses o	f real cases from	practice.
BI-MPP.21 Methods of interfacing peripheral devices		Z,ZK	5
The course is focused on methods for interfacing of peripheral devices. Interfacing of real periphera	I devices is focused on techniques based on Univer	ersal serial bus (U	JSB). The course
includes both PC side and peripheral devices side. Labs are practically oriented. Students gain exp	perience with implementation of relevant parts of L	JSB devices, Linu	ix and Windows
drivers, simple application development, and APIs of selected devices.			
BI-MVT.21 Modern Visualisation Technologies		Z,ZK	5
The goal of the course is to give an overview of modern visualization technologies and their princip		• •	
high resolution displays (e.g., SAGE and video mapping) and their applications in practice. Several I	ectures deal with the content creation for the menti	ioned technologie	es, namely fractal
and procedural visualization, scientific data visualization, and 3D model scanning.			1
BI-ADU.21 Unix Administration		Z,ZK	5
Students will learn the internal structure of the UNIX operating system, with the administration of its b		-	
between user and administrator roles. They will get theoretical and practical knowledge of user mai		-	
processes, memory, network services and remote access, and in the areas of system deployment	and virtualization. In the labs, they will verify the k	nowledge from th	ie lectures on
specific examples from practice.		7 71/	
BI-AWD.21 Web and Database Server Administration Students will get acquainted with the administration of database and web servers and services. Th	av will be able to install configure operate test a	Z,ZK	5
web service systems. The principles will be demonstrated on the PostgreSQL relational database of			ex ualabase and
	signe and Apache will be used as an example of		5
BI-AG2.21 Algorithms and Graphs 2 This course, presented in Czech, introduces basic algorithms and concepts of graph theory as a for	 Now-up on the introduction given in the compulse		-
delves into advances data structures and amortized complexity analysis. It also includes a very ligi		-	
BIE-AG2.21.			
BI-ASB.21 Applied Network Security		Z.ZK	5
The aim of the course is to introduce selected topics from computer networks in terms of cybersec	urity. These topics extend the basic knowledge ga	I '	-
security applications like the public key infrastructure, encrypted network protocols, link and netwo			
knowledge of security applications in computer networks.	.,,	3	J
BI-APS.21 Architectures of Computer Systems		Z,ZK	5
Students will learn the construction principles of internal architecture of computers with universal p	ہ processors at the level of machine instructions. Sp		
pipelined instruction processing and on the memory hierarchy. Students will understand the basic c	oncepts of RISC and CISC architectures and the p	principles of instru	iction processing
not only in scalar processors, but also in superscalar processors that can execute multiple instruct	ons in one cycle, while ensuring the correctness of	of the sequential r	model of the
program. The course further elaborates the principles and architectures of shared memory multipro	cessor and multicore systems and the memory co	oherence and cor	nsistency in such
systems.			
BI-BEK.21 Secure Code		Z,ZK	5
The students will learn how to assess security risks and how to take them into account in the design		-	-
theory, students gain practical experience with running programs with reduced privileges and meth		1 0	
administrator privileges. Dangers inherent in buffer overflows will be practically demonstrated. Stuc		-	-
security and database systems, web, remote procedure calls, and sockets in general. The module	concludes with Denial of Service attacks and the o		r
BI-BIG.21 DB Technologies for Big Data		KZ	5
Students will be introduced into the field of Big Data processing where nonrelational (NoSQL) data			-
finishing the course students were able to choose suitable tools (mostly open source) and technique application, transformation/agregation, presentation). Students get acquisited with versions are being			
collection, transformation/aggregation, presentation). Students get acquainted with various archited of individual technologies will be supplemented with specific examples from practice.	stores for processing and storing big data. A theory		and presentation
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	a. The course deals with cybersecurity threats, yu		1
exploitation in computer networks, web applications, wireless networks, operating systems, and ot			-
vulnerabilities testing and the following process of penetration test documentation.			mpononoo mun
BI-HWB.21 Hardware Security		Z,ZK	5
The course deals with hardware resources used to ensure security of computer systems including err	ا bedded ones. Students become familiar with the or	I ' I	1
modules, security features of modern processors, and storage media protection through encryption. T	-		
attacks and tampering with hardware during manufacture. Students will have an overview of contact			-
for multi-factor authentication (biometrics). Students will understand methods of efficient implement	tations of ciphers.		
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 In	ternet of Things (IoT). Lectures are devoted to an c		1
wireless communication technologies designed primarily for this area, and appropriate programming	ng methods. They include an overview of IoT archi	tectures for different	ent application
areas. Within the computer labs, students will gain practical experience with developing simple IoT	systems using common development environment	nts (hardware - AF	RM, ESP, STM;
software - Arduino, Raspberry Pi OS).			

BI-JPO.21	Computer Units	Z,ZK	5
-	basic knowledge of digital computer units acquired in the obligatory course of the program (BIE-SAP), get acquainted in deta		
· ·	er units and processors and their interactions with the environment, including accelerating arithmetic-logic units and using appreciation of main memory and other interactions with the environment, including accelerating arithmetic-logic units and using appreciation of main memory and other interactions with the environment, including accelerating arithmetic-logic units and using appreciations of main memory and other interactions with the environment, including accelerating arithmetic-logic units and using appreciations of main memory and other interactions with the environment, including accelerating arithmetic-logic units and using appreciations of main memory and other interactions with the environment, including accelerating arithmetic-logic units and using appreciations of memory and other interactions with the environment, including accelerating arithmetic-logic units and using appreciations of memory and other interactions with the environment.		•
	ganization of main memory and other internal memories (addressable, LIFO, FIFO and CAM) will be discussed in detail, inclund serial data transmissions. They will also get acquainted with the methodology of controller design, with the principles of co	-	
-	e architecture of the bus system. The problems will be practically evaluated in the labs and with the help of the educational micr		-
	dware design kits (FPGA).	oprogrammod pro	
BI-LA2.21	Linear Algebra 2	Z,ZK	5
	dm tu rozší í znalosti z p edm tu BI-LA1, kde se pracovalo pouze s vektory ve form n-tic ísel. Zde si zavedeme vektorový j		-
Seznámíme se také s	pojmem skalární sou in a lineární zobrazení, což nám dovolí ukázat souvislost s lineární algebrou, geometrií a po íta ovou g	jrafikou. Dalším ve	elkým tématem
	ní algebra, kde si ukážeme potíže s ešením soustav lineárních rovnic na po íta i a možnosti, jak se s tímto problémem vypo	ádat s d razem na	a rozklady matic.
	ice lineární algebry v r zných oborech.		ſ
BI-LOG.21	Mathematical Logic	Z,ZK	5
	the basics of propositional and predicate logic. It starts from the semantic point of view. Based on the notion of truth, satisfial		
	i formulas are defined. Methods for determining the satisfiability of formulas, some of which are used for automated proving, a olean functions in propositional logic. In predicate logic, the course further deals with formal theories, such as arithmetics, an	-	
	ical logic is demonstrated on the axiomatic system of propositional logic and its properties. Gödel's incompleteness theorems		lo oynaolio
BI-MDF.21	Modern Data Formats	KZ	3
The goal of the course	is to give an overview of commonly used data formats for typical types of data. There will be a description of each data type a	and the data forma	ats used for that
data type along with to	ols available to work with such data. After finishing the course, the students should know how to work with common data, e.g.	. on the Web.	
BI-MGA.21	Multimedia and Graphics Applications	Z,ZK	5
	ed with multimedia technologies and applications for 2D/3D bitmap and vector graphics. During the course, current tools for w		
	will be introduced. Students learn several basic techniques of creation and editing content in computer graphics, introduction to		
	n to use multimedia transmission and representation systems, including real-time multimedia processing. They understand th cards. They gain a number of practical skills, such as vectorizing raster images, retouching photos, or creating 3D models.	ie principie of ope	eration and use
<u> </u>		7.71	5
BI-PGR.21	Computer graphics programming se, students can program a simple interactive 3D graphical application like a computer game or scientific visualization, desigr	Z,ZK	-
-	naterials (like wall surface, wood, sky), and set up the lighting. At the same time, they understand the fundamental principles and		-
	ine, geometric transformations, or lighting model. They gain knowledge allowing orientation in computer graphics and represe		
	ent, e.g., GPU programming and animations. They get used to techniques utilized in geometric modeling, modeling curves and su	-	
BI-PRS.21	Practical Statistics	KZ	5
The students will be int	roduced to methods of applied statistics. They will learn how to work with various types of data, perform analyses, and choose	models fitting the	data. The course
	sion and correlation analysis, analysis of variance and non-parametric methods. Students will learn to use the statistical softw	are R and will app	ply the studied
methods on data from		, 	
BI-PNO.21	Practical Digital Design	KZ	5
-	ew of the contemporary digital design flow and learn practical skills to use synchronous design techniques. They understand		
tools.	chnologies FPGA and ASIC. Students demonstrate practical use of the design techniques in the course project using modern	industry-standard	d CAD design
BI-PJP.21	Programming Languages and Compilers	Z,ZK	5
-	programming Languages and Completes poppling methods of programming languages. They are introduced to intermediate representations used in current compilers		-
	of a translation of a text that conforms a given syntax, to a target code and also to create a compiler based on the specification		-
	nguage but any text in a language generated by a given LL input grammar.		
BI-PGA.21	Programming of Graphic Applications	Z,ZK	5
The course will present	the possibilities of current professional open-source tools for image editing, video editing, 3D animation (GIMP, Blender) and the	heir use for visuali	zation of specific
	ematical data). Emphasis will be placed on the possibilities of further enhancement of the presented software tools, both usin	ig built-in scripting	languages and
by implementation of p		· · · -	_
BI-PJS.21	JavaScript Programming	KZ	5
	luction to Javascript programming. Students will also learn best practices and get acquai nted with tools that make code deve		-
BI-PYT.21	Python Programming	KZ	5
	is to get acquainted with basic efficient control and data structures of the Python programming language for text and binary d programming in Python and in other programming languages will be explained. Each topic is prepared for students in the forr		
	to individual student work. Before each lab, students pass a short test on the last week topic. Four homeworks plus a semes		
the semester.			
BI-PRR.21	Project management	Z,ZK	5
	is to introduce students into the basic concepts and principles of project management, i.e. methods of planning, teamwork, ar		1
project, communication	n, argumentation and meeting management. Students will practice project management techniques (e.g. SWOT analysis, risk	assessment and	management,
Gantt charts, resource	schedule, resource balancing, network graphs) and creation of project documentation. The course is designed especially for	students who are	interested in
	edge outside IT, consider starting their own company, or have ambitions to work in middle or senior management positions in	large companies.	The course is
	se who will develop software or hardware in the form of team projects.		_
BI-SIP.21	Network Programming	Z	5
	damental topics of programming network applications. It consists of 4 parts. The introductory part is focused on low-level prog to designing communication protocols and their verification. The third part introduces the principles and applications of middl		
	rn models of distributed computing - P2P and blockchain. All topics will be first explained theoretically and then practices in c	-	-
programming language		sinputor labo dom	g a chocon
BI-SPS.21	Administration of Computer Networks and Services	Z,ZK	5
	is to deepen the theoretical knowledge of network technologies and protocols in the environment of network servers administ		-
	e course syllabus requires the knowledge at the level of courses BIE-PSI, BIE-VPS, and BIE-OSY. Practical skills will be gained		
with real network infras	tructure.		
BI-ML1.21	Machine Learning 1	Z,ZK	5
-	is to introduce students to the basic methods of machine learning. They get theoretical understanding and practical working		
	the supervised learning scenario and clustering models in the unsupervised scenario. Students will be aware of the relations	-	
	e fundamentals of assessing model quality. Moreover, they learn the basic techniques of data preprocessing and multidimensi is and scikit libraries in Python will be used.	unai uata visualiza	auon. In practical
aomonoriationo, parlua			

BI-ML2.21	Machine Learning 2	Z,ZK	5
The goal of this course	is to introduce students to the selected advanced methods of machine learning. In the supervised learning scenario, they, in		kernel methods
and neural networks. In	the unsupervised learning scenario students learn the principal component analysis and other dimensionality reduction met	hods. Moreover, s	students get the
basic principles of reinfo	prcement learning and natural language processing.		
BI-SVZ.21	Machine vision and image processing	Z,ZK	5
Camera systems are be	coming a common part of life by being universally available. Related to this phenomenon is the need to process and evaluat	te image informat	ion. The course
introduces students to c	lifferent types of camera systems and a variety of methods for image and video processing. The course is focused on practical	use of camera sy	stems for solving
problems of practice that	at the graduates may encounter.		
BI-SRC.21	Real-time systems	Z,ZK	5
Students obtain the bas	ic knowledge in the real-time (RT) system theory and in the design methods for RT systems including the dependability issu	es. Theoretical kr	nowledge from
lectures will be experim	entally verified in computer labs. The course is mainly focused on embedded RT systems, therefore the design kits in the lab	o are the same as	in the BIE-VES
course.			
BI-TAB.21	Applications of Security in Technology	Z,ZK	5
The goal of the course	s to introduce students to selected topics from cybersecurity technical applications that are utilized in different industries. Stu	udents get a broa	der overview of
cybersecurity applicatio	ns and extend their knowledge from the cryptology, the secure code, and system, network, and hardware security.		
BI-TPS.21	Computer Networks Technologies	Z,ZK	5
The course introduces	students with basic and advanced technologies, components, and interfaces of contemporary computer networks at the phys	sical layer with the	overlap to the
link layer. The lectures p	provide theoretical foundations of these technologies and explain relevant physical principles. In the labs, the respective tech	nologies will be d	emonstrated and
with the most important	ones students will get hands-on experience. Thematically, the course covers both local and long-range optical networks, Eth	nernet, modern wi	ireless networks,
always with focus on high	gh-speed networks.		
BI-TIS.21	Information Systems	Z,ZK	5
The goal of this course	is to familiarise students with the information systems topic and information systems implementation principles. During the $lpha$		re introduced to
"on the market" existing	types of systems and their usage in specific industry segments. Students are familiarised with the CRM, ERP, MRP and oth	er types of inform	ation systems.
The fundamental part o	f the course is the introduction to key ideas of an information system selection, evaluation of information system benefits, wa	ays of information	systems
implementation and info	prmation system implementation based on the project management principles. The emphasis is on the initial customer analys	sis, customer insig	ght and ability to
decide whether it is bett	er to implement any existing information system or to develop a new one from scratch. These factors determine the informatio	n system impleme	entation success.
At the end of the course	e information systems security, operation, support, maintenance, legislation impacts, and government information systems to	pics are discusse	ed.
BI-TUR.21	User Interface Design	Z,ZK	5
	verview of methods for designing and testing common user interfaces. They get experience to solve the problems where soft		1
-	ser optimally, since the needs and characteristics of users are not taken into account during product development. Students	-	
bring users into the dev	elopment process to ensure optimal interface for them.	-	
BI-TWA.21	Design of Web Applications	Z,ZK	5
	b application development. Initially, the students become familiar with HTTP and its possibilities and partly with some propert	1 .	-
	resentation of document on the Web (CSS). These skills provide the necessary basis for the development of Web application		-
	te the development of Web pages applications. Server side will be demonstrated on PHP technology using frameworks Symi		
			Developments
on the client side will be	demonstrated using a JavaScript language with library jQuery and possibly MV* framework React.		-
on the client side will be BI-UKB.21	e demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to Cybersecurity	Z,ZK	5
on the client side will be BI-UKB.21 The goal of the course	e demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to Cybersecurity s to provide students with the introduction of basic concepts in modern approach to cybersecurity. Students will get a basic of	Z,ZK	5
on the client side will be BI-UKB.21 The goal of the course and attacker techniques	e demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to Cybersecurity s to provide students with the introduction of basic concepts in modern approach to cybersecurity. Students will get a basic of s, security mechanisms in networks, operating systems and applications, as well as of basic cyberspace regulations.	Z,ZK	5 s in cyberspace
on the client side will be BI-UKB.21 The goal of the course and attacker techniques BI-VES.21	e demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to Cybersecurity s to provide students with the introduction of basic concepts in modern approach to cybersecurity. Students will get a basic of s, security mechanisms in networks, operating systems and applications, as well as of basic cyberspace regulations. Embedded Systems	Z,ZK	5 s in cyberspace
on the client side will be BI-UKB.21 The goal of the course i and attacker techniques BI-VES.21 Students learn to design	e demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to Cybersecurity s to provide students with the introduction of basic concepts in modern approach to cybersecurity. Students will get a basic concepts in modern approach to cybersecurity. Students will get a basic concepts and applications, as well as of basic cyberspace regulations. Embedded Systems membedded systems and develop software for them. They get basic knowledge of the most common microcontrollers and embedded systems and applications.	Z,ZK	5 s in cyberspace
on the client side will be BI-UKB.21 The goal of the course i and attacker techniques BI-VES.21 Students learn to design peripheral circuits, prog	e demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to Cybersecurity s to provide students with the introduction of basic concepts in modern approach to cybersecurity. Students will get a basic of s, security mechanisms in networks, operating systems and applications, as well as of basic cyberspace regulations. Embedded Systems membedded systems and develop software for them. They get basic knowledge of the most common microcontrollers and emb ramming methods, and applications. They get practical skills with development kits and tools.	Z,ZK overview of threat	5 s in cyberspace 5 s, their integrated
on the client side will be BI-UKB.21 The goal of the course i and attacker techniques BI-VES.21 Students learn to design peripheral circuits, prog BI-VDC.21	e demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to Cybersecurity s to provide students with the introduction of basic concepts in modern approach to cybersecurity. Students will get a basic of s, security mechanisms in networks, operating systems and applications, as well as of basic cyberspace regulations. Embedded Systems nembedded systems and develop software for them. They get basic knowledge of the most common microcontrollers and emb ramming methods, and applications. They get practical skills with development kits and tools. Virtualization and Data Centers	Z,ZK	5 s in cyberspace 5 s, their integrated 5
on the client side will be BI-UKB.21 The goal of the course i and attacker techniques BI-VES.21 Students learn to design peripheral circuits, prog BI-VDC.21 The aim of the course is	e demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to Cybersecurity s to provide students with the introduction of basic concepts in modern approach to cybersecurity. Students will get a basic of s, security mechanisms in networks, operating systems and applications, as well as of basic cyberspace regulations. Embedded Systems nembedded systems and develop software for them. They get basic knowledge of the most common microcontrollers and emb ramming methods, and applications. They get practical skills with development kits and tools. Virtualization and Data Centers s to familiarize students with technology basis of cloud computer systems. It shows principles and techniques used in design	Z,ZK overview of threat Z,ZK pedded processors Z,ZK and implementati	5 s in cyberspace 5 s, their integrated 5 on of data center
on the client side will be BI-UKB.21 The goal of the course i and attacker techniques BI-VES.21 Students learn to design peripheral circuits, prog BI-VDC.21 The aim of the course is infrastructure, such as	e demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to Cybersecurity s to provide students with the introduction of basic concepts in modern approach to cybersecurity. Students will get a basic of s, security mechanisms in networks, operating systems and applications, as well as of basic cyberspace regulations. Embedded Systems nembedded systems and develop software for them. They get basic knowledge of the most common microcontrollers and emb ramming methods, and applications. They get practical skills with development kits and tools. Virtualization and Data Centers s to familiarize students with technology basis of cloud computer systems. It shows principles and techniques used in design various kinds of virtualization and high availability of servers, storages, and software layers. The course guides through data definition.	Z,ZK overview of threat Z,ZK and implementati center technologi	5 s in cyberspace 5 s, their integrated 5 on of data center es from private
on the client side will be BI-UKB.21 The goal of the course i and attacker techniques BI-VES.21 Students learn to design peripheral circuits, prog BI-VDC.21 The aim of the course is infrastructure, such as y to public and hybrid close	e demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to Cybersecurity s to provide students with the introduction of basic concepts in modern approach to cybersecurity. Students will get a basic of s, security mechanisms in networks, operating systems and applications, as well as of basic cyberspace regulations. Embedded Systems membedded systems and develop software for them. They get basic knowledge of the most common microcontrollers and emb ramming methods, and applications. They get practical skills with development kits and tools. Virtualization and Data Centers to familiarize students with technology basis of cloud computer systems. It shows principles and techniques used in design various kinds of virtualization and high availability of servers, storages, and software layers. The course guides through data of uds. Student learn current trends in the architecture of IT infrastructure and its configuration for classic and cloud applications.	Z,ZK overview of threat Z,ZK and implementati center technologi s. Students will ur	5 s in cyberspace 5 s, their integrated 5 on of data center es from private inderstand the
on the client side will be BI-UKB.21 The goal of the course i and attacker techniques BI-VES.21 Students learn to design peripheral circuits, prog BI-VDC.21 The aim of the course is infrastructure, such as y to public and hybrid cloud design, validation, and	e demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to Cybersecurity s to provide students with the introduction of basic concepts in modern approach to cybersecurity. Students will get a basic of s, security mechanisms in networks, operating systems and applications, as well as of basic cyberspace regulations. Embedded Systems membedded systems and develop software for them. They get basic knowledge of the most common microcontrollers and emb ramming methods, and applications. They get practical skills with development kits and tools. Virtualization and Data Centers to familiarize students with technology basis of cloud computer systems. It shows principles and techniques used in design rarious kinds of virtualization and high availability of servers, storages, and software layers. The course guides through data of uds. Student learn current trends in the architecture of IT infrastructure and its configuration for classic and cloud applications pereation of complex infrastructures for modern applications with respect to scalability and protection against overloads, outer	Z,ZK overview of threat Z,ZK and implementati center technologi s. Students will ur ages, and data los	5 s in cyberspace 5 s, their integrated 5 on of data center es from private nderstand the sses.
on the client side will be BI-UKB.21 The goal of the course i and attacker techniques BI-VES.21 Students learn to design peripheral circuits, prog BI-VDC.21 The aim of the course is infrastructure, such as to public and hybrid cloud design, validation, and BI-VIZ.21	e demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to Cybersecurity s to provide students with the introduction of basic concepts in modern approach to cybersecurity. Students will get a basic of s, security mechanisms in networks, operating systems and applications, as well as of basic cyberspace regulations. Embedded Systems methods, and applications. They get practical skills with development kits and tools. Virtualization and Data Centers to familiarize students with technology basis of cloud computer systems. It shows principles and techniques used in design various kinds of virtualization and high availability of servers, storages, and software layers. The course guides through data of the student learn current trends in the architecture of IT infrastructure and its configuration for classic and cloud applications Data Visualization	Z,ZK overview of threat Z,ZK and implementati center technologi s. Students will ur ages, and data los KZ	5 s in cyberspace 5 s, their integrated 5 on of data center es from private nderstand the sses. 5
on the client side will be BI-UKB.21 The goal of the course i and attacker techniques BI-VES.21 Students learn to design peripheral circuits, prog BI-VDC.21 The aim of the course is infrastructure, such as y to public and hybrid cloudesign, validation, and BI-VIZ.21 The course offers an ow	e demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to Cybersecurity s to provide students with the introduction of basic concepts in modern approach to cybersecurity. Students will get a basic of s, security mechanisms in networks, operating systems and applications, as well as of basic cyberspace regulations. Embedded Systems methods, and applications. They get practical skills with development kits and tools. Virtualization and Data Centers to familiarize students with technology basis of cloud computer systems. It shows principles and techniques used in design various kinds of virtualization and high availability of servers, storages, and software layers. The course guides through data of uds. Student learn current trends in the architecture of IT infrastructure and its configuration for classic and cloud applications poperation of complex infrastructures for modern applications with respect to scalability and protection against overloads, outa Data Visualization erview of the types and characteristics of data as well as suitable visualization methods. This will aid the students in understa	Z,ZK overview of threat Z,ZK and implementati center technologi s. Students will ur ages, and data los KZ anding data, their	5 s in cyberspace 5 s, their integrated 5 on of data center es from private nderstand the sses. 5 content and their
on the client side will be BI-UKB.21 The goal of the course i and attacker techniques BI-VES.21 Students learn to design peripheral circuits, prog BI-VDC.21 The aim of the course is infrastructure, such as to public and hybrid clou design, validation, and BI-VIZ.21 The course offers an ow application in areas such	e demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to Cybersecurity s to provide students with the introduction of basic concepts in modern approach to cybersecurity. Students will get a basic of s, security mechanisms in networks, operating systems and applications, as well as of basic cyberspace regulations. Embedded Systems nembedded Systems nembedded systems and develop software for them. They get basic knowledge of the most common microcontrollers and emb ramming methods, and applications. They get practical skills with development kits and tools. Virtualization and Data Centers to familiarize students with technology basis of cloud computer systems. It shows principles and techniques used in design various kinds of virtualization and high availability of servers, storages, and software layers. The course guides through data of uds. Student learn current trends in the architecture of IT infrastructure and its configuration for classic and cloud applications operation of complex infrastructures for modern applications with respect to scalability and protection against overloads, outar Data Visualization erview of the types and characteristics of data as well as suitable visualization methods. This will aid the students in understat h as data mining and machine learning. Within the course, students will be introduced to exploratory data analysis, preproce	Z,ZK overview of threat Z,ZK and implementati center technologi s. Students will ur ages, and data los KZ anding data, their essing, and ways of	5 s in cyberspace 5 s, their integrated 5 on of data center es from private nderstand the sses. 5 content and their of visualizing
on the client side will be BI-UKB.21 The goal of the course i and attacker techniques BI-VES.21 Students learn to design peripheral circuits, prog BI-VDC.21 The aim of the course is infrastructure, such as y to public and hybrid clou design, validation, and of BI-VIZ.21 The course offers an ow application in areas such	e demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to Cybersecurity s to provide students with the introduction of basic concepts in modern approach to cybersecurity. Students will get a basic of s, security mechanisms in networks, operating systems and applications, as well as of basic cyberspace regulations. Embedded Systems nembedded Systems nembedded systems and develop software for them. They get basic knowledge of the most common microcontrollers and emb ramming methods, and applications. They get practical skills with development kits and tools. Virtualization and Data Centers to familiarize students with technology basis of cloud computer systems. It shows principles and techniques used in design various kinds of virtualization and high availability of servers, storages, and software layers. The course guides through data of uds. Student learn current trends in the architecture of IT infrastructure and its configuration for classic and cloud applications operation of complex infrastructures for modern applications with respect to scalability and protection against overloads, outar Data Visualization erview of the types and characteristics of data as well as suitable visualization methods. This will aid the students in understath as data mining and machine learning. Within the course, students will be introduced to exploratory data analysis, preproce uch as text, social networks, time series or basic image data processing. Students will get hands-on experience in applications	Z,ZK overview of threat Z,ZK and implementati center technologi s. Students will ur ages, and data los KZ anding data, their essing, and ways of	5 s in cyberspace 5 s, their integrated 5 on of data center es from private nderstand the sses. 5 content and their of visualizing
on the client side will be BI-UKB.21 The goal of the course i and attacker techniques BI-VES.21 Students learn to desigr peripheral circuits, prog BI-VDC.21 The aim of the course is infrastructure, such as y to public and hybrid clou design, validation, and of BI-VIZ.21 The course offers an ow application in areas suc different kinds of data si examples in the Python	e demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to Cybersecurity s to provide students with the introduction of basic concepts in modern approach to cybersecurity. Students will get a basic of s, security mechanisms in networks, operating systems and applications, as well as of basic cyberspace regulations. Embedded Systems nembedded Systems nembedded systems and develop software for them. They get basic knowledge of the most common microcontrollers and emb ramming methods, and applications. They get practical skills with development kits and tools. Virtualization and Data Centers to familiarize students with technology basis of cloud computer systems. It shows principles and techniques used in design various kinds of virtualization and high availability of servers, storages, and software layers. The course guides through data of uds. Student learn current trends in the architecture of IT infrastructure and its configuration for classic and cloud applications operation of complex infrastructures for modern applications with respect to scalability and protection against overloads, outar Data Visualization erview of the types and characteristics of data as well as suitable visualization methods. This will aid the students in understath h as data mining and machine learning. Within the course, students will be introduced to exploratory data analysis, preproce uch as text, social networks, time series or basic image data processing. Students will get hands-on experience in applications programming language.	Z,ZK overview of threat Z,ZK and implementati center technologi s. Students will ur ages, and data los KZ anding data, their essing, and ways of s of selected meth	5 s in cyberspace 5 s, their integrated 5 on of data center es from private nderstand the sses. 5 content and their of visualizing nods to real-world
on the client side will be BI-UKB.21 The goal of the course i and attacker techniques BI-VES.21 Students learn to design peripheral circuits, prog BI-VDC.21 The aim of the course is infrastructure, such as y to public and hybrid clou design, validation, and of BI-VIZ.21 The course offers an ov application in areas suc different kinds of data si examples in the Python BI-VPS.21	e demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to Cybersecurity s to provide students with the introduction of basic concepts in modern approach to cybersecurity. Students will get a basic of s, security mechanisms in networks, operating systems and applications, as well as of basic cyberspace regulations. Embedded Systems nembedded Systems nembedded systems and develop software for them. They get basic knowledge of the most common microcontrollers and emb ramming methods, and applications. They get practical skills with development kits and tools. Virtualization and Data Centers s to familiarize students with technology basis of cloud computer systems. It shows principles and techniques used in design various kinds of virtualization and high availability of servers, storages, and software layers. The course guides through data of uses Student learn current trends in the architecture of IT infrastructure and its configuration for classic and cloud applications operation of complex infrastructures for modern applications with respect to scalability and protection against overloads, outar Data Visualization erview of the types and characteristics of data as well as suitable visualization methods. This will aid the students in understath h as data mining and machine learning. Within the course, students will be introduced to exploratory data analysis, preproce uch as text, social networks, time series or basic image data processing. Students will get hands-on experience in applications programming language. Selected Topics in Computer Networking	Z,ZK overview of threat Z,ZK and implementati center technologi s. Students will ur ages, and data los KZ anding data, their ressing, and ways of s of selected methol	5 s in cyberspace 5 s, their integrated 5 on of data center es from private nderstand the sses. 5 content and their of visualizing nods to real-world 5
on the client side will be BI-UKB.21 The goal of the course i and attacker techniques BI-VES.21 Students learn to design peripheral circuits, prog BI-VDC.21 The aim of the course is infrastructure, such as of to public and hybrid clou design, validation, and of BI-VIZ.21 The course offers an ov application in areas suc different kinds of data si examples in the Python BI-VPS.21 The course builds upon	e demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to Cybersecurity s to provide students with the introduction of basic concepts in modern approach to cybersecurity. Students will get a basic of s, security mechanisms in networks, operating systems and applications, as well as of basic cyberspace regulations. Embedded Systems nembedded systems and develop software for them. They get basic knowledge of the most common microcontrollers and emb ramming methods, and applications. They get practical skills with development kits and tools. Virtualization and Data Centers to familiarize students with technology basis of cloud computer systems. It shows principles and techniques used in design various kinds of virtualization and high availability of servers, storages, and software layers. The course guides through data of to familiarize students in the architecture of IT infrastructure and its configuration for classic and cloud applications poperation of complex infrastructures for modern applications with respect to scalability and protection against overloads, outa Data Visualization erview of the types and characteristics of data as well as suitable visualization methods. This will aid the students in understa h as data mining and machine learning. Within the course, students will be introduced to exploratory data analysis, preproce uch as text, social networks, time series or basic image data processing. Students will get hands-on experience in applications programming language. Selected Topics in Computer Networking the Computer Networks course (BI-PSI), obligatory for the program. Students will learn in detail principles, protocols, and technic	Z,ZK overview of threat Z,ZK and implementati center technologi s. Students will ur ages, and data los KZ anding data, their ressing, and ways of s of selected mether Z,ZK nologies used in r	5 s in cyberspace 5 s, their integrated 5 on of data center es from private nderstand the sses. 5 content and their of visualizing nods to real-world 5 nodern computer
on the client side will be BI-UKB.21 The goal of the course i and attacker techniques BI-VES.21 Students learn to design peripheral circuits, prog BI-VDC.21 The aim of the course is infrastructure, such as y to public and hybrid clou design, validation, and of BI-VIZ.21 The course offers an ov application in areas suc different kinds of data si examples in the Python BI-VPS.21 The course builds upon networks from local are	 demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to Cybersecurity s to provide students with the introduction of basic concepts in modern approach to cybersecurity. Students will get a basic of security mechanisms in networks, operating systems and applications, as well as of basic cyberspace regulations. Embedded Systems 	Z,ZK overview of threat Z,ZK and implementati center technologi s. Students will ur ages, and data los KZ anding data, their sssing, and ways of s of selected meth Z,ZK nologies used in r ical experience w	5 s in cyberspace 5 s, their integrated 5 on of data center es from private nderstand the sses. 5 content and their of visualizing nods to real-world 5 nodern computer
on the client side will be BI-UKB.21 The goal of the course i and attacker techniques BI-VES.21 Students learn to design peripheral circuits, prog BI-VDC.21 The aim of the course is infrastructure, such as of to public and hybrid clou design, validation, and of BI-VIZ.21 The course offers an ov application in areas suc different kinds of data si examples in the Python BI-VPS.21 The course builds upon networks from local are devices in the lab and lab	 demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to Cybersecurity s to provide students with the introduction of basic concepts in modern approach to cybersecurity. Students will get a basic of security mechanisms in networks, operating systems and applications, as well as of basic cyberspace regulations. Embedded Systems 	Z,ZK overview of threat Z,ZK and implementati center technologi s. Students will ur ages, and data los KZ anding data, their essing, and ways of s of selected mether Z,ZK nologies used in r ical experience w ty.	5 s in cyberspace 5 s, their integrated 5 on of data center es from private nderstand the sses. 5 content and their of visualizing nodes to real-world 5 nodern computer ith real network
on the client side will be BI-UKB.21 The goal of the course i and attacker techniques BI-VES.21 Students learn to design peripheral circuits, prog BI-VDC.21 The aim of the course is infrastructure, such as of to public and hybrid cloud design, validation, and of BI-VIZ.21 The course offers an ow application in areas such different kinds of data si examples in the Python BI-VPS.21 The course builds upon networks from local are devices in the lab and le BI-VWM.21	e demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to Cybersecurity s to provide students with the introduction of basic concepts in modern approach to cybersecurity. Students will get a basic of s, security mechanisms in networks, operating systems and applications, as well as of basic cyberspace regulations. Embedded Systems nembedded systems and develop software for them. They get basic knowledge of the most common microcontrollers and emb ramming methods, and applications. They get practical skills with development kits and tools. Virtualization and Data Centers s to familiarize students with technology basis of cloud computer systems. It shows principles and techniques used in design various kinds of virtualization and high availability of servers, storages, and software layers. The course guides through data or poperation of complex infrastructures for modern applications with respect to scalability and protection against overloads, out a Data Visualization erview of the types and characteristics of data as well as suitable visualization methods. This will aid the students in understa h as data mining and machine learning. Within the course, students will be introduced to exploratory data analysis, preproce of chast att, social networks, time series or basic image data processing. Students will get hands-on experience in applications programming language. Selected Topics in Computer Networking the Computer Networks course (BI-PSI), obligatory for the program. Students will learn in detail principles, protocols, and technia a networks up to Internet, with focus on switching, routing, security, and virtualization. The emphasis will be on gaining practianing important methods of local area and wide area networks from the viewpoint of functionality, performance, and securit searching the Web and Multimedia Databases	Z,ZK pedded processors Z,ZK and implementati center technologi s. Students will ur ages, and data los KZ anding data, their essing, and ways of s of selected meth Z,ZK nologies used in r ical experience w ty. Z,ZK	5 s in cyberspace 5 s, their integrated 5 on of data center es from private nderstand the sses. 5 content and their of visualizing nodes to real-world 5 modern computer ith real network
on the client side will be BI-UKB.21 The goal of the course i and attacker techniques BI-VES.21 Students learn to design peripheral circuits, prog BI-VDC.21 The aim of the course is infrastructure, such as of to public and hybrid clou design, validation, and of BI-VIZ.21 The course offers an ov application in areas suc different kinds of data si examples in the Python BI-VPS.21 The course builds upon networks from local are devices in the lab and le BI-VWM.21 Students get basic over	 demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to Cybersecurity s to provide students with the introduction of basic concepts in modern approach to cybersecurity. Students will get a basic of a security mechanisms in networks, operating systems and applications, as well as of basic cyberspace regulations. Embedded Systems 	Z,ZK overview of threat Z,ZK bedded processors Z,ZK and implementati center technologies s. Students will ur ages, and data los KZ anding data, their essing, and ways of s of selected method Z,ZK nologies used in r ical experience w ty. Z,ZK age of documents	5 s in cyberspace 5 s, their integrated 5 on of data center es from private nderstand the sses. 5 content and their of visualizing noder r computer ith real network 5 . In particular,
on the client side will be BI-UKB.21 The goal of the course i and attacker techniques BI-VES.21 Students learn to design peripheral circuits, prog BI-VDC.21 The aim of the course is infrastructure, such as of to public and hybrid clou design, validation, and of BI-VIZ.21 The course offers an ov application in areas suc different kinds of data si examples in the Python BI-VPS.21 The course builds upon networks from local are devices in the lab and le BI-VWM.21 Students get basic over students acquire inform	 demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to Cybersecurity s to provide students with the introduction of basic concepts in modern approach to cybersecurity. Students will get a basic of a security mechanisms in networks, operating systems and applications, as well as of basic cyberspace regulations. Embedded Systems 	Z,ZK beedded processors Z,ZK and implementati center technologies students will ur ages, and data los KZ anding data, their essing, and ways of s of selected method Z,ZK nologies used in rical experience w ty. Z,ZK age of documents m web pages. Th	5 s in cyberspace 5 s, their integrated 5 on of data center es from private nderstand the sses. 5 content and their of visualizing noder computer inderstand the real-world 5 nodern computer ith real network 5 In particular, ey get detailed
on the client side will be BI-UKB.21 The goal of the course i and attacker techniques BI-VES.21 Students learn to design peripheral circuits, prog BI-VDC.21 The aim of the course is infrastructure, such as of to public and hybrid cloud design, validation, and of BI-VIZ.21 The course offers an ow application in areas such different kinds of data si examples in the Python BI-VPS.21 The course builds upon networks from local are devices in the lab and le BI-VWM.21 Students get basic over students acquire inform knowledge of similarity si	 demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to Cybersecurity s to provide students with the introduction of basic concepts in modern approach to cybersecurity. Students will get a basic of security mechanisms in networks, operating systems and applications, as well as of basic cyberspace regulations. Embedded Systems nembedded Systems and develop software for them. They get basic knowledge of the most common microcontrollers and emb ramming methods, and applications. They get practical skills with development kits and tools. Virtualization and Data Centers to familiarize students with technology basis of cloud computer systems. It shows principles and techniques used in design various kinds of virtualization and high availability of servers, storages, and software layers. The course guides through data of the students in the architecture of IT infrastructure and its configuration for classic and cloud applications operation of complex infrastructures for modern applications with respect to scalability and protection against overloads, oute Data Visualization erview of the types and characteristics of data as well as suitable visualization methods. This will aid the students in understa th as data mining and machine learning. Within the course, students will be introduced to exploratory data analysis, preproce us as text, social networks, time series or basic image data processing. Students will learn in detail principles, protocols, and techni a networks up to Internet, with focus on switching, routing, security, and virtualization. The emphasis will be on gaining practication improvement that is interpreted as a very large distributed and heterogeneous storation about search techniques in text and hypertext documents (the web pages themselves) and about feature extraction frosearch in multi	Z,ZK beedded processors Z,ZK and implementati center technologies students will ur ages, and data los KZ anding data, their essing, and ways of s of selected method Z,ZK nologies used in rical experience w ty. Z,ZK age of documents m web pages. Th	5 s in cyberspace 5 s, their integrated 5 on of data center es from private nderstand the sses. 5 content and their of visualizing noder computer inderstand the real-world 5 nodern computer ith real network 5 In particular, ey get detailed
on the client side will be BI-UKB.21 The goal of the course i and attacker techniques BI-VES.21 Students learn to design peripheral circuits, prog BI-VDC.21 The aim of the course is infrastructure, such as to public and hybrid cloud design, validation, and of BI-VIZ.21 The course offers an ow application in areas such different kinds of data si examples in the Python BI-VPS.21 The course builds upon networks from local are devices in the lab and le BI-VWM.21 Students get basic over students acquire inform knowledge of similarity sidata types (documents)	a demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to Cybersecurity s to provide students with the introduction of basic concepts in modern approach to cybersecurity. Students will get a basic of a security mechanisms in networks, operating systems and applications, as well as of basic cyberspace regulations. Embedded Systems nembedded systems and develop software for them. They get basic knowledge of the most common microcontrollers and emb ramming methods, and applications. They get practical skills with development kits and tools. Virtualization and Data Centers s to familiarize students with technology basis of cloud computer systems. It shows principles and techniques used in design various kinds of virtualization and high availability of servers, storages, and software layers. The course guides through data elads. Student learn current trends in the architecture of IT infrastructure and its configuration for classic and cloud applications operation of complex infrastructures for modern applications with respect to scalability and protection against overloads, out a bas data mining and machine learning. Within the course, students will be introduced to exploratory data analysis, preproce ach as text, social networks, time series or basic image data processing. Students will get hands-on experience in applications programming language. Selected Topics in Computer Networking the Computer Networks from the viewpoint of functionality, performance, and securit sarring important methods of local area and wide area networks from the viewpoint of functionality, performance, and securit sarring important methods of local area and wide area networks from the viewpoint of functionality, performance, and securit securits about search techniques in text and hypertext documents (the web pages themselves) and about feature extraction for search in multimedia databases (generally in collections of unstructured da	Z,ZK beedded processors Z,ZK and implementati center technologies students will ur ages, and data los KZ anding data, their essing, and ways of s of selected methologies used in rical experience w tx. Z,ZK nologies used in rical experience w ty. Z,ZK age of documents m web pages. The b search engines for the search engin	5 s in cyberspace 5 s, their integrated 5 on of data center es from private nderstand the sses. 5 content and their of visualizing nodern computer ith real network 5 In particular, ey get detailed for the mentioned
on the client side will be BI-UKB.21 The goal of the course i and attacker techniques BI-VES.21 Students learn to design peripheral circuits, prog BI-VDC.21 The aim of the course is infrastructure, such as a to public and hybrid cloud design, validation, and d BI-VIZ.21 The course offers an ow application in areas such different kinds of data si examples in the Python BI-VPS.21 The course builds upon networks from local are devices in the lab and le BI-VWM.21 Students get basic over students acquire inform knowledge of similarity si data types (documents) BI-FEM.21	a demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to Cybersecurity s to provide students with the introduction of basic concepts in modern approach to cybersecurity. Students will get a basic of s, security mechanisms in networks, operating systems and applications, as well as of basic cyberspace regulations. Embedded Systems embedded Systems and develop software for them. They get basic knowledge of the most common microcontrollers and emb ramming methods, and applications. They get practical skills with development kits and tools. Virtualization and Data Centers to familiarize students with technology basis of cloud computer systems. It shows principles and techniques used in design arrious kinds of virtualization and high availability of servers, storages, and software layers. The course guides through data or uds. Student learn current trends in the architecture of IT infrastructure and its configuration for classic and cloud applications potention of complex infrastructures for modern applications with respect to scalability and protection against overloads, oute Data Visualization erview of the types and characteristics of data as well as suitable visualization methods. This will aid the students in understa h as data mining and machine learning. Within the course, students will be introduced to exploratory data analysis, preproce uch as text, social networks, time series or basic image data processing. Students will get hands-on experience in applications programming language. Selected Topics in Computer Networking the Computer Networks course (BI-PSI), obligatory for the program. Students will learn in detail principles, protocols, and techn a networks up to Internet, with focus on switching, routing, security, and virtualization. The emphasis will be on gaining practi arring important methods of local area and wide area networks from the viewpoint of functionality, performance, and securi search ing the Web and Multimedia Databases view about	Z,ZK overview of threat Z,ZK and implementati center technologi s. Students will ur ages, and data los KZ anding data, their essing, and ways of s of selected meth Z,ZK nologies used in r ical experience w ty. Z,ZK age of documents m web pages. The b search engines to Z,ZK	5 s in cyberspace 5 s, their integrated 5 on of data center es from private nderstand the sses. 5 content and their of visualizing nodern computer ith real network 5 In particular, ey get detailed for the mentioned 5
on the client side will be BI-UKB.21 The goal of the course i and attacker techniques BI-VES.21 Students learn to design peripheral circuits, prog BI-VDC.21 The aim of the course is infrastructure, such as a to public and hybrid cloud design, validation, and d BI-VIZ.21 The course offers an ov application in areas such different kinds of data su examples in the Python BI-VPS.21 The course builds upon networks from local are devices in the lab and le BI-VWM.21 Students get basic over students acquire inform knowledge of similarity si data types (documents) BI-FEM.21 The course allows the si	a demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to Cybersecurity s to provide students with the introduction of basic concepts in modern approach to cybersecurity. Students will get a basic of a security mechanisms in networks, operating systems and applications, as well as of basic cyberspace regulations. Embedded Systems embedded systems and develop software for them. They get basic knowledge of the most common microcontrollers and emb ramming methods, and applications. They get practical skills with development kits and tools. Virtualization and Data Centers to familiarize students with technology basis of cloud computer systems. It shows principles and techniques used in design various kinds of virtualization and high availability of servers, storages, and software layers. The course guides through data of ds. Student learn current trends in the architecture of IT infrastructure and its configuration for classis and cloud applications operation of complex infrastructures for modern applications with respect to scalability and protection against overloads, outa Data Visualization erview of the types and characteristics of data as well as suitable visualization methods. This will aid the students in understa h as data mining and machine learning. Within the course, students will be introduced to exploratory data analysis, preproce uch as text, social networks, time series or basic image data processing. Students will get hands-on experience in applications programming language. Selected Topics in Computer Networking the Computer Networks course (BI-PSI), obligatory for the program. Students will learn in detail principles, protocols, and techniques in text and hypertext documents (the web pages themselves) and about feature extraction fro search in multimedia databases (generally in collections of unstructured data). They also learn techniques for programming wet search techniques in	Z,ZK overview of threat Z,ZK and implementati center technologi s. Students will ur ages, and data los KZ anding data, their essing, and ways of s of selected meth Z,ZK nologies used in r ical experience w ty. Z,ZK age of documents m web pages. The b search engines to Z,ZK	5 s in cyberspace 5 s, their integrated 5 on of data center es from private nderstand the sses. 5 content and their of visualizing nodern computer ith real network 5 In particular, ey get detailed for the mentioned 5
on the client side will be BI-UKB.21 The goal of the course is and attacker techniques BI-VES.21 Students learn to design peripheral circuits, prog BI-VDC.21 The aim of the course is infrastructure, such as a to public and hybrid cloud design, validation, and a BI-VIZ.21 The course offers an ow application in areas such different kinds of data su examples in the Python BI-VPS.21 The course builds upon networks from local are devices in the lab and le BI-VWM.21 Students get basic over students acquire inform knowledge of similarity sidata types (documents) BI-FEM.21 The course allows the sid of fundamental microed	a demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to Cybersecurity s to provide students with the introduction of basic concepts in modern approach to cybersecurity. Students will get a basic of a security mechanisms in networks, operating systems and applications, as well as of basic cyberspace regulations. Embedded Systems embedded systems and develop software for them. They get basic knowledge of the most common microcontrollers and emb ramming methods, and applications. They get practical skills with development kits and tools. Virtualization and Data Centers to familiarize students with technology basis of cloud computer systems. It shows principles and techniques used in design various kinds of virtualization and high availability of servers, storages, and software layers. The course guides through data dus. Student learn current trends in the architecture of IT infrastructure and its configuration for classic and cloud applications operation of complex infrastructures for modern applications with respect to scalability and protection against overloads, outa Data Visualization erview of the types and characteristics of data as well as suitable visualization methods. This will aid the students in understa h as data mining and machine learning. Within the course, students will be introduced to exploratory data analysis, preproce thas text, social networks, time series or basic image data processing. Students will get hands-on experience in applications programming language. Selected Topics in Computer Networking the computer Networks course (BI-PSI), obligatory for the program. Students will learn in detail principles, protocols, and tech a networks up to Internet, with focus on switching, routing, security, and virtualization. The emphasis will be on gaining practi arining important methods of local area and wide area networks from the viewpoint of functionality, performance, and se	Z,ZK overview of threat Z,ZK bedded processors Z,ZK and implementati center technologi s. Students will ur ages, and data los KZ anding data, their essing, and ways of s of selected meth Z,ZK nologies used in r ical experience w ty. Z,ZK age of documents m web pages. The b search engines for Z,ZK ent. It contains a g	5 s in cyberspace 5 s, their integrated 5 on of data center es from private nderstand the sses. 5 content and their of visualizing nodern computer ith real network 5 In particular, ey get detailed for the mentioned 5 eneral overview
on the client side will be BI-UKB.21 The goal of the course i and attacker techniques BI-VES.21 Students learn to design peripheral circuits, prog BI-VDC.21 The aim of the course is infrastructure, such as to public and hybrid clou design, validation, and d BI-VIZ.21 The course offers an ov application in areas suc different kinds of data su examples in the Python BI-VPS.21 The course builds upon networks from local are devices in the lab and le BI-VWM.21 Students get basic over students acquire inform knowledge of similarity s data types (documents) BI-FEM.21 The course allows the s of fundamental microect	a demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to Cybersecurity s to provide students with the introduction of basic concepts in modern approach to cybersecurity. Students will get a basic of a, security mechanisms in networks, operating systems and applications, as well as of basic cyberspace regulations. Embedded Systems embedded systems and develop software for them. They get basic knowledge of the most common microcontrollers and emb ramming methods, and applications. They get practical skills with development kits and tools. Virtualization and Data Centers to familiarize students with technology basis of cloud computer systems. It shows principles and techniques used in design arrivous kinds of virtualization and high availability of servers, storages, and software layers. The course guides through data usds. Student learn current trends in the architecture of IT infrastructure and its configuration for classic and cloud applications operation of complex infrastructures for modern applications with respect to scalability and protection against overloads, outer or types and characteristics of data as well as suitable visualization methods. This will aid the students in underste h as data mining and machine learning. Within the course, students will be introduced to exploratory data analysis, preproce uch as text, social networks, time series or basic image data processing. Students will get hands-on experience in applications programming language. Selected Topics in Computer Networking the Computer Networks course (BI-PSI), obligatory for the program. Students will learn in detail principles, protocols, and techniques in the web environment that is interpreted as a very large distributed and heterogeneous storation about search techniques in the web environment that is interpreted as a very large distributed and heterogeneous storation about search techniques in the web environment that	Z,ZK overview of threat Z,ZK bedded processors Z,ZK and implementati center technologi s. Students will ur ages, and data los KZ anding data, their essing, and ways of s of selected meth Z,ZK nologies used in r ical experience w ty. Z,ZK age of documents m web pages. The b search engines for Z,ZK and. Z,ZK age of documents m keb pages. The b search engines for Z,ZK and. Z,ZK and. Z,ZK and. Z,ZK	5 s in cyberspace 5 s, their integrated 5 on of data center es from private nderstand the sses. 5 content and their of visualizing nodern computer ith real network 5 In particular, ey get detailed for the mentioned 5 eneral overview 5
on the client side will be BI-UKB.21 The goal of the course i and attacker techniques BI-VES.21 Students learn to design peripheral circuits, prog BI-VDC.21 The aim of the course is infrastructure, such as to public and hybrid clou design, validation, and d BI-VIZ.21 The course offers an ov application in areas suc different kinds of data su examples in the Python BI-VPS.21 The course builds upon networks from local are devices in the lab and le BI-VWM.21 Students get basic over students acquire inform knowledge of similarity si data types (documents) BI-FEM.21 The course allows the si of fundamental microece BI-ZRS.21	a demonstrated using a JavaScript language with library jQuery and possibly MV* framework Read. Introduction to Cybersecurity s to provide students with the introduction of basic concepts in modern approach to cybersecurity. Students will get a basic or, security mechanisms in networks, operating systems and applications, as well as of basic cyberspace regulations. Embedded Systems embedded Systems and develop software for them. They get basic knowledge of the most common microcontrollers and emb ramming methods, and applications. They get practical skills with development kits and tools. Virtualization and Data Centers to familiarize students with technology basis of cloud computer systems. It shows principles and techniques used in design various kinds of virtualization and high availability of servers, storages, and software layers. The course guides through data or ds. Student learn current trends in the architecture of IT infrastructure and its configuration for classic and cloud applications opperation of complex infrastructures for modern applications with respect to scalability and protection against overloads, outa Data Visualization erview of the types and characteristics of data as well as suitable visualization methods. This will aid the students in understa h as data mining and machine learning. Within the course, students will be introduced to exploratory data analysis, preproce uch as text, social networks, time series or basic image data processing. Students will get hands-on experience in applications programming language. Selected Topics in Computer Networking the computer Networks from the viewpoint of functionality, performance, and securit Searching the Web and Multimedia Databases view about search techniques in the web environment that is interpreted as a very large distributed and heterogeneous stora ation about search techniques in the web environment that is interpreted as a very large distributed and heterogeneous stora ation about search techniques in the web environment that is inte	Z,ZK overview of threat Z,ZK bedded processors Z,ZK and implementati center technologi s. Students will ur ages, and data los KZ anding data, their essing, and ways of s of selected meth Z,ZK nologies used in r ical experience w ty. Z,ZK age of documents m web pages. The b search engines for Z,ZK ent. It contains a g Z,ZK cus our attention	5 s in cyberspace 5 s, their integrated 5 on of data center es from private nderstand the sses. 5 content and their of visualizing nodern computer ith real network 5 In particular, ey get detailed for the mentioned 5 eneral overview 5 particularly on
on the client side will be BI-UKB.21 The goal of the course i and attacker techniques BI-VES.21 Students learn to design peripheral circuits, prog BI-VDC.21 The aim of the course is infrastructure, such as to public and hybrid cloud design, validation, and de BI-VIZ.21 The course offers an ow application in areas suc different kinds of data su examples in the Python BI-VPS.21 The course builds upon networks from local are devices in the lab and le BI-VWM.21 Students get basic over students acquire inform knowledge of similarity sidat types (documents) BI-FEM.21 The course allows the si of fundamental microece BI-ZRS.21	a demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to Cybersecurity s to provide students with the introduction of basic concepts in modern approach to cybersecurity. Students will get a basic or s, security mechanisms in networks, operating systems and applications, as well as of basic cyberspace regulations. Embedded Systems embedded systems and develop software for them. They get basic knowledge of the most common microcontrollers and emb ramming methods, and applications. They get practical skills with development kits and tools. Virtualization and Data Centers to familiarize students with technology basis of cloud computer systems. It shows principles and techniques used in design- rarious kinds of virtualization and high availability of servers, storages, and software layers. The course guides through data or dus. Student learn current trends in the architecture of IT infrastructure and its configuration for classic and cloud applications operation of complex infrastructures for modern applications with respect to scalability and protection against overloads, outa Data Visualization erview of the types and characteristics of data as well as suitable visualization methods. This will aid the students in understa h as data mining and machine learning. Within the course, students will be introduced to exploratory data analysis, preproce uch as text, social networks, time series or basic image data processing. Students will get hands-on experience in applications programming language. Selected Topics in Computer Networking the Computer Networks from the reviewpoint of functionality, performance, and securit Searching the Web and Multimedia Databases view about search techniques in the web environment that is interpreted as a very large distributed and heterogeneous stora ation about search techniques in the web environment (the web pages themselves) and about feature extraction for search in multimedia databases (generally in collections of unstructure	Z,ZK overview of threat Z,ZK and implementati center technologis s. Students will ur ages, and data los KZ anding data, their essing, and ways of s of selected meth Z,ZK nologies used in r ical experience w ty. Z,ZK age of documents m web pages. The b search engines for Z,ZK ent. It contains a g Z,ZK cus our attention tion methods of sy	5 s in cyberspace 5 s, their integrated 5 on of data center es from private nderstand the sses. 5 content and their of visualizing nodern computer ith real network 5 In particular, ey get detailed for the mentioned 5 eneral overview 5 particularly on ystem models,
on the client side will be BI-UKB.21 The goal of the course i and attacker techniques BI-VES.21 Students learn to design peripheral circuits, prog BI-VDC.21 The aim of the course is infrastructure, such as to public and hybrid cloud design, validation, and d BI-VIZ.21 The course offers an ov application in areas such different kinds of data su examples in the Python BI-VPS.21 The course builds upon networks from local are devices in the lab and le BI-VWM.21 Students get basic over students acquire inform knowledge of similarity si data types (documents) BI-FEM.21 The course allows the si of fundamental microect BI-ZRS.21	a demonstrated using a JavaScript language with library jQuery and possibly MV* framework Read. Introduction to Cybersecurity s to provide students with the introduction of basic concepts in modern approach to cybersecurity. Students will get a basic or s, security mechanisms in networks, operating systems and applications, as well as of basic cyberspace regulations. Embedded Systems embedded systems and develop software for them. They get basic knowledge of the most common microcontrollers and emb ramming methods, and applications. They get practical skills with development kits and tools. Virtualization and Data Centers to familiarize students with technology basis of cloud computer systems. It shows principles and techniques used in design rarious kinds of virtualization and high availability of servers, storages, and software layers. The course guides through data uds. Student learn current trends in the architecture of IT infrastructure and its configuration for classic and cloud applications poperation of complex infrastructures for modern applications with respect to scalability and protection against overloads, oute Data Visualization erview of the types and characteristics of data as well as suitable visualization methods. This will aid the students in underste h as data mining and machine learning. Within the course, students will be introduced to exploratory data analysis, preproce is cla a networks time series or basic image data processing. Students will get hands-on experience in applications programming language. Selected Topics in Computer Networking the Computer Networks course (BI-PSI), obligatory for the program. Students will learn in detail principles, protocols, and tech a networks up to Internet, with focus on switching, routing, security, and virtualization. The emphasis will be on gaining practi action about search techniques in text and hypertext documents (the web pages themselves) and about feature extraction fro searching the Web and Multimedia Databases view about search techniques	Z,ZK overview of threat Z,ZK and implementati center technologi s. Students will ur ages, and data los KZ anding data, their essing, and ways of s of selected method Z,ZK nologies used in r ical experience w ty. Z,ZK age of documents m web pages. The b search engines for Z,ZK ent. It contains a g Z,ZK cus our attention tion methods of sy reating a descript	5 s in cyberspace 5 s, their integrated 5 on of data center es from private nderstand the sses. 5 content and their of visualizing nodern computer ith real network 5 In particular, ey get detailed for the mentioned 5 particularly on ystem models, ion of the system
on the client side will be BI-UKB.21 The goal of the course i and attacker techniques BI-VES.21 Students learn to design peripheral circuits, prog BI-VDC.21 The aim of the course is infrastructure, such as to public and hybrid cloud design, validation, and d BI-VIZ.21 The course offers an ow application in areas such different kinds of data su examples in the Python BI-VPS.21 The course builds upon networks from local are devices in the lab and le BI-VWM.21 Students get basic over students acquire inform knowledge of similarity si data types (documents) BI-FEM.21 The course allows the si of fundamental microect BI-ZRS.21 The course gives an int control of engineering a basic linear dynamic sy model, the basic linear	a demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to Cybersecurity s to provide students with the introduction of basic concepts in modern approach to cybersecurity. Students will get a basic of s, security mechanisms in networks, operating systems and applications, as well as of basic cyberspace regulations. Embedded Systems embedded systems and develop software for them. They get basic knowledge of the most common microcontrollers and emb ramming methods, and applications. They get practical skills with development kits and tools. Virtualization and Data Centers to familiarize students with technology basis of cloud computer systems. It shows principles and techniques used in design various kinds of virtualization and high availability of servers, storages, and software layers. The course guides through data vias. Student learn current trends in the architecture of IT infrastructure and its configuration for classic and cloud applications operation of complex infrastructures for modern applications with respect to scalability and protection against overloads, outa Data Visualization erview of the types and characteristics of data as well as suitable visualization methods. This will aid the students in understa h as data mining and machine learning. Within the course, students will be introduced to exploratory data analysis, preproce uch as text, social networks, time series or basic image data processing. Students will get hands-on experience in applications programming language. Selected Topics in Computer Networking the Computer Networks from the viewpoint of functionality, performance, and securi search techniques in the web environment that is interpreted as a very large distributed and heterogeneous store ation about search techniques in the web environment that is interpreted as a very large distributed and heterogeneous store ation about search techniques in the web environment that is interpreted as a very large distributed and heterogeneous	Z,ZK overview of threat Z,ZK and implementati center technologi s. Students will ur ages, and data los KZ anding data, their essing, and ways of s of selected methologies used in r ical experience w Y. Z,ZK nologies used in r ical experience w ty. Z,ZK age of documents m web pages. The b search engines for Z,ZK ent. It contains a g Z,ZK cus our attention tion methods of sy reating a descript ent to sensors and	5 s in cyberspace 5 s, their integrated 5 on of data center es from private nderstand the sses. 5 content and their of visualizing noder computer inderstand the sses. 5 nodern computer ith real network 5 In particular, ey get detailed for the mentioned 5 particularly on ystem models, ion of the system actuators in
on the client side will be BI-UKB.21 The goal of the course i and attacker techniques BI-VES.21 Students learn to design peripheral circuits, prog BI-VDC.21 The aim of the course is infrastructure, such as to public and hybrid cloud design, validation, and d BI-VIZ.21 The course offers an ow application in areas such different kinds of data su examples in the Python BI-VPS.21 The course builds upon networks from local are devices in the lab and le BI-VWM.21 Students get basic over students acquire inform knowledge of similarity si data types (documents) BI-FEM.21 The course allows the si of fundamental microect BI-ZRS.21 The course gives an int control of engineering a basic linear dynamic sy model, the basic linear	a demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to Cybersecurity s to provide students with the introduction of basic concepts in modern approach to cybersecurity. Students will get a basic of s, security mechanisms in networks, operating systems and applications, as well as of basic cyberspace regulations. Embedded Systems embedded systems and develop software for them. They get basic knowledge of the most common microcontrollers and emb ramming methods, and applications. They get practical skills with development kits and tools. Viritualization and Data Centers to familiarize students with technology basis of cloud computer systems. It shows principles and techniques used in design arrious kinds of virtualization and high availability of servers, storages, and software layers. The course guides through data uds. Student learn current trends in the architecture of IT infrastructure and its configuration for classic and cloud applications poperation of complex infrastructures for modern applications with respect to scalability and protection against overloads, oute Data Visualization erview of the types and characteristics of data as well as suitable visualization methods. This will aid the students in understa th as data mining and machine learning. Within the course, students will be introduced to exploratory data analysis, preproce ach as text, social networks, time series or basic image data processing. Students will get hands-on experience in applications programming language. Selected Topics in Computer Networking the computer Networks form the orwithing, routing, security, and virtualization. The emphasis will be on gaining practi ariting the Web and Multimedia Databases view about search techniques in the web environment that is interpreted as a very large distributed and heterogeneous stora ation about search techniques in the web environment that is interpreted as a very large distributed and heterogeneous stora ation about search technique	Z,ZK overview of threat Z,ZK and implementati center technologi s. Students will ur ages, and data los KZ anding data, their essing, and ways of s of selected methologies used in r ical experience w Y. Z,ZK nologies used in r ical experience w ty. Z,ZK age of documents m web pages. The b search engines for Z,ZK ent. It contains a g Z,ZK cus our attention tion methods of sy reating a descript ent to sensors and	5 s in cyberspace 5 s, their integrated 5 on of data center es from private nderstand the sses. 5 content and their of visualizing noder computer inderstand the sses. 5 nodern computer ith real network 5 In particular, ey get detailed for the mentioned 5 particularly on ystem models, ion of the system actuators in

BI-ZSB.21	Basics of System Security	Z,ZK	5		
The goal of the course i	The goal of the course is to provide introduction to basic concepts in security of computer systems. Further, the course introduces the basics of forensic analysis and related topics				
	sis or incident response. After finishing the course student will get both theoretical and practical knowledge in the area of mod	dern operating sys	stems security,		
as well as skills needed	for independent work in the area of operating system security incident analysis.				
BI-ZUM.21	BI-ZUM.21 Artificial Intelligence Fundamentals Z,ZK 5				
Basic course on introdu	ction to artificial intelligence with emphasis on symbolic techniques. The design of an intelligent agent and the techniques nee	eded to create it w	vill be discussed,		
especially at the decision-making level. The intelligent agent in the context of the course can be represented for example by a physical robot, but also by a non-physical entity, such					
as a virtual assistant or	a character in a computer game. We will not only introduce the basics, but also show the current state-of-the-art during the c	course.			

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 active part in the langua	e corresponds to the preparation for the English exam at the B2 level. Requirements for course credit. Academic Achievemer age instructionMeet the requirements for writing assignments - Summary, Abstract, Argumentation PaperSucceed in both te set at 70%80% and over in BOTH tests means ORAL EXAM ONLY (no written part). Requirements will be specified by ir	the midterm and the	e final term
	class of the term.	1	
BI-AAG.21	Automata and Grammars	Z,ZK	5
and regular grammars, co	to basic theoretical and implementation principles of the following topics: construction, use and mutual transformations of finit ontext-free grammars, construction and use of pushdown automata, and translation grammars and transducers. They know t lerstand the relationships between formal languages and automata. They are introduced to the Turing machine and complexi	ne hierarchy of forma	al language
BI-ACM	Programming Practices 1 This is a selective course for preparing talented student for representation in international programming contests.	KZ	5
BI-ACM2	Programming Practices 2 This is a selective course for preparing talented student for representation in international programming contests.	KZ	5
BI-ACM3	Programming Practices 3	KZ	5
I	This is a selective course for preparing talented student for representation in international programming contests.	1	1
BI-ACM4	Programming Practices 4 This is a selective course for preparing talented student for representation in international programming contests.	KZ	5
BI-ADU.21	Unix Administration	Z,ZK	5
	ernal structure of the UNIX operating system, with the administration of its basic subsystems and with the security principles. Th		e difference
between user and admini	istrator roles. They will get theoretical and practical knowledge of user management and administration, of users access right	s, file systems, disk	subsystem
processes, memory, ne	twork services and remote access, and in the areas of system deployment and virtualization. In the labs, they will verify the specific examples from practice.	knowledge from the l	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).		
BI-AG1.21	Algorithms and Graphs 1	Z,ZK	5
The course covers the	basics of efficient algorithm design, data structures, and graph theory, belonging to the core knowledge of every computing a	curriculum. It links ar	nd partially
	from the course BI-DML.21, in which students acquire the knowledge and skills in combinatorics necessary for evaluating the		omplexity o
algorithms	s. The course also follows up knowledge from BI-MA1.21, the practical usage of asymptotic mathematics, in particular, the as	ymptotic notation.	
BI-AG2.21	Algorithms and Graphs 2	Z,ZK	5
	in Czech, introduces basic algorithms and concepts of graph theory as a follow=up on the introduction given in the compulse ata structures and amortized complexity analysis. It also includes a very light introduction to approximation algorithms. For Er BIE-AG2.21.	-	
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 This course is presented in Czech.	KZ	4
BI-ANG	English Language, Internal Certificate Course information and teaching materials can be found at https://moodle-vyuka.cvut.cz/course/search.php?search=BI-A	ZK NG	2
BI-ANG1	English Language Examination without Preparatory Courses	Z,ZK	2
BI-ANGK	English language, contact preparation for the B2 level exam	Z	2
	e corresponds to the preparation for the English exam at the B2 level. Requirements for course credit. Academic Achievemer	nt - students are due	to: -Take a
	age instructionMeet the requirements for writing assignments - Summary, Abstract, Argumentation PaperSucceed in both te set at 70%80% and over in BOTH tests means ORAL EXAM ONLY (no written part). Requirements will be specified by ir class of the term.		
BI-APJ	Aplication Programming in Java This course is presented in Czech. Advanced technologies in Java.	Z,ZK	4
BI-APS.21	Architectures of Computer Systems	Z,ZK	5
	construction principles of internal architecture of computers with universal processors at the level of machine instructions. Sp	1 '	1
not only in scalar proce	essing and on the memory hierarchy. Students will understand the basic concepts of RISC and CISC architectures and the pr essors, but also in superscalar processors that can execute multiple instructions in one cycle, while ensuring the correctness her elaborates the principles and architectures of shared memory multiprocessor and multicore systems and the memory col systems.	of the sequential mo	odel of the

BI-ARD	Interactive applications on Arduino	KZ	4
, ,	gned for students of first grade of bachelor study as introduction to embedded systems. Students will learn how to design simple applicat		•
	aried peripherals with help of available libraries. The goal of the subject is to show varied software approaches to control embedded s ay of a PC. Thanks to possible control on higher (objective) layer, this platform is frequently used for artist performance and therefore	-	
	Software Engineering students.		web anu
BI-ASB.21	Applied Network Security	Z.ZK	5
	Irse is to introduce selected topics from computer networks in terms of cybersecurity. These topics extend the basic knowledge gaine	ı '	-
	ions like the public key infrastructure, encrypted network protocols, link and network layer security or wireless networks. After finishing		
	knowledge of security applications in computer networks.		
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 so		
knowledge presente	ed in BI-AG1 and BI-AG2. A wide scope of covered subject is made possible due to using visualization bz Algovision (www.algovision.org&l that make understanding the principles of algorithms easy.	t;http://www.algovis	ion.org>)
BI-AWD.21	Web and Database Server Administration	Z.ZK	5
	cquainted with the administration of database and web servers and services. They will be able to install, configure, operate, test, and l	I ' I	-
e e	ice systems. The principles will be demonstrated on the PostgreSQL relational database engine and Apache will be used as an exam		
BI-BAP.21	Bachelor Thesis	Z	14
BI-BEK.21	Secure Code	Z,ZK	5
	arn 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		•
	gain practical experience with running programs with reduced privileges and methods of specifying these privileges, since not every		
	ileges. 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		•
BI-BIG.21	DB Technologies for Big Data	KZ	5
	roduced into the field of Big Data processing where nonrelational (NoSQL) database engines are typically used today. The course is fi		
	e students were able to choose suitable tools (mostly open source) and techniques, design and implement a simplest reproducible me		
collection, transform	nation/aggregation, presentation). Students get acquainted with various architectures for processing and storing big data. A theoretic	al foundation and p	resentation
	of individual technologies will be supplemented with specific examples from practice.		
BI-BLE	Blender	Z,ZK	4
	ds knowledge of opensource program Blender from BI-MGA (Multimedia and Graphics Applications) course. It is intended for those i	-	-
	offers a complete and practically oriented introduction to Blender environment. Students may continue to BI-PGA (Programming graph	nics applications) c	
BI-BPR.21	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	C	1 showill
-	semester to process the assignment. If he completes these tasks, the supervisor will award him a credit from the subject BI-BPR at t		
	enters the information on granting the credit using the form "Granting credit from the external supervisor of the final thesis" (http://fit.cvu		
The completed and	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	pic of the work that	the student
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 at the seme	gnment so that the	assignment
	can be supplemented and approved at the end of the semester.		
BI-CCN	Compiler Construction	Z,ZK	5
	uctory class on compiler construction for bachelor students in computer science. The goal of the class is to introduce basic principles and the design and implementation of programming languages. Seeing and actually understanding self-compilation is the overarching	-	
BI-CS1	Programming in C#	KZ	4
	urse is to introduce .NET Framework as a multi-language development platform. Then, programming language C#, its fundamental co	1 1	-
	s, loops, definitions and calls of functions will be discussed. Attention is focused on the object oriented programming in C# - class def		
constructors, meth	ods, properties, static members, Garbage Collector, inheritance and polymorphism, collections, delegates, and generics. Debugging	and exception pro	cessing, as
	well as work with files are emphasized.		
BI-CS2	C# language and data access	KZ	4
	and data access course objective is to introduce students several data access technologies - database, XML, NoSQL - on the Micros ts used to retrieve data - Connection, Command, Data Reader and DataAdapter v ADO.NET. Next, they will learn to use current techn	-	
, , , , , , , , , , , , , , , , , , ,	rying and updating data, integrated directly with the .NET platform languages, which enable LINQ use with Objects, XML and SQL (L	•	
). Another objective is the Entity Framework - an object-relational mapper that enables .NET developers to work with relational data u	-	
(ORM). This part o	f the course introduces Code First, Database First, Model First approaches. The students will also get to know the Conceptual Model	l, Storage Model ar	nd Mapping
	(XML description).	I	
BI-CS3	Language C# - design of web applications	KZ	4
The students will be	e introduced to current technologies in web application development on the .NET platform. They will acquire a comprehensive overview of on thisplatform. They will learn to create WebAPI and to use it by client programs.	of the development	possibilities
BI-DBS.21	Database Systems	Z,ZK	5
	oduced to the database engine architecture and typical user roles. They are briefly introduced to various database models. They lear		
	constraints) using a conceptual model and implement them in a relational database engine. They get a hands-on experience with the	-	
its theoretical found	lation - the relational database model. They learn the principles of normalizing a relational database schema. They understand the funda	mental concepts of	transaction
	lling parallel user access to a single data source, as well as recovering a database engine from a failure. They are briefly introduced t		-
in relational datab	ases with respect to speed of access to large quantities of data. This introductory-level course does not cover: Administration of datal	base systems, deb	ugging and
BI-DML.21	optimizing database applications, distributed database systems, data stores.	Z,ZK	5
	Discrete Mathematics and Logic cquainted with the basic concepts of propositional logic and predicate logic and learn to work with their laws. Necessary concepts fro		
-	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.	,	
BI-EHA.21	Ethical Hacking	Z,ZK	5
-	ourse is to introduce students to the field of penetration testing and ethical hacking. The course deals with cybersecurity threats, vuln		-
exploitation in con	nputer networks, web applications, wireless networks, operating systems, and others like the Internet of Things or cloud. The focus is	on hands-on expe	rience with
םו רגיה	vulnerabilities testing and the following process of penetration test documentation.	7 71/	2
BI-EHD	Introduction to European Economic History This course is presented in Czech. However, there is an English variant in the program Informatics (B1801 / 4753).	Z,ZK	3
	the concerte procented in econt neword, there is an enginer variant in the program morniates (D1001/4103).		

BI-EJA		Z,ZK	4
-	Enterprise Java advanced technologies in the Java programming language. The focus is on technologies for development of enterprise information sys		-
	a database and are accessed through the web interface.	terns which are co	
BI-EJK		Z,ZK	4
	Enterprise Java and Kotlin dvanced technologies in the Java and Kotlin programming languages. The focus is on technologies for developing enterprise informat		-
The course is on a	architecture, that can be deployed to the cloud.	ion systems with h	IICIOSEI VICE
BI-EP1.24		KZ	1
DI-EP1.24	Effective programming 1 The course is taught in Czech.	rz	4
		V7	4
BI-EP2	Efficient Programming 2	KZ	4 diaguaga d
Continuation of E	fficient Programming 1. Students will practice implementation of algorithms by solving typical problems. Various ways of solving individ with the aim to choose the best one and avoid implementation errors.	iuai problems are o	discussed,
		7 71/	
BI-EPP.21	Economic Business Processes	Z,ZK	5
	rse is to present typical processes related to the usual life cycle of a company. The course focuses mainly on the basic economic and	-	
	ronment of the Czech Republic and the basics of management. In the course, students are acquainted with the typical phases of the ne company, through the management of property and capital structure, financing of the company, determining the cost function of the		
establishment of ti	evaluating the financial health of the company and its eventual rehabilitation or termination.	company and lab	01 00515, 10
		7 71/	5
BI-FBI.21	Financial Business Intelligence	Z,ZK	-
	rse is to acquaint students primarily with financial accounting as a tool for recording business operations and documents for business is for comparison with other companies and management decision process at the tactical and strategic level. The second view is man		-
	ement and prediction of business development. Management accounting allows monitoring of the financial status and performance of b	-	-
-	ds, enables a multidimensional view of business data, enables to control effectively factors affecting the return on invested capital and		
	lated to future business decisions. The principles of management accounting, described in this course, are the basis of Business Inte		
	information systems, decision support systems, and other knowledge-oriented systems.	ingenee medalee i	
BI-FEM.21	Fundamentals of Economics	Z,ZK	5
	the students to discover basics of economic theory, which will then be used in subsequent courses of economics and management.		
	of fundamental microeconomic and macroeconomic topics.	e containe a gener	
BI-FMU	Financial and Management Accounting	Z,ZK	5
	rse is explanation of basic terms in the theory of accounting, the principles of balancing the property amounts and liabilities in the particular and the principles of balancing the property amounts and liabilities in the particular and the		
	unts and accounting statements including opening and closing of bookkeeping. The course provides students with a legal modificatio	-	
	rations based on current methods of double-entry bookkeeping for enterprising subjects in the Czech Republic. Principles of manager		-
	Business Inteligence moduls in Business information systems.		
BI-GIT	Version control system GIT	KZ	2
	troduced to basic principles of version control systems. These principles will be then shown on DCVS Git both theoretically and practi		
	mplementation details will be shown. Students will be challenged to use Git as users, project managers, team leaders as well as Git s		-
BI-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	-	-
	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
	duces students to modern and widely used technologies and principles in the area of network infrastructure and traffic monitoring. Th		-
	mandatory skills to network operators (planning and development of resources and infrastructure) and security analysts alike (as a s	•	
	pals of the course are to acquaint students with the modern trends and cornerstone principles in the area of monitoring network traffi		
, , ,	level and to develop their practical abilities in this field.		
BI-HAS	Human Aspects in Cryptography and Security	Z,ZK	5
	students interested not only in technical scope of computer science, but also in making products usable - for users and for developers		
	use their gained knowledge to design, plan and analyse their own projects in the context of human-centered security.		
BI-HMI	History of Mathematics and Informatics	Z,ZK	3
	This course is presented in Czech.	_,	•
BI-HWB.21	Hardware Security	Z,ZK	5
	ith hardware resources used to ensure security of computer systems including embedded ones. Students become familiar with the opera		
	eatures of modern processors, and storage media protection through encryption. They will gain knowledge about vulnerabilities of HW res	e	
-	ering 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.		•
BI-IDO.21	Introduction to DevOps	Z,ZK	5
	vith the topic of DevOps and prepares future developers and administrators for a modern culture of development and operation of syst		
	support software development, testing and compilation. It also focuses on tools for automating infrastructure management and build		
the Cloud. It is an	introduction to technologies that will then be discussed in more detail in related follow-up courses. The student will also get acquainte	ed with modern tec	hnologies
	used in practice.		
BI-IOS	Fundamentals of iOS Application Development for iPhone and iPad	KZ	4
	This course is presented in Czech.	I	
BI-IOT.21	Internet of Things	Z,ZK	5
	s on an overview of technologies and development tools used in the field of the Internet of Things (IoT). Lectures are devoted to an over		d actuators,
	ication technologies designed primarily for this area, and appropriate programming methods. They include an overview of IoT archited		
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-JPO.21	Computer Units	Z,ZK	5
	their basic knowledge of digital computer units acquired in the obligatory course of the program (BIE-SAP), get acquainted in detail w		
organization of con	nputer units and processors and their interactions with the environment, including accelerating arithmetic-logic units and using approp	riate codes for impl	lementation
of multiplication. Th	e organization of main memory and other internal memories (addressable, LIFO, FIFO and CAM) will be discussed in detail, including	and on for orror de	etection and
correction for paral		codes for error de	
-	lel and serial data transmissions. They will also get acquainted with the methodology of controller design, with the principles of commu	inication of the pro	cessor with
-		inication of the pro	cessor with

Students will une	Cryptography and Security	Z,ZK	5
	derstand the mathematical foundations of cryptography and gain an overview of current cryptographic algorithms. They will be able to	use cryptographic	keys and
	ems based on them and learn the basics of safe use of symmetric and asymmetric cryptographic systems and hash functions in app		
	actical skills in using standard cryptographic methods with an emphasis on security and will also get acquainted with the basic proce		
BI-KOM.21	Conceptual Modelling	Z,ZK	5
	used on developing abstract thinking and precise formulation skills using conceptual models. Students learn skills of discerning key te		-
	ecify correct relations in complex systems of social reality, mostly enterprises and institutions. Students learn basics of ontological struc y learn how to express business rules and constraints using the OCL language and foundations of OWL/RDF semantic data represent	-	
-	ns of enterprise engineering, being a discipline for conceptual modelling of enterprises and institutes and their processes. The DEMO r		-
	Il be taught. The course is designed with the respect to continuation in software implementations. Recommended optional follow-up c		in thouadon
BI-KOT	Programing in Kotlin	Z,ZK	4
	n, statically-styled object-functional language that exploits the extensive Java language ecosystem while delivering a number of advar	I	
	Ily Java compliant and allows for mixed projects that preserve existing parts written in Java, and continue with the development of a		
	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 diversit	y of the world - exa	mples from
anthropological res	search from our "exotic" cultures (topics: kinship, religion, social exclusion, migration, globalization, , material culture, language, healt	h, history, death, et	c) will be
	shown. The course is presented in Czech.		
BI-LA1.21	Linear Algebra 1	Z,ZK	5
	students to the basic concepts of linear algebra, such as vectors, matrices, vector spaces. We will define vector spaces over the field	-	
	fields. We will present the concepts of basis and dimension and learn to solve systems of linear equations using the Gaussian elimination of the second		
the connection w	vith linear manifolds. We define the regularity of matrices and learn to find their inversions using GEM. We will also learn to find eigenvectors and learn to find eigenvectors and the second s	values and eigenve	ctors of a
	matrix. We will also demonstrate some applications of these concepts in computer science.	774	
BI-LA2.21	Linear Algebra 2	Z,ZK	5
	p edm tu rozší í znalosti z p edm tu BI-LA1, kde se pracovalo pouze s vektory ve form n-tic ísel. Zde si zavedeme vektorový pros		
	ké s pojmem skalární sou in a lineární zobrazení, což nám dovolí ukázat souvislost s lineární algebrou, geometrií a po íta ovou graf neární algebra, kde si ukážeme potíže s ešením soustav lineárních rovnic na po íta i a možnosti, jak se s tímto problémem vypo áda	-	
bude numericka im	Ukážeme si také aplikace lineární algebra v r zných oborech.		Nauy matic.
BI-LOG.21	Mathematical Logic	Z,ZK	5
	es on the basics of propositional and predicate logic. It starts from the semantic point of view. Based on the notion of truth, satisfiabilit		-
	ce of formulas are defined. Methods for determining the satisfiability of formulas, some of which are used for automated proving, are e		
• ·	and Boolean functions in propositional logic. In predicate logic, the course further deals with formal theories, such as arithmetics, and	•	
approac	h to mathematical logic is demonstrated on the axiomatic system of propositional logic and its properties. Gödel's incompleteness the	eorems is explained	ł.
BI-MA1.21	Mathematical Analysis 1	Z,ZK	5
We begin the cours	se 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
and real functions of	of a real variable. We gradually introduce the notions of limits of sequences and functions, continuous functions, and derivatives of function	ons. This theoretica	I foundation
	pot-finding problems (iterative method of bisection and Newtons method), construction of cubic interpolation (spline), and formulation and	-	
	issue of finding extrema of functions). The course is closed with the Landaus asymptotic notation and methods of mathematical descript	ion of complexity of	algorithma
			-
BI-MA2.21	Mathematical Analysis 2	Z,ZK	6
The course comple	etes the theme of analysis of real functions of a real variable initiated in BI-MA1 by introducing the Riemann integral. Students will lear	Z,ZK how to integrate b	6 by parts and
The course comple use the substitution	etes the theme of analysis of real functions of a real variable initiated in BI-MA1 by introducing the Riemann integral. Students will lear on method. The next part of the course is devoted to number series, and Taylor polynomials and series. We apply Taylors theorem to the	Z,ZK n how to integrate b he computation of e	6 by parts and elementary
The course comple use the substitution functions with a pre	etes the theme of analysis of real functions of a real variable initiated in BI-MA1 by introducing the Riemann integral. Students will lear on method. The next part of the course is devoted to number series, and Taylor polynomials and series. We apply Taylors theorem to the escribed accuracy. Then we study the linear recurrence equations with constant coefficients, the complexity of recursive algorithms, and	Z,ZK n how to integrate b he computation of e nd its analysis using	6 by parts and elementary the Master
The course comple use the substitution functions with a pre- theorem. Finally,	etes the theme of analysis of real functions of a real variable initiated in BI-MA1 by introducing the Riemann integral. Students will lear on method. The next part of the course is devoted to number series, and Taylor polynomials and series. We apply Taylors theorem to the	Z,ZK n how to integrate b he computation of e ad its analysis using Hessian matrix, we	6 by parts and elementary the Master study the
The course comple use the substitution functions with a pre- theorem. Finally, analytical method of	tes the theme of analysis of real functions of a real variable initiated in BI-MA1 by introducing the Riemann integral. Students will learn on method. The next part of the course is devoted to number series, and Taylor polynomials and series. We apply Taylors theorem to the escribed accuracy. Then we study the linear recurrence equations with constant coefficients, the complexity of recursive algorithms, and we introduce the student to the theory of multivariate functions. After establishing basic concepts of partial derivative, gradient, and H of localization of local extrema of multivariate functions as well as the numerical descent method. We conclude the course with the integr	Z,ZK n how to integrate b he computation of e d its analysis using lessian matrix, we ration of multivariat	6 by parts and elementary the Master study the e functions.
The course completuse the substitution functions with a pretunction of theorem. Finally, analytical method of BI-MDF.21	tes the theme of analysis of real functions of a real variable initiated in BI-MA1 by introducing the Riemann integral. Students will learn on method. The next part of the course is devoted to number series, and Taylor polynomials and series. We apply Taylors theorem to the escribed accuracy. Then we study the linear recurrence equations with constant coefficients, the complexity of recursive algorithms, and we introduce the student to the theory of multivariate functions. After establishing basic concepts of partial derivative, gradient, and H of localization of local extrema of multivariate functions as well as the numerical descent method. We conclude the course with the integr Modern Data Formats	Z,ZK n how to integrate b he computation of e d its analysis using lessian matrix, we ration of multivariat KZ	6 by parts and elementary the Master study the e functions. 3
The course completuse the substitution functions with a pretune theorem. Finally, analytical method of BI-MDF.21 The goal of the completence of th	tes the theme of analysis of real functions of a real variable initiated in BI-MA1 by introducing the Riemann integral. Students will learn on method. The next part of the course is devoted to number series, and Taylor polynomials and series. We apply Taylors theorem to the escribed accuracy. Then we study the linear recurrence equations with constant coefficients, the complexity of recursive algorithms, and we introduce the student to the theory of multivariate functions. After establishing basic concepts of partial derivative, gradient, and H of localization of local extrema of multivariate functions as well as the numerical descent method. We conclude the course with the integr	Z,ZK n how to integrate b he computation of e dits analysis using Hessian matrix, we ration of multivariat KZ the data formats u	6 by parts and elementary the Master study the e functions. 3 sed for that
The course completuse the substitution functions with a pretune theorem. Finally, analytical method of BI-MDF.21 The goal of the completence of th	The set of analysis of real functions of a real variable initiated in BI-MA1 by introducing the Riemann integral. Students will learn on method. The next part of the course is devoted to number series, and Taylor polynomials and series. We apply Taylors theorem to the escribed accuracy. Then we study the linear recurrence equations with constant coefficients, the complexity of recursive algorithms, and we introduce the student to the theory of multivariate functions. After establishing basic concepts of partial derivative, gradient, and H of localization of local extrema of multivariate functions as well as the numerical descent method. We conclude the course with the integ Modern Data Formats urse is to give an overview of commonly used data formats for typical types of data. There will be a description of each data type and	Z,ZK n how to integrate b he computation of e dits analysis using Hessian matrix, we ration of multivariat KZ the data formats u	6 by parts and elementary the Master study the e functions. 3 sed for that
The course completuse the substitution functions with a pre- theorem. Finally, analytical method of BI-MDF.21 The goal of the co- data type BI-MGA.21	The set of analysis of real functions of a real variable initiated in BI-MA1 by introducing the Riemann integral. Students will learn on method. The next part of the course is devoted to number series, and Taylor polynomials and series. We apply Taylors theorem to the escribed accuracy. Then we study the linear recurrence equations with constant coefficients, the complexity of recursive algorithms, and we introduce the student to the theory of multivariate functions. After establishing basic concepts of partial derivative, gradient, and H of localization of local extrema of multivariate functions as well as the numerical descent method. We conclude the course with the integ Modern Data Formats urse is to give an overview of commonly used data formats for typical types of data. There will be a description of each data type and we along with tools available to work with such data. After finishing the course, the students should know how to work with common data with course.	Z,ZK n how to integrate b he computation of e dits analysis using Hessian matrix, we ration of multivariat KZ the data formats u ata, e.g. on the Web Z,ZK	6 by parts and elementary the Master study the e functions. 3 sed for that b. 5
The course completuse the substitution functions with a pre- theorem. Finally, analytical method of BI-MDF.21 The goal of the co- data type BI-MGA.21 Students get acq	The set of analysis of real functions of a real variable initiated in BI-MA1 by introducing the Riemann integral. Students will learn on method. The next part of the course is devoted to number series, and Taylor polynomials and series. We apply Taylors theorem to the ascribed accuracy. Then we study the linear recurrence equations with constant coefficients, the complexity of recursive algorithms, and we introduce the student to the theory of multivariate functions. After establishing basic concepts of partial derivative, gradient, and H of localization of local extrema of multivariate functions as well as the numerical descent method. We conclude the course with the integ Modern Data Formats urse is to give an overview of commonly used data formats for typical types of data. There will be a description of each data type and we along with tools available to work with such data. After finishing the course, the students should know how to work with common data Multimedia and Graphics Applications	Z,ZK n how to integrate b he computation of e dits analysis using Hessian matrix, we ration of multivariat KZ the data formats u ata, e.g. on the Web Z,ZK king with images, v	6 by parts and elementary the Master study the e functions. 3 sed for that b. 5 rideos, 3D
The course completuse the substitution functions with a pretto theorem. Finally, analytical method of BI-MDF.21 The goal of the conduct type BI-MGA.21 Students get acquires and animatic structures animatic structures anite structures and animatic	The set here of analysis of real functions of a real variable initiated in BI-MA1 by introducing the Riemann integral. Students will learn on method. The next part of the course is devoted to number series, and Taylor polynomials and series. We apply Taylors theorem to the ascribed accuracy. Then we study the linear recurrence equations with constant coefficients, the complexity of recursive algorithms, and we introduce the student to the theory of multivariate functions. After establishing basic concepts of partial derivative, gradient, and h of localization of local extrema of multivariate functions as well as the numerical descent method. We conclude the course with the integ Modern Data Formats urse is to give an overview of commonly used data formats for typical types of data. There will be a description of each data type and we along with tools available to work with such data. After finishing the course, the students should know how to work with common data Multimedia and Graphics Applications puainted with multimedia technologies and applications for 2D/3D bitmap and vector graphics. During the course, current tools for wor	Z,ZK n how to integrate b he computation of e dits analysis using Hessian matrix, we ration of multivariat KZ the data formats u ata, e.g. on the Web Z,ZK king with images, w phic formats, and c	6 by parts and elementary the Master study the e functions. 3 sed for that b. 5 ideos, 3D ompression
The course completuse the substitution functions with a predimer theorem. Finally, analytical method of BI-MDF.21 The goal of the conduct type BI-MGA.21 Students get acquiraphics and animate technologies. The goal of the conduct the substitution of the substitution	The set here of analysis of real functions of a real variable initiated in BI-MA1 by introducing the Riemann integral. Students will learn on method. The next part of the course is devoted to number series, and Taylor polynomials and series. We apply Taylors theorem to the ascribed accuracy. Then we study the linear recurrence equations with constant coefficients, the complexity of recursive algorithms, and we introduce the student to the theory of multivariate functions. After establishing basic concepts of partial derivative, gradient, and he of localization of local extrema of multivariate functions as well as the numerical descent method. We conclude the course with the integ Modern Data Formats urse is to give an overview of commonly used data formats for typical types of data. There will be a description of each data type and we along with tools available to work with such data. After finishing the course, the students should know how to work with common data Multimedia and Graphics Applications juainted with multimedia technologies and applications for 2D/3D bitmap and vector graphics. During the course, current tools for wor ation will be introduced. Students learn several basic techniques of creation and editing content in computer graphics, introduction to gra	Z,ZK n how to integrate b he computation of e dits analysis using Hessian matrix, we ration of multivariat KZ the data formats u ata, e.g. on the Web Z,ZK king with images, w phic formats, and c principle of operatio	6 by parts and elementary the Master study the e functions. 3 sed for that b. 5 ideos, 3D ompression
The course completuse the substitution functions with a pre- theorem. Finally, analytical method of BI-MDF.21 The goal of the co- data typ BI-MGA.21 Students get acq graphics and animatechnologies. The BI-MIT	tees the theme of analysis of real functions of a real variable initiated in BI-MA1 by introducing the Riemann integral. Students will learn on method. The next part of the course is devoted to number series, and Taylor polynomials and series. We apply Taylors theorem to the escribed accuracy. Then we study the linear recurrence equations with constant coefficients, the complexity of recursive algorithms, and we introduce the student to the theory of multivariate functions. After establishing basic concepts of partial derivative, gradient, and ho fol localization of local extrema of multivariate functions as well as the numerical descent method. We conclude the course with the integ Modern Data Formats urse is to give an overview of commonly used data formats for typical types of data. There will be a description of each data type and the along with tools available to work with such data. After finishing the course, the students should know how to work with common data Multimedia and Graphics Applications usinted with multimedia technologies and applications for 2D/3D bitmap and vector graphics. During the course, current tools for wor ation will be introduced. Students learn several basic techniques of creation and editing content in computer graphics, introduction to gra y learn to use multimedia transmission and representation systems, including real-time multimedia processing. They understand the pro- of graphics processing cards. They gain a number of practical skills, such as vectorizing raster images, retouching photos, or creating Mikrotik technologies	Z,ZK n how to integrate b he computation of e id its analysis using Hessian matrix, we ration of multivariat KZ the data formats u tata, e.g. on the Web Z,ZK king with images, v phic formats, and c principle of operatio 3D models. KZ	6 hy parts and elementary the Master study the e functions. 3 sed for that b. 5 rideos, 3D ompression on and use 3
The course completuse the substitution functions with a pretto theorem. Finally, analytical method of BI-MDF.21 The goal of the condata type BI-MGA.21 Students get acq graphics and animatechnologies. The goal BI-MIT The main motivation of the conduct of the con	The set here of analysis of real functions of a real variable initiated in BI-MA1 by introducing the Riemann integral. Students will learn on method. The next part of the course is devoted to number series, and Taylor polynomials and series. We apply Taylors theorem to the ascribed accuracy. Then we study the linear recurrence equations with constant coefficients, the complexity of recursive algorithms, and we introduce the student to the theory of multivariate functions. After establishing basic concepts of partial derivative, gradient, and he of localization of local extrema of multivariate functions as well as the numerical descent method. We conclude the course with the integ Modern Data Formats urse is to give an overview of commonly used data formats for typical types of data. There will be a description of each data type and we along with tools available to work with such data. After finishing the course, the students should know how to work with common data multimedia and Graphics Applications uuainted with multimedia technologies and applications for 2D/3D bitmap and vector graphics. During the course, current tools for wor ation will be introduced. Students learn several basic techniques of creation and editing content in computer graphics, introduction to gra y learn to use multimedia transmission and representation systems, including real-time multimedia processing. They understand the p of graphics processing cards. They gain a number of practical skills, such as vectorizing raster images, retouching photos, or creating Mikrotik technologies on of the subject stands in the introduction of the RouterOS operating system and some network Mikrotik technologies which are com- stant or the subject stands in the introduction of the RouterOS operating system and some network Mikrotik technologies which are com-	Z,ZK n how to integrate b he computation of e id its analysis using lessian matrix, we iration of multivariat KZ the data formats u ta, e.g. on the Web Z,ZK king with images, v phic formats, and c principle of operation 3D models. KZ nmonly used by the	6 by parts and elementary the Master study the e functions. 3 sed for that b. 5 rideos, 3D ompression on and use 3 e small and
The course completuse the substitution functions with a prettheorem. Finally, analytical method of BI-MDF.21 The goal of the count of t	The set here of analysis of real functions of a real variable initiated in BI-MA1 by introducing the Riemann integral. Students will learn on method. The next part of the course is devoted to number series, and Taylor polynomials and series. We apply Taylors theorem to the ascribed accuracy. Then we study the linear recurrence equations with constant coefficients, the complexity of recursive algorithms, and we introduce the student to the theory of multivariate functions. After establishing basic concepts of partial derivative, gradient, and he of localization of local extrema of multivariate functions as well as the numerical descent method. We conclude the course with the integ Modern Data Formats urse is to give an overview of commonly used data formats for typical types of data. There will be a description of each data type and we along with tools available to work with such data. After finishing the course, the students should know how to work with common data multimedia and Graphics Applications upuainted with multimedia technologies and applications for 2D/3D bitmap and vector graphics. During the course, current tools for wor ation will be introduced. Students learn several basic techniques of creation and editing content in computer graphics, introduction to gra y learn to use multimedia transmission and representation systems, including real-time multimedia processing. They understand the p of graphics processing cards. They gain a number of practical skills, such as vectorizing raster images, retouching photos, or creating Mikrotik technologies on of the subject stands in the introduction of the RouterOS operating system and some network Mikrotik technologies which are com- rvice providers (ISPs). The students learn how to use and create the architectures of the network solutions which are based on the m	Z,ZK n how to integrate b he computation of e id its analysis using lessian matrix, we ration of multivariat KZ the data formats u tta, e.g. on the Web Z,ZK king with images, v phic formats, and c principle of operation 3D models. KZ nmonly used by the etallic, optical or with	6 by parts and elementary the Master study the e functions. 3 sed for that b. 5 rideos, 3D compression on and use 3 e small and reless links
The course completuse the substitution functions with a prettheorem. Finally, analytical method of BI-MDF.21 The goal of the count of t	The set here of analysis of real functions of a real variable initiated in BI-MA1 by introducing the Riemann integral. Students will learn on method. The next part of the course is devoted to number series, and Taylor polynomials and series. We apply Taylors theorem to the ascribed accuracy. Then we study the linear recurrence equations with constant coefficients, the complexity of recursive algorithms, and we introduce the student to the theory of multivariate functions. After establishing basic concepts of partial derivative, gradient, and he of localization of local extrema of multivariate functions as well as the numerical descent method. We conclude the course with the integ Modern Data Formats urse is to give an overview of commonly used data formats for typical types of data. There will be a description of each data type and the along with tools available to work with such data. After finishing the course, the students should know how to work with common data Multimedia and Graphics Applications usinted with multimedia technologies and applications for 2D/3D bitmap and vector graphics. During the course, current tools for wor ation will be introduced. Students learn several basic techniques of creation and editing content in computer graphics, introduction to gra y learn to use multimedia transmission and representation systems, including real-time multimedia processing. They understand the pol of graphics processing cards. They gain a number of practical skills, such as vectorizing raster images, retouching photos, or creating Mikrotik technologies on of the subject stands in the introduction of the RouterOS operating system and some network Mikrotik technologies which are based on the m strate and practically deploy them. The successful completion of this subject requires the previous knowledge of elementary computer ne- strate and practically deploy them. The successful completion of this subject requires the previous knowledge of elementary computer ne- strate and practically deploy them. The success	Z,ZK n how to integrate b he computation of e id its analysis using lessian matrix, we ration of multivariat KZ the data formats u tta, e.g. on the Web Z,ZK king with images, v phic formats, and c principle of operation 3D models. KZ nmonly used by the etallic, optical or with	6 by parts and elementary the Master study the e functions. 3 sed for that b. 5 rideos, 3D compression on and use 3 e small and reless links
The course completuse the substitution functions with a prettheorem. Finally, analytical method of BI-MDF.21 The goal of the conduct type BI-MGA.21 Students get acq graphics and animatechnologies. The theorem of BI-MIT The main motivation middle internet series and how to administ	The set here and the set of the course is devoted to number series, and Taylor polynomials and series. We apply Taylors theorem to the secribed accuracy. Then we study the linear recurrence equations with constant coefficients, the complexity of recursive algorithms, and we introduce the student to the theory of multivariate functions. After establishing basic concepts of partial derivative, gradient, and here is to give an overview of commonly used data formats for typical types of data. There will be a description of each data type and the along with tools available to work with such data. After finishing the course, the students should know how to work with common data and Graphics Applications. Burling the course, current tools for wor ation will be introduced. Students learn several basic techniques of creation and editing content in computer graphics, introduction to graphics processing cards. They gain a number of practical skills, such as vectorizing raster images, retouching photos, or creating Mikrotik technologies which are corrective reproviders (ISPs). The students learn how to use and create the architectures of the network solutions which are based on the mistrate and practically deploy them. The successful completion of this subject requires the previous knowledge of elementary computer or and technologies of the data-link, network and transport layer of the OSI model.	Z,ZK n how to integrate b he computation of e id its analysis using lessian matrix, we ration of multivariat KZ the data formats u ta, e.g. on the Web Z,ZK king with images, v phic formats, and c principle of operation 3D models. KZ nmonly used by the etallic, optical or wi atworks concepts life	6 by parts and elementary the Master study the e functions. 3 sed for that b. 5 rideos, 3D compression on and use 3 e small and reless links we protocols
The course completuse the substitution functions with a prettheorem. Finally, analytical method of BI-MDF.21 The goal of the conduct type BI-MGA.21 Students get acq graphics and animatechnologies. The BI-MIT The main motivatimiddle internet seriand how to administer BI-ML1.21	tees the theme of analysis of real functions of a real variable initiated in BI-MA1 by introducing the Riemann integral. Students will learn on method. The next part of the course is devoted to number series, and Taylor polynomials and series. We apply Taylors theorem to the ascribed accuracy. Then we study the linear recurrence equations with constant coefficients, the complexity of recursive algorithms, and we introduce the student to the theory of multivariate functions. After establishing basic concepts of partial derivative, gradient, and F of localization of local extrema of multivariate functions as well as the numerical descent method. We conclude the course with the integrant of localization of local extrema of multivariate functions as well as the numerical descent method. We conclude the course with the integrant of localization of local extrema of multivariate functions as well as the numerical descent method. We conclude the course with the integrant of localization of local extrema of multivariate functions as well as the numerical descent method. We conclude the course with the integrant of localization of local extrema of multivariate functions as well as the numerical descent method. We conclude the course with the integrant of give an overview of commonly used data formats for typical types of data. There will be a description of each data type and we along with tools available to work with such data. After finishing the course, the students should know how to work with common data multimedia technologies and applications for 2D/3D bitmap and vector graphics. During the course, current tools for wor ation will be introduced. Students learn several basic techniques of creation and editing content in computer graphics, introduction to gra y learn to use multimedia transmission and representation systems, including real-time multimedia processing. They understand the of graphics processing cards. They gain a number of practical skills, such as vectorizing raster images, retouching photos, or crea	Z,ZK n how to integrate b he computation of e di its analysis using lessian matrix, we ration of multivariat KZ the data formats u tta, e.g. on the Web Z,ZK king with images, v phic formats, and c principle of operation 3D models. KZ nemonly used by the etallic, optical or wi etworks concepts life Z,ZK	6 by parts and elementary the Master study the e functions. 3 sed for that b. 5 rideos, 3D ompression on and use 3 e small and reless links ke protocols 5
The course completuse the substitution functions with a prettheorem. Finally, analytical method of BI-MDF.21 The goal of the conduct type BI-MGA.21 Students get acq graphics and animatechnologies. The BI-MIT The main motivatimiddle internet series and how to administed BI-ML1.21 The goal of this conduct the goal of the series and series an	etes the theme of analysis of real functions of a real variable initiated in BI-MA1 by introducing the Riemann integral. Students will learn on method. The next part of the course is devoted to number series, and Taylor polynomials and series. We apply Taylors theorem to the secribed accuracy. Then we study the linear recurrence equations with constant coefficients, the complexity of recursive algorithms, and we introduce the student to the theory of multivariate functions. After establishing basic concepts of partial derivative, gradient, and he follocalization of local extrema of multivariate functions as well as the numerical descent method. We conclude the course with the integrates to give an overview of commonly used data formats for typical types of data. There will be a description of each data type and we along with tools available to work with such data. After finishing the course, the students should know how to work with common date along with tools available to work with such data. After finishing the course, the student in computer graphics, introduction to gravitation will be introduced. Students learn several basic techniques of creation and editing content in computer graphics, introduction to gravitation will be introduced. Students learn several basic techniques of creation and editing content in computer graphics, introduction to gravitation will be introduced. Students learn several basic techniques of prectical skills, such as vectorizing raster images, retouching photos, or creating of graphics processing cards. They gain a number of practical skills, such as vectorizing raster images, retouching photos, or creating Mikrotik technologies Multimedia technologies of the RouterOS operating system and some network Mikrotik technologies which are comprise (ISPs). The students learn how to use and create the architectures of the network solutions which are based on the mistrate and practically dep	Z,ZK n how to integrate b he computation of e di its analysis using lessian matrix, we ration of multivariat KZ the data formats u tta, e.g. on the Web Z,ZK king with images, v phic formats, and c principle of operation 3D models. KZ nomonly used by the etallic, optical or wi etworks concepts lift Z,ZK nowledge of regress	6 by parts and elementary the Master study the e functions. 3 sed for that 5 rideos, 3D ompression on and use 3 e small and reless links ke protocols 5 sision and
The course completuse the substitution functions with a pre- theorem. Finally, analytical method of BI-MDF.21. The goal of the co- data type BI-MGA.21. Students get acq graphics and animatechnologies. The Graphics and animatechnologies. The Graphics and animatechnologies. The Graphics and how to administed and how to administed and how to administed bit and the set of the goal of this classification models. The goal of the set of the goal of the set of the s	tess the theme of analysis of real functions of a real variable initiated in BI-MA1 by introducing the Riemann integral. Students will learn on method. The next part of the course is devoted to number series, and Taylor polynomials and series. We apply Taylors theorem to the secribed accuracy. Then we study the linear recurrence equations with constant coefficients, the complexity of recursive algorithms, ar we introduce the student to the theory of multivariate functions. After establishing basic concepts of partial derivative, gradient, and if of localization of local extrema of multivariate functions as well as the numerical descent method. We conclude the course with the integral were is to give an overview of commonly used data formats for typical types of data. There will be a description of each data type and the along with tools available to work with such data. After finishing the course, the students should know how to work with common data Multimedia and Graphics Applications juainted with multimedia technologies and applications for 2D/3D bitmap and vector graphics. During the course, current tools for wor ation will be introduced. Students learn several basic techniques of creation and editing content in computer graphics, introduction to gra y learn to use multimedia transmission and representation systems, including real-time multimedia processing. They understand the for graphics processing cards. They gain a number of practical skills, such as vectorizing raster images, retouching photos, or creating Mikrotik technologies on of the subject stands in the introduction of the RouterOS operating system and some network Mikrotik technologies which are cor rvice providers (ISPs). The students learn how to use and create the architectures of the network solutions which are based on the m strate and practically deploy them. The successful completion of this subject requires the previous knowledge of elementary computer or and technologies of the data-link, network and transport layer of the OSI model.	Z,ZK n how to integrate b he computation of e id its analysis using lessian matrix, we ration of multivariat KZ the data formats u tta, e.g. on the Web Z,ZK king with images, v phic formats, and c principle of operation 3D models. KZ nmonly used by the etallic, optical or wi etworks concepts lift Z,ZK nowledge of regressions ips between model	6 any parts and belementary the Master study the e functions. 3 sed for that b. 5 rideos, 3D compression on and use 3 e small and reless links see protocols 5 sision and bias and
The course completuse the substitution functions with a pre- theorem. Finally, analytical method of BI-MDF.21. The goal of the co- data type BI-MGA.21. Students get acq graphics and animatechnologies. The Graphics and animatechnologies. The Graphics and animatechnologies. The Graphics and how to administed and how to administed and how to administed bit and the set of the goal of this classification models. The goal of the set of the goal of the set of the s	tess the theme of analysis of real functions of a real variable initiated in BI-MA1 by introducing the Riemann integral. Students will learn on method. The next part of the course is devoted to number series, and Taylor polynomials and series. We apply Taylors theorem to the secribed accuracy. Then we study the linear recurrence equations with constant coefficients, the complexity of recursive algorithms, ar we introduce the student to the theory of multivariate functions. After establishing basic concepts of partial derivative, gradient, and he of localization of local extrema of multivariate functions as well as the numerical descent method. We conclude the course with the integrate we introduce the student to the theory of multivariate functions as well as the numerical descent method. We conclude the course with the integrates to give an overview of commonly used data formats for typical types of data. There will be a description of each data type and the along with tools available to work with such data. After finishing the course, the students should know how to work with common data and the along with tools available to work with such data. After finishing the course, the students should know how to work with common data use is to give an overview of commonly used data formats for zD/3D bitmap and vector graphics. During the course, current tools for wor ation will be introduced. Students learn several basic techniques of creation and editing content in computer graphics, introduction to gra y learn to use multimedia transmission and representation systems, including real-time multimedia processing. They understand the of graphics processing cards. They gain a number of practical skills, such as vectorizing raster images, retouching photos, or creating Mikrotik technologies on of the subject stands in the introduction of the RouterOS operating system and some network Mikrotik technologies which are correvice providers (ISPs). The students learn how to use and create the architectures of the network solut	Z,ZK n how to integrate b he computation of e id its analysis using lessian matrix, we ration of multivariat KZ the data formats u tta, e.g. on the Web Z,ZK king with images, v phic formats, and c principle of operation 3D models. KZ nmonly used by the etallic, optical or wi etworks concepts lift Z,ZK nowledge of regressions ips between model	6 any parts and belementary the Master study the e functions. 3 sed for that b. 5 rideos, 3D compression on and use 3 e small and reless links see protocols 5 sision and bias and
The course completuse the substitution functions with a pretter theorem. Finally, analytical method of BI-MDF.21 The goal of the conditional of th	tes the theme of analysis of real functions of a real variable initiated in BI-MA1 by introducing the Riemann integral. Students will learn on method. The next part of the course is devoted to number series, and Taylor polynomials and series. We apply Taylors theorem to the secribed accuracy. Then we study the linear recurrence equations with constant coefficients, the complexity of recursive algorithms, and we introduce the student to the theory of multivariate functions. After establishing basic concepts of partial derivative, gradient, and ho folcalization of local extrema of multivariate functions as well as the numerical descent method. We conclude the course with the integ and the along with tools available to work with such data. After finishing the course, the students should know how to work with common date along with tools available to work with such data. After finishing the course, the students should know how to work with common date along with tools available to work with such data. After finishing the course, the students should know how to work with common date along with tools available to work with such data. After finishing the course, the students should know how to work with common date along with tools available to work with such data. Stater finishing the course, the students should know how to work with common date along with multimedia technologies and applications for 2D/3D bitmap and vector graphics. During the course, current tools for wor ation will be introduced. Students learn several basic techniques of creation and editing content in computer graphics, introduction to gra y learn to use multimedia transmission and representation systems, including real-time multimedia processing. They understand the of graphics processing cards. They gain a number of practical skills, such as vectorizing raster images, retouching photos, or creating on of the subject stands in the introduction of the RouterOS operating system and some network Mikrotik technologies which are com- rivice provider	Z,ZK n how to integrate b he computation of e di its analysis using lessian matrix, we rration of multivariat KZ the data formats u tta, e.g. on the Web Z,ZK king with images, v phic formats, and c principle of operation 3D models. KZ nomonly used by the etallic, optical or wi etworks concepts lift Z,ZK nowledge of regress ips between model I data visualization.	6 by parts and elementary the Master study the e functions. 3 sed for that b. 5 rideos, 3D ompression on and use 3 e small and reless links ke protocols 5 sision and l bias and In practical
The course completuse the substitution functions with a prettheorem. Finally, analytical method of BI-MDF.21 The goal of the coordata type BI-MGA.21 Students get acq graphics and animatechnologies. The BI-MIT The main motivati middle internet seriand how to administ BI-ML1.21 The goal of this classification movariance, and know BI-ML2.21	tes the theme of analysis of real functions of a real variable initiated in BI-MÅ1 by introducing the Riemann integral. Students will learn on method. The next part of the course is devoted to number series, and Taylor polynomials and series. We apply Taylors theorem to the secribed accuracy. Then we study the linear recurrence equations with constant coefficients, the complexity of recursive algorithms, an we introduce the student to the theory of multivariate functions. After establishing basic concepts of partial derivative, gradient, and ho fol localization of local extrema of multivariate functions as well as the numerical descent method. We conclude the course with the integr Modern Data Formats urse is to give an overview of commonly used data formats for typical types of data. There will be a description of each data type and the along with tools available to work with such data. After finishing the course, the students should know how to work with common data must be along with tools available to work with such data. After finishing the course, the students should know how to work with common data plainted with multimedia technologies and applications for 2D/3D bitmap and vector graphics. During the course, current tools for wor ation will be introduced. Students learn several basic techniques of creation and editing content in computer graphics, introduction to gra y learn to use multimedia transmission and representation systems, including real-time multimedia processing. They understand the of graphics processing cards. They gain a number of practical skills, such as vectorizing raster images, retouching photos, or creating Nikrotik technologies on of the subject stands in the introduction of the RouterOS operating system and some network Mikrotik technologies which are con- revice providers (ISPs). The students learn how to use and create the architectures of the network solutions which are based on the m strate and practically deploy them. The successful completion of this subject requires the pre	Z,ZK n how to integrate b he computation of e di its analysis using lessian matrix, we ration of multivariat KZ the data formats u ta, e.g. on the Web Z,ZK king with images, v phic formats, and c principle of operation 3D models. KZ nmonly used by the etallic, optical or wi etworks concepts lik Z,ZK nowledge of regress ips between model I data visualization.	6 by parts and elementary the Master study the e functions. 3 sed for that b. 5 ideos, 3D ompression on and use 3 e small and reless links we protocols 5 sision and b bias and In practical
The course completuse the substitution functions with a prettheorem. Finally, analytical method of BI-MDF.21 The goal of the coordata type BI-MGA.21 Students get acq graphics and animatechnologies. The BI-MIT The main motivati middle internet ser and how to administ BI-ML1.21 The goal of this classification movariance, and know BI-ML2.21 The goal of this classification movariance and how to administ bil-ML2.21 The goal of this classification movariance and know bil-ML2.21 The goal bil-ML2 t	tes the theme of analysis of real functions of a real variable initiated in BI-MA1 by introducing the Riemann integral. Students will learn on method. The next part of the course is devoted to number series, and Taylor polynomials and series. We apply Taylors theorem to the secribed accuracy. Then we study the linear recurrence equations with constant coefficients, the complexity of recursive algorithms, and we introduce the student to the theory of multivariate functions. After establishing basic concepts of partial derivative, gradient, and ho folcalization of local extrema of multivariate functions as well as the numerical descent method. We conclude the course with the integ and the along with tools available to work with such data. After finishing the course, the students should know how to work with common date along with tools available to work with such data. After finishing the course, the students should know how to work with common date along with tools available to work with such data. After finishing the course, the students should know how to work with common date along with tools available to work with such data. After finishing the course, the students should know how to work with common date along with tools available to work with such data. Stater finishing the course, the students should know how to work with common date along with multimedia technologies and applications for 2D/3D bitmap and vector graphics. During the course, current tools for wor ation will be introduced. Students learn several basic techniques of creation and editing content in computer graphics, introduction to gra y learn to use multimedia transmission and representation systems, including real-time multimedia processing. They understand the of graphics processing cards. They gain a number of practical skills, such as vectorizing raster images, retouching photos, or creating on of the subject stands in the introduction of the RouterOS operating system and some network Mikrotik technologies which are com- rivice provider	Z,ZK n how to integrate b he computation of e di its analysis using lessian matrix, we ration of multivariat KZ the data formats u ta, e.g. on the Web Z,ZK king with images, v phic formats, and c principle of operation 3D models. KZ nmonly used by the etallic, optical or wi etworks concepts lift Z,ZK nowledge of regress ips between model I data visualization. Z,ZK riticular, learn kerne	6 by parts and elementary the Master study the e functions. 3 sed for that b. 5 ideos, 3D ompression on and use 3 e small and reless links e protocols 5 sion and bias and In practical 5 el methods
The course completuse the substitution functions with a prettheorem. Finally, analytical method of BI-MDF.21 The goal of the coordata type BI-MGA.21 Students get acq graphics and animatechnologies. The BI-MIT The main motivati middle internet ser and how to administ BI-ML1.21 The goal of this classification movariance, and know BI-ML2.21 The goal of this classification movariance and how to administ bil-ML2.21 The goal of this classification movariance and know bil-ML2.21 The goal bil-ML2 t	The steep the theme of analysis of real functions of a real variable initiated in BI-MÅ1 by introducing the Riemann integral. Students will learn on method. The next part of the course is devoted to number series, and Taylor polynomials and series. We apply Taylors theorem to the ascribed accuracy. Then we study the linear recurrence equations with constant coefficients, the complexity of recursive algorithms, and the flocalization of local extrema of multivariate functions as well as the numerical descent method. We conclude the course with the integration of local extrema of multivariate functions as well as the numerical descent method. We conclude the course with the integration of local extrema of multivariate functions as well as the numerical descent method. We conclude the course with the integrations of a real variable to work with such data. After finishing the course, the students should know how to work with common de along with tools available to work with such data. After finishing the course, the students should know how to work with common de along with multimedia technologies and applications for 2D/3D bitmap and vector graphics. During the course, current tools for wor ation will be introduced. Students learn several basic techniques of creation and editing content in computer graphics, introduction to gra y learn to use multimedia transmission and representation systems, including real-time multimedia processing. They understand the p of graphics processing cards. They gain a number of practical skills, such as vectorizing raster images, retouching photos, or creating Mikrotik technologies of the activities of the network solutions which are based on the m strate and practically deploy them. The successful completion of this subject requires the previous knowledge of elementary computer or and technologies of the data-link, network and transport layer of the OSI model. Machine Learning 1 course is to introduce students to the basic methods of machine learning. They get theoretical understandi	Z,ZK n how to integrate b he computation of e di its analysis using lessian matrix, we ration of multivariat KZ the data formats u ta, e.g. on the Web Z,ZK king with images, v phic formats, and c principle of operation 3D models. KZ nmonly used by the etallic, optical or wi etworks concepts lift Z,ZK nowledge of regress ips between model I data visualization. Z,ZK riticular, learn kerne	6 by parts and elementary the Master study the e functions. 3 sed for that b. 5 ideos, 3D ompression on and use 3 e small and reless links e protocols 5 sion and bias and In practical 5 el methods
The course completuse the substitution functions with a prettheorem. Finally, analytical method of BI-MDF.21 The goal of the coordata type BI-MGA.21 Students get acq graphics and animatechnologies. The BI-MIT The main motivati middle internet ser and how to administ BI-ML1.21 The goal of this classification movariance, and know BI-ML2.21 The goal of this classification movariance and how to administ bil-ML2.21 The goal of this classification movariance and know bil-ML2.21 The goal bil-ML2 t	The set he heme of analysis of real functions of a real variable initiated in BI-MÅ1 by introducing the Riemann integral. Students will learn on method. The next part of the course is devoted to number series, and Taylor polynomials and series. We apply Taylors theorem to the ascribed accuracy. Then we study the linear recurrence equations with constant coefficients, the complexity of recursive algorithms, ar we introduce the student to the theory of multivariate functions. After establishing basic concepts of partial derivative, gradient, and H of localization of local extrema of multivariate functions as well as the numerical descent method. We conclude the course with the integrate is to give an overview of commonly used data formats for typical types of data. There will be a description of each data type and the along with tools available to work with such data. After finishing the course, the students should know how to work with common data is used with multimedia technologies and applications for 2D/3D bitmap and vector graphics. During the course, current tools for wor ation will be introduced. Students learn several basic techniques of creation and editing content in computer graphics, introduction to gra y learn to use multimedia transmission and representation systems, including real-time multimedia processing. They understand the por of graphics processing cards. They gain a number of practical skills, such as vectorizing raster images, retouching photos, or creating Mikrotik technologies on of the subject stands in the introduction of the RouterOS operating system and some network Mikrotik technologies which are correvice providers (ISPs). The students learn how to use and create the architectures of the network solutions which are based on the m strate and practically deploy them. The successful completion of this subject requires the previous knowledge of elementary computer on and technologies of the data-link, network and transport layer of the OSI model. Machine Learning 1 course is to introdu	Z,ZK n how to integrate b he computation of e di its analysis using lessian matrix, we ration of multivariat KZ the data formats u ta, e.g. on the Web Z,ZK king with images, v phic formats, and c principle of operation 3D models. KZ nmonly used by the etallic, optical or wi etworks concepts lift Z,ZK nowledge of regress ips between model I data visualization. Z,ZK riticular, learn kerne	6 by parts and elementary the Master study the e functions. 3 sed for that b. 5 ideos, 3D ompression on and use 3 e small and reless links e protocols 5 sion and bias and In practical 5 el methods
The course complete use the substitution functions with a pre- theorem. Finally, analytical method of BI-MDF.21 The goal of the co- data typ BI-MGA.21 Students get accq graphics and animate technologies. The BI-MIT The main motivati middle internet ser and how to administ BI-ML1.21 The goal of this classification mo- variance, and know BI-ML2.21 The goal of this co- and neural networ	tes the theme of analysis of real functions of a real variable initiated in BI-MA1 by introducing the Riemann integral. Students will learn on method. The next part of the course is devoted to number series, and Taylor polynomials and series. We apply Taylors theorem to the secribed accuracy. Then we study the linear recurrence equations with constant coefficients, the complexity of recursive algorithms, and we introduce the student to the theory of multivariate functions. After establishing basic concepts of partial derivative, gradient, and hof localization of local extrema of multivariate functions as well as the numerical descent method. We conclude the course with the integroup of the students of the order of the students for typical types of data. There will be a description of each data type and the along with tools available to work with such data. After finishing the course, the students should know how to work with common date along with multimedia technologies and applications for 2D/3D bitmap and vector graphics. During the course, current tools for wor ation will be introduced. Students learn several basic techniques of creation and editing content in computer graphics, introduction to gra y learn to use multimedia transmission and representation systems, including real-time multimedia processing. They understand the portice providers (ISPs). The students learn how to use and create the architectures of the network solutions which are based on the m strate and practically deploy them. The successful completion of this subject requires the previous knowledge of elementary computer or and technologies of the data-link, network and transport layer of the OSI model. Machine Learning 1 Course is to introduce students to the basic methods of machine learning. They get theoretical understanding and practical working k dels in the supervised learning scenario and clustering models in the unsupervised scenario. Students will be aware of the relationsh w the fundamentals of assessing model quality. M	Z,ZK n how to integrate b he computation of e di its analysis using lessian matrix, we ration of multivariat KZ the data formats u ta, e.g. on the Web Z,ZK king with images, v phic formats, and c principle of operation 3D models. KZ nmonly used by the etallic, optical or wi etworks concepts lift Z,ZK nowledge of regress ips between model I data visualization. Z,ZK riticular, learn kerned s. Moreover, stude	6 by parts and elementary the Master study the e functions. 3 sed for that 5. ideos, 3D ompression on and use 3 e small and reless links ke protocols 5 sision and bias and In practical 5 el methods ints get the
The course complete use the substitution functions with a pre- theorem. Finally, analytical method of BI-MDF.21 The goal of the co- data typ BI-MGA.21 Students get accq graphics and animate technologies. The BI-MIT The main motivati middle internet ser and how to administ BI-ML1.21 The goal of this classification mo- variance, and know BI-ML2.21 The goal of this co- and neural networ	tess the theme of analysis of real functions of a real variable initiated in BI-MA1 by introducing the Riemann integral. Students will learn on method. The next part of the course is devoted to number series, and Taylor polynomials and series. We apply Taylors theorem to ti ascribed accuracy. Then we study the linear recurrence equations with constant coefficients, the complexity of recursive algorithms, ar we introduce the student to the theory of multivariate functions. After establishing basic concepts of partial derivative, gradient, and H of localization of local extrema of multivariate functions as well as the numerical descent method. We conclude the course with the integ MOdern Data Formats uruse is to give an overview of commonly used data formats for typical types of data. There will be a description of each data type and e along with tools available to work with such data. After finishing the course, the students should know how to work with common da Multimedia and Graphics Applications uainted with multimedia technologies and applications for 2D/3D bitmap and vector graphics. During the course, current tools for wor ation will be introduced. Students learn several basic techniques of creation and editing content in computer graphics, introduction to gra y learn to use multimedia transmission and representation systems, including real-time multimedia processing. They understand the [Z,ZK n how to integrate b he computation of e di its analysis using lessian matrix, we ration of multivariat KZ the data formats u ta, e.g. on the Web Z,ZK king with images, v phic formats, and c principle of operation 3D models. KZ nmonly used by the etallic, optical or wi etworks concepts lift Z,ZK nowledge of regress ips between model I data visualization. Z,ZK riticular, learn kerned s. Moreover, stude	6 by parts and elementary the Master study the e functions. 3 sed for that 5. ideos, 3D ompression on and use 3 e small and reless links ke protocols 5 sision and bias and In practical 5 el methods ints get the
The course complete use the substitution functions with a pre- theorem. Finally, analytical method of BI-MDF.21 The goal of the co- data typ BI-MGA.21 Students get acq graphics and anima- technologies. The BI-MIT The main motivati middle internet ser and how to administ BI-ML1.21 The goal of this classification mo- variance, and know BI-ML2.21 The goal of this co- and neural networ BI-MMP BI-MMP	A set the theme of analysis of real functions of a real variable initiated in BI-MA1 by introducing the Riemann integral. Students will learn on method. The next part of the course is devoted to number series, and Taylor polynomials and series. We apply Taylors theorem to th escribed accuracy. Then we study the linear recurrence equations with constant coefficients, the complexity of recursive algorithms, an we introduce the student to the theory of multivariate functions. After establishing basic concepts of partial derivative, gradient, and f of localization of local extrema of multivariate functions as well as the numerical descent method. We conclude the course with the integ Modern Data Formats uruse is to give an overview of commonly used data formats for typical types of data. There will be a description of each data type and e along with tools available to work with such data. After finishing the course, the students should know how to work with common de Multimedia and Graphics Applications uainted with multimedia technologies and applications for 2D/3D bitmap and vector graphics. During the course, current tools for wor ation will be introduced. Students learn several basic techniques of creation and editing content in computer graphics, introduction to gra learn to use multimedia transmission and representation systems, including real-time multimedia processing. They gain a number of practical skills, such as vectorizing raster images, retouching phots, or creating Mikrotik technologies on of the subject stands in the introduction of the RouterOS operating system and some network Mikrotik technologies which are based on the m strate and practically deploy them. The successful completion of this subject requires the previous knowledge of elementary computer n and technologies of the data-link, network and transport layer of the OSI model. Machine Learning 1 course is to introduce students to the basic methods of machine learning. They get theoretical understanding and practical working k we fundamenta	Z,ZK n how to integrate bee computation of edits analysis using dessian matrix, we ration of multivariat KZ the data formats uta, e.g. on the Web Z,ZK king with images, v principle of operation of principle of operation of multivariat KZ nowledge of regressing between model I data visualization. Z,ZK monly used by the etallic, optical or with etallic, optical or with the etallic, optical or withetallic, optical or with thetall or withetallic, optic	6 by parts and elementary the Master study the e functions. 3 sed for that 5 ideos, 3D ompression on and use 3 e small and reless links ce protocols 5 sion and I bias and In practical 5 el methods ents get the 4 5 The course
The course complete use the substitution functions with a pre- theorem. Finally, analytical method of BI-MDF.21 The goal of the co- data typ BI-MGA.21 Students get acq graphics and anima- technologies. The BI-MIT The main motivati middle internet ser and how to administ BI-ML1.21 The goal of this classification mo- variance, and know BI-ML2.21 The goal of this co- and neural networ BI-MMP BI-MMP	A set the theme of analysis of real functions of a real variable initiated in BI-MA1 by introducing the Riemann integral. Students will learn on method. The next part of the course is devoted to number series, and Taylor polynomials and series. We apply Taylors theorem to t ascribed accuracy. Then we study the linear recurrence equations with constant coefficients, the complexity of recursive algorithms, an we introduce the student to the theory of multivariate functions. After establishing basic concepts of partial derivative, gradient, and f of localization of local extrema of multivariate functions as well as the numerical descent method. We conclude the course with the integ Modern Data Formats urse is to give an overview of commonly used data formats for typical types of data. There will be a description of each data type and e along with tools available to work with such data. After finishing the course, the students should know how to work with common da Multimedia and Graphics Applications uainted with multimedia technologies and applications for 2D/3D bitmap and vector graphics. During the course, current tools for wor ation will be introduced. Students learn several basic techniques of creation and editing content in computer graphics, introduction to gra y learn to use multimedia transmission and representation systems, including real-time multimedia processing. They understand the p of graphics processing cards. They gain a number of practical skills, such as vectorizing raster images, retouching photos, or creating Mikrotik technologies on of the subject stands in the introduction of the RouterOS operating system and some network solutions which are based on the m strate and practically deploy them. The successful completion of this subject requires the previous knowledge of elementary computer m and technologies of met atterining. They get theoretical understanding and practical working k dels in the supervised learning scenario and clustering models in the unsupervised scenario. Students will be	Z,ZK n how to integrate bee computation of edits analysis using dessian matrix, we ration of multivariat KZ the data formats uta, e.g. on the Web Z,ZK king with images, v principle of operation of principle of operation of multivariat KZ nowledge of regressing between model I data visualization. Z,ZK monly used by the etallic, optical or with etallic, optical or with the etallic, optical or withetallic, optical or with thetall or withetallic, optic	6 by parts and elementary the Master study the e functions. 3 sed for that 5 ideos, 3D ompression on and use 3 e small and reless links ce protocols 5 sion and I bias and In practical 5 el methods ents get the 4 5 The course

BI-MVT.21	Modern Visualisation Technologies	Z,ZK	5
The goal of the co	urse is to give an overview of modern visualization technologies and their principles, namely technologies related to virtual and augr	ented reality, visua	alization on
high resolution disp	plays (e.g., SAGE and video mapping) and their applications in practice. Several lectures deal with the content creation for the mentione	d technologies, na	mely fractal
	and procedural visualization, scientific data visualization, and 3D model scanning.		
BI-OOP.21	Object-Oriented Programming	Z,ZK	5
	programming has been used in the last 50 years to solve computational problems by using graphs of objects that collaborate together		-
course students ge	tt acquainted with the main principles of object-oriented programming and design, used in modern programming languages. The emph	asis is on practical	techniques
	for developing software, which includes testing, error handing, refactoring, and application of design pattern.	7 71/	
BI-OPT	Introduction to Optical Networks	Z,ZK	4 deployment
•	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		
	isators, and others), and an overview of active components (optical switches and amplifiers, high-speed coherent transmission system		-
	e topics presented at premium research conferences, such as ECOC or OFC. Attention will also be paid to new applications, such as	,	
	ncy transfer, or sensor networks. The labs will focus on real work with optical components and on measurement of their parameters.		
	from practice.		
BI-ORL	Operations Research and Linear Programming	KZ	5
The subject aims t	o introduce students to the issues of operational research and primarily to the practical application of linear programming as a fundar	nental optimization	technique.
Operatio	nal research primarily focuses on the use of engineering methods (with a mathematical background) to solve practical problems (suc	h as management).
BI-OSY.21	Operating Systems	Z,ZK	5
In this course that is	s a follow-up of the Unix-like operating systems course students deepen their knowledge in areas of OS kernels, process and thread imp	lementations, race	conditions,
critical regions, three	ead scheduling, shared resource allocation and deadlocks, management of virtual memory and data storages, file systems, OS moni	° ,	le to design
	and implement simple multithreaded applications. General principles are illustrated on operating systems Solaris, Linux, or MS W	indows.	
BI-PA1.21	Programming and Algorithmics 1	Z,ZK	7
°	ability to formulate algorithms for solving basic problems and write them in the C language. They understand data types (simple, structure)		•
statements, functi	ons, concept of recursion. They learn to analyse simple cases of algorithm complexity. They know fundamental algorithms for searchi	ng, sorting, and ma	anipulating
	with linked lists and trees.	7 71/	
BI-PA2.21	Programming and Algorithmics 2	Z,ZK	7
	instruments of object-oriented programming and are able to use them for specifying and implementing abstract data types (stack, que n these skills using the C++ programming language and are introduced to all C++ features needed in object-oriented programming (e		
(able). They lear	copying/moving of objects, operator overloading, inheritance, polymorphism).	.g., template progr	anning,
BI-PAI.21	Law and Informatics	ZK	5
	urse is to introduce students into the basic legal instruments that they will encounter in their practice. Students will gain knowledge of		
	ill be alerted to the pitfalls that await them in business from the point of view of law. They will understand the process of concluding co	-	
	now their responsibilities in working with the Internet, will be familiar with the institutes of intellectual property law, and will be able to		
	icenses. Emphasis will also be put on the legal protection of data on the Internet, the registration of Internet domains and protection a		
will also be ale	rted to such behaviour in the field of IT that can be classified as criminal under the Czech law. The course will also include analyses of	f real cases from p	oractice.
BI-PGA.21	Programming of Graphic Applications	Z,ZK	5
The course will pre	sent the possibilities of current professional open-source tools for image editing, video editing, 3D animation (GIMP, Blender) and their	use for visualizatio	n of specific
data (3D scenes, r	nathematical data). Emphasis will be placed on the possibilities of further enhancement of the presented software tools, both using b	uilt-in scripting lang	guages and
	by implementation of plugins.		
BI-PGR.21	Computer graphics programming	Z,ZK	5
	curse, students can program a simple interactive 3D graphical application like a computer game or scientific visualization, design the		
-	nd materials (like wall surface, wood, sky), and set up the lighting. At the same time, they understand the fundamental principles and ter		
• •	pipeline, geometric transformations, or lighting model. They gain knowledge allowing orientation in computer graphics and representing a set of the second	•	
-	pment, e.g., GPU programming and animations. They get used to techniques utilized in geometric modeling, modeling curves and surface		
BI-PHP.1	Programing in PHP aught in Czech Main goal of the course is an introduction to PHP - language and technology. Students will learn also best practices a	KZ	4
	PHP. The course is recommended for students of BIE-WSI-WI.2015 branch of study and do not have required knowledge to register f		
development in	register for this course in their 3rd semester of study.	UI DIE-I WA.I. IIIe	y should
BI-PJP.21	Programming Languages and Compilers	Z,ZK	5
	asic compiling methods of programming languages. They are introduced to intermediate representations used in current compilers G	, ,	
	tion of a translation of a text that conforms a given syntax, to a target code and also to create a compiler based on the specification. T		-
	only a programming language but any text in a language generated by a given LL input grammar.		
BI-PJS.1	JavaScript Programming	KZ	4
	course is an introduction to Javascript programming. Students will learn also best practices and will use tool that eases development		
-	students of BIE-WSI-WI.2015 branch of study and do not have required knowledge to register for BIE-TWA.1. They should register for the	-	
	of study.		
BI-PJS.21	JavaScript Programming	KZ	5
The course is a	n introduction to Javascript programming. Students will also learn best practices and get acquai nted with tools that make code develo	pment in Javascri	ot easier.
BI-PJV	Programming in Java	Z,ZK	4
	This course is presented in Czech. However, there is an English variant in the program Informatics (B1801 / 4753).	·	
BI-PKM	Introduction to mathematics	Z	4
	This course is presented in Czech.		
BI-PMA	Programming in Mathematica	Z,ZK	4
Students will be wo	brking with modern technical and scientific software. Students will learn how to use different programming styles (functional programm	ing, rule-based pr	ogramming,
	etc.), how to create dynamic interactive applications and visualisations, data processing and presentations.		
BI-PNO.21	Practical Digital Design	KZ	5
-	verview of the contemporary digital design flow and learn practical skills to use synchronous design techniques. They understand the		
I and implementati			
	on technologies FPGA and ASIC. Students demonstrate practical use of the design techniques in the course project using modern in tools.	dustry-standard C	AD design

BI-PPA.21	Programming Paradigms	Z,ZK	5
The course deals w	vith basic paradigms of high-level programming languages, including their basic execution models, benefits, and disadvantages of par	ticular approaches	. Functional
programming parac	digm and its basic principles are explained in details. Logic programming is introduced as another way of declarative programming. The	e principles are de	emonstrated
on lambda calculu	s and on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstr	eam programming	languages
	such as C++ and Java.		
BI-PRR.21	Project management	Z,ZK	5
The aim of the co	urse is to introduce students into the basic concepts and principles of project management, i.e. methods of planning, teamwork, anal	ysis, crisis manage	ement in a
project, communi	cation, argumentation and meeting management. Students will practice project management techniques (e.g. SWOT analysis, risk as	sessment and mai	nagement,
Gantt charts, res	ource schedule, resource balancing, network graphs) and creation of project documentation. The course is designed especially for st	udents who are int	erested in
deepening their k	nowledge outside IT, consider starting their own company, or have ambitions to work in middle or senior management positions in lar	ge companies. The	e course is
	also suitable for all those who will develop software or hardware in the form of team projects.		
BI-PRS.21	Practical Statistics	KZ	5
	e introduced to methods of applied statistics. They will learn how to work with various types of data, perform analyses, and choose mod		-
	gression and correlation analysis, analysis of variance and non-parametric methods. Students will learn to use the statistical software	-	
	methods on data from real problems.		
BI-PS2	Programming in shell 2	Z,ZK	4
-	eneral overview of available scripting languages, their syntax, semantics, programming style, data structures, pros and cons. In additi	·	-
Students gain a ge	into shell and some other particular scripting languages and will get practical experience with shell script programming.	on, mey gain a dee	per maight
		7 71/	-
BI-PSI.21	Computer Networks	Z,ZK	5
	ces students to the principles of computer networking. It covers basic technologies, protocols, and services commonly used in local r		
	es will be amended by proseminars that introduce students into network programming and demonstrate the abilities of advanced network	-	Students
	actically verify configurations and management of network devices in the lab within the environment of the operating systems Linux a	nd Cisco IOS.	
BI-PST.21	Probability and Statistics	Z,ZK	5
Students will learn	the basics of probabilistic thinking, the ability to synthesize prior and posterior information and learn to work with random variables. T	hey will be able to	apply basic
models of rando	om variable distributions and solve applied probabilistic problems in informatics and computer science. Using the statistical induction	they will be able to	perform
estimations of unk	nown distributional parameters from random sample characteristics. They will also be introduced to the methods for testing statistical	hypotheses and d	etermining
	the statistical dependence of two or more random variables.		
BI-PYT.21	Python Programming	KZ	5
The aim of the co	urse is to get acquainted with basic efficient control and data structures of the Python programming language for text and binary data	processing. The c	lifferences
between philosopl	ny of programming in Python and in other programming languages will be explained. Each topic is prepared for students in the format	of a Jupyter noteb	ook, which
enables greater a	ccent to individual student work. Before each lab, students pass a short test on the last week topic. Four homeworks plus a semester	work will be assign	ned during
	the semester.		
BI-QAP	Quantum algorithms and programming	KZ	5
	ng students hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanics, o	n which quantum te	echnologies
-	porithms showing advantages and limitations of quantum computing. During tutorials students work in open-source software developr	-	-
-	ge. Knowledge of linear algebra at the level of BI-LA1 and BI-LA2 (or BI-LIN) is necessary. Previous completion of BI-MA2 or BI-VMM		
. ,			
			nui r yuion
BI-OLIA	might be an advantage. No previous knowledge of physics is assumed.		-
BI-QUA	might be an advantage. No previous knowledge of physics is assumed. Quality Assurance	KZ	4
This course intro	might be an advantage. No previous knowledge of physics is assumed. Quality Assurance duces students to the fundamentals of testing and quality management. Students will learn what the role of a tester is in the context of	KZ of different types of	4 software
This course intro development and v	might be an advantage. No previous knowledge of physics is assumed. Quality Assurance duces students to the fundamentals of testing and quality management. Students will learn what the role of a tester is in the context of vill experience hands-on application testing using both manual and automated testing. At the end of the semester, the student should	KZ of different types of be prepared to pe	4 software rform a test
This course intro development and v analysis, desig	might be an advantage. No previous knowledge of physics is assumed. Quality Assurance duces students to the fundamentals of testing and quality management. Students will learn what the role of a tester is in the context of vill experience hands-on application testing using both manual and automated testing. At the end of the semester, the student should n a set of test scenarios, prepare test data, automate an appropriate portion of the scenarios, and prepare a report on the bugs found	KZ of different types of be prepared to pe d in the product unit	4 f software rform a test der test.
This course intro development and v analysis, desig BI-SAP.21	might be an advantage. No previous knowledge of physics is assumed. Quality Assurance duces students to the fundamentals of testing and quality management. Students will learn what the role of a tester is in the context of vill experience hands-on application testing using both manual and automated testing. At the end of the semester, the student should in a set of test scenarios, prepare test data, automate an appropriate portion of the scenarios, and prepare a report on the bugs found Computer Structure and Architecture	KZ of different types of be prepared to pe d in the product und Z,ZK	4 software rform a test der test. 5
This course intro development and v analysis, desig BI-SAP.21 Students will get	might be an advantage. No previous knowledge of physics is assumed. Quality Assurance duces students to the fundamentals of testing and quality management. Students will learn what the role of a tester is in the context of vill experience hands-on application testing using both manual and automated testing. At the end of the semester, the student should in a set of test scenarios, prepare test data, automate an appropriate portion of the scenarios, and prepare a report on the bugs found Computer Structure and Architecture acquainted with the basic architecture and units of a digital computer, understand the structure, function, and implementation of arith	KZ of different types of be prepared to pe d in the product und Z,ZK metic-logic unit, c	4 software rform a test der test. 5 ontrollers,
This course intro development and v analysis, desig BI-SAP.21 Students will get	might be an advantage. No previous knowledge of physics is assumed. Quality Assurance duces students to the fundamentals of testing and quality management. Students will learn what the role of a tester is in the context of vill experience hands-on application testing using both manual and automated testing. At the end of the semester, the student should in a set of test scenarios, prepare test data, automate an appropriate portion of the scenarios, and prepare a report on the bugs found Computer Structure and Architecture acquainted with the basic architecture and units of a digital computer, understand the structure, function, and implementation of arith unication, methods of data transfers between the units. The logic design and the implementation of a program-controlled simple process	KZ of different types of be prepared to pe d in the product und Z,ZK metic-logic unit, c	4 software rform a test der test. 5 ontrollers,
This course intro development and w analysis, desig BI-SAP.21 Students will get memory, I/O comm	might be an advantage. No previous knowledge of physics is assumed. Quality Assurance duces students to the fundamentals of testing and quality management. Students will learn what the role of a tester is in the context of will experience hands-on application testing using both manual and automated testing. At the end of the semester, the student should in a set of test scenarios, prepare test data, automate an appropriate portion of the scenarios, and prepare a report on the bugs found Computer Structure and Architecture acquainted with the basic architecture and units of a digital computer, understand the structure, function, and implementation of arith unication, methods of data transfers between the units. The logic design and the implementation of a program-controlled simple proces in the labs using programmable circuits (FPGA), a single-chip microcomputer, and modern design (EDA) tools.	KZ of different types of be prepared to pe d in the product und Z,ZK metic-logic unit , c ssor is practically in	4 software rform a test der test. 5 ontrollers, nplemented
This course intro development and w analysis, desig BI-SAP.21 Students will get memory, I/O comm BI-SCE1	might be an advantage. No previous knowledge of physics is assumed. Quality Assurance duces students to the fundamentals of testing and quality management. Students will learn what the role of a tester is in the context of vill experience hands-on application testing using both manual and automated testing. At the end of the semester, the student should in a set of test scenarios, prepare test data, automate an appropriate portion of the scenarios, and prepare a report on the bugs found Computer Structure and Architecture acquainted with the basic architecture and units of a digital computer, understand the structure, function, and implementation of arith unication, methods of data transfers between the units. The logic design and the implementation of a program-controlled simple process in the labs using programmable circuits (FPGA), a single-chip microcomputer, and modern design (EDA) tools. Computer Engineering Seminar I	KZ of different types of be prepared to pe d in the product und Z,ZK metic-logic unit , c ssor is practically in Z	4 software rform a test der test. 5 ontrollers, nplemented 4
This course intro development and v analysis, desig BI-SAP.21 Students will get memory, I/O comm BI-SCE1 The Seminar of Co	might be an advantage. No previous knowledge of physics is assumed. Quality Assurance duces students to the fundamentals of testing and quality management. Students will learn what the role of a tester is in the context of vill experience hands-on application testing using both manual and automated testing. At the end of the semester, the student should in a set of test scenarios, prepare test data, automate an appropriate portion of the scenarios, and prepare a report on the bugs found Computer Structure and Architecture acquainted with the basic architecture and units of a digital computer, understand the structure, function, and implementation of arith unication, methods of data transfers between the units. The logic design and the implementation of a program-controlled simple process in the labs using programmable circuits (FPGA), a single-chip microcomputer, and modern design (EDA) tools. Computer Engineering Seminar I mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to	KZ of different types of be prepared to pe d in the product und Z,ZK metic-logic unit , c ssor is practically in Z o failures and attack	4 software rform a test der test. 5 ontrollers, nplemented 4 ks. Students
This course intro development and v analysis, desig BI-SAP.21 Students will get memory, I/O comm BI-SCE1 The Seminar of Co are approached in	might be an advantage. No previous knowledge of physics is assumed. Quality Assurance duces students to the fundamentals of testing and quality management. Students will learn what the role of a tester is in the context of will experience hands-on application testing using both manual and automated testing. At the end of the semester, the student should n a set of test scenarios, prepare test data, automate an appropriate portion of the scenarios, and prepare a report on the bugs found Computer Structure and Architecture acquainted with the basic architecture and units of a digital computer, understand the structure, function, and implementation of arith unication, methods of data transfers between the units. The logic design and the implementation of a program-controlled simple proces in the labs using programmable circuits (FPGA), a single-chip microcomputer, and modern design (EDA) tools. Computer Engineering Seminar I mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the	KZ of different types of be prepared to pe d in the product und Z,ZK metic-logic unit , c ssor is practically in Z o failures and attack subject is work wit	4 software rform a test der test. 5 ontrollers, nplemented 4 ks. Students th scientific
This course intro development and v analysis, desig BI-SAP.21 Students will get memory, I/O comm BI-SCE1 The Seminar of Co are approached in	might be an advantage. No previous knowledge of physics is assumed. Quality Assurance duces students to the fundamentals of testing and quality management. Students will learn what the role of a tester is in the context of vill experience hands-on application testing using both manual and automated testing. At the end of the semester, the student should in a set of test scenarios, prepare test data, automate an appropriate portion of the scenarios, and prepare a report on the bugs found Computer Structure and Architecture acquainted with the basic architecture and units of a digital computer, understand the structure, function, and implementation of arith unication, methods of data transfers between the units. The logic design and the implementation of a program-controlled simple process in the labs using programmable circuits (FPGA), a single-chip microcomputer, and modern design (EDA) tools. Computer Engineering Seminar I mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to	KZ of different types of be prepared to pe d in the product und Z,ZK metic-logic unit , c ssor is practically in Z o failures and attack subject is work wit	4 software rform a test der test. 5 ontrollers, nplemented 4 ks. Students th scientific
This course intro development and v analysis, desig BI-SAP.21 Students will get memory, I/O comm BI-SCE1 The Seminar of Co are approached in	might be an advantage. No previous knowledge of physics is assumed. Quality Assurance duces students to the fundamentals of testing and quality management. Students will learn what the role of a tester is in the context of vill experience hands-on application testing using both manual and automated testing. At the end of the semester, the student should in a set of test scenarios, prepare test data, automate an appropriate portion of the scenarios, and prepare a report on the bugs found Computer Structure and Architecture acquainted with the basic architecture and units of a digital computer, understand the structure, function, and implementation of arith unication, methods of data transfers between the units. The logic design and the implementation of a program-controlled simple process in the labs using programmable circuits (FPGA), a single-chip microcomputer, and modern design (EDA) tools. Computer Engineering Seminar I mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the professional literature and/or work in K N laboratories. The capacity of the subject is limited by the possibilities of the seminar teacher semester.	KZ of different types of be prepared to pe d in the product und Z,ZK metic-logic unit , c ssor is practically in Z o failures and attack subject is work wit	4 software rform a test der test. 5 ontrollers, nplemented 4 ks. Students th scientific
This course intro development and v analysis, desig BI-SAP.21 Students will get memory, I/O comm BI-SCE1 The Seminar of Co are approached in	might be an advantage. No previous knowledge of physics is assumed. Quality Assurance duces students to the fundamentals of testing and quality management. Students will learn what the role of a tester is in the context of vill experience hands-on application testing using both manual and automated testing. At the end of the semester, the student should in a set of test scenarios, prepare test data, automate an appropriate portion of the scenarios, and prepare a report on the bugs found acquainted with the basic architecture and units of a digital computer, understand the structure, function, and implementation of arith unication, methods of data transfers between the units. The logic design and the implementation of a program-controlled simple proces in the labs using programmable circuits (FPGA), a single-chip microcomputer, and modern design (EDA) tools. Computer Engineering Seminar I mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the professional literature and/or work in K N laboratories. The capacity of the subject is limited by the possibilities of the seminar teacher	KZ of different types of be prepared to pe d in the product und Z,ZK metic-logic unit , c ssor is practically in Z o failures and attack subject is work wit	4 software rform a test der test. 5 ontrollers, nplemented 4 ks. Students th scientific
This course intro development and v analysis, desig BI-SAP.21 Students will get memory, I/O comm BI-SCE1 The Seminar of Co are approached in articles and other p BI-SCE2	might be an advantage. No previous knowledge of physics is assumed. Quality Assurance duces students to the fundamentals of testing and quality management. Students will learn what the role of a tester is in the context of vill experience hands-on application testing using both manual and automated testing. At the end of the semester, the student should in a set of test scenarios, prepare test data, automate an appropriate portion of the scenarios, and prepare a report on the bugs found Computer Structure and Architecture acquainted with the basic architecture and units of a digital computer, understand the structure, function, and implementation of arith unication, methods of data transfers between the units. The logic design and the implementation of a program-controlled simple process in the labs using programmable circuits (FPGA), a single-chip microcomputer, and modern design (EDA) tools. Computer Engineering Seminar I mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the professional literature and/or work in K N laboratories. The capacity of the subject is limited by the possibilities of the seminar teacher semester.	KZ of different types of be prepared to pe d in the product und Z,ZK metic-logic unit , c ssor is practically in Z o failures and attack subject is work wi s. The topics are n	4 software rform a test der test. 5 ontrollers, nplemented 4 ks. Students th scientific ew for each 4
This course intro development and v analysis, desig BI-SAP.21 Students will get memory, I/O comm BI-SCE1 The Seminar of Co are approached in articles and other p BI-SCE2 The Seminar of Co	might be an advantage. No previous knowledge of physics is assumed. Quality Assurance duces students to the fundamentals of testing and quality management. Students will learn what the role of a tester is in the context of vill experience hands-on application testing using both manual and automated testing. At the end of the semester, the student should in a set of test scenarios, prepare test data, automate an appropriate portion of the scenarios, and prepare a report on the bugs found acquainted with the basic architecture and units of a digital computer, understand the structure, function, and implementation of arith unication, methods of data transfers between the units. The logic design and the implementation of a program-controlled simple process in the labs using programmable circuits (FPGA), a single-chip microcomputer, and modern design (EDA) tools. Computer Engineering Seminar I mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the professional literature and/or work in K N laboratories. The capacity of the subject is limited by the possibilities of the seminar teacher semester. Computer Engineering Seminar II	KZ of different types of be prepared to pe d in the product und Z,ZK metic-logic unit , c ssor is practically in Z of ailures and attack subject is work wi s. The topics are n Z of ailures and attack	4 software rform a test der test. 5 ontrollers, nplemented 4 ks. Students th scientific ew for each 4 ks. Students
This course intro development and v analysis, desig BI-SAP.21 Students will get memory, I/O comm BI-SCE1 The Seminar of Co are approached in articles and other p BI-SCE2 The Seminar of Co are approached in	might be an advantage. No previous knowledge of physics is assumed. Quality Assurance duces students to the fundamentals of testing and quality management. Students will learn what the role of a tester is in the context of will experience hands-on application testing using both manual and automated testing. At the end of the semester, the student should in a set of test scenarios, prepare test data, automate an appropriate portion of the scenarios, and prepare a report on the bugs found acquainted with the basic architecture and units of a digital computer, understand the structure, function, and implementation of arithu unication, methods of data transfers between the units. The logic design and the implementation of a program-controlled simple process in the labs using programmable circuits (FPGA), a single-chip microcomputer, and modern design (EDA) tools. Computer Engineering Seminar I mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the professional literature and/or work in K N laboratories. The capacity of the subject is limited by the possibilities of the seminar teacher semester. Computer Engineering Seminar II mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the possibilities of the seminar teacher semester.	KZ of different types of be prepared to pe d in the product und Z,ZK metic-logic unit , c ssor is practically in Z of ailures and attack subject is work wi s. The topics are n Z of ailures and attack subject is work wi	4 software rform a test der test. 5 ontrollers, nplemented 4 ks. Students th scientific ew for each 4 ks. Students th scientific
This course intro development and v analysis, desig BI-SAP.21 Students will get memory, I/O comm BI-SCE1 The Seminar of Co are approached in articles and other p BI-SCE2 The Seminar of Co are approached in	might be an advantage. No previous knowledge of physics is assumed. Quality Assurance duces students to the fundamentals of testing and quality management. Students will learn what the role of a tester is in the context of vill experience hands-on application testing using both manual and automated testing. At the end of the semester, the student should in a set of test scenarios, prepare test data, automate an appropriate portion of the scenarios, and prepare a report on the bugs found acquainted with the basic architecture and units of a digital computer, understand the structure, function, and implementation of arith unication, methods of data transfers between the units. The logic design and the implementation of a program-controlled simple process in the labs using programmable circuits (FPGA), a single-chip microcomputer, and modern design (EDA) tools. Computer Engineering Seminar I mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the semester. Computer Engineering Seminar II mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the semester. Computer Engineering Seminar II mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the dividually within the subject. Each student or group of students solv	KZ of different types of be prepared to pe d in the product und Z,ZK metic-logic unit , c ssor is practically in Z of ailures and attack subject is work wi s. The topics are n Z of ailures and attack subject is work wi	4 software rform a test der test. 5 ontrollers, nplemented 4 ks. Students th scientific ew for each 4 ks. Students th scientific
This course intro development and v analysis, desig BI-SAP.21 Students will get memory, I/O comm BI-SCE1 The Seminar of Co are approached in articles and other p BI-SCE2 The Seminar of Co are approached in articles and other p	might be an advantage. No previous knowledge of physics is assumed. Quality Assurance duces students to the fundamentals of testing and quality management. Students will learn what the role of a tester is in the context of will experience hands-on application testing using both manual and automated testing. At the end of the semester, the student should n a set of test scenarios, prepare test data, automate an appropriate portion of the scenarios, and prepare a report on the bugs found Computer Structure and Architecture acquainted with the basic architecture and units of a digital computer, understand the structure, function, and implementation of arith unication, methods of data transfers between the units. The logic design and the implementation of a program-controlled simple proces in the labs using programmable circuits (FPGA), a single-chip microcomputer, and modern design (EDA) tools. Computer Engineering Seminar I mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the semester. Computer Engineering Seminar II mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the semester.	KZ of different types of be prepared to pe d in the product und Z,ZK metic-logic unit , c ssor is practically in Z of ailures and attack subject is work wi s. The topics are n Z of ailures and attack subject is work wi s. The topics are n	4 software rform a test der test. 5 ontrollers, nplemented 4 ks. Students th scientific ew for each 4 ks. Students th scientific
This course intro development and v analysis, desig BI-SAP.21 Students will get memory, I/O comm BI-SCE1 The Seminar of Co are approached in articles and other p BI-SCE2 The Seminar of Co are approached in articles and other p BI-SCE2	might be an advantage. No previous knowledge of physics is assumed. Quality Assurance duces students to the fundamentals of testing and quality management. Students will learn what the role of a tester is in the context of will experience hands-on application testing using both manual and automated testing. At the end of the semester, the student should in a set of test scenarios, prepare test data, automate an appropriate portion of the scenarios, and prepare a report on the bugs found Computer Structure and Architecture acquainted with the basic architecture and units of a digital computer, understand the structure, function, and implementation of arith unication, methods of data transfers between the units. The logic design and the implementation of a program-controlled simple procest in the labs using programmable circuits (FPGA), a single-chip microcomputer, and modern design (EDA) tools. Computer Engineering Seminar I mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the semester. Computer Engineering Seminar II mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the semester. Computer Engineering Seminar II mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the semester. World Economy and Business	KZ of different types of be prepared to pe d in the product und Z,ZK metic-logic unit , c ssor is practically in Z of failures and attack subject is work wir s. The topics are n Z failures and attack subject is work wir s. The topics are n Z,ZK	4 software rform a test der test. 5 ontrollers, nplemented 4 ks. Students th scientific ew for each 4 ks. Students th scientific ew for each 4
This course intro development and v analysis, desig BI-SAP.21 Students will get memory, I/O comm BI-SCE1 The Seminar of Co are approached in articles and other p BI-SCE2 The Seminar of Co are approached in articles and other p BI-SCE2 The Seminar of Co are approached in articles and other p	might be an advantage. No previous knowledge of physics is assumed. Quality Assurance duces students to the fundamentals of testing and quality management. Students will learn what the role of a tester is in the context of will experience hands-on application testing using both manual and automated testing. At the end of the semester, the student should in a set of test scenarios, prepare test data, automate an appropriate portion of the scenarios, and prepare a report on the bugs found Computer Structure and Architecture acquainted with the basic architecture and units of a digital computer, understand the structure, function, and implementation of arith unication, methods of data transfers between the units. The logic design and the implementation of a program-controlled simple procest in the labs using programmable circuits (FPGA), a single-chip microcomputer, and modern design (EDA) tools. Computer Engineering Seminar I mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the rofessional literature and/or work in K N laboratories. The capacity of the subject is limited by the possibilities of the seminar teacher semester. Computer Engineering Seminar II mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the rofessional literature and/or work in K N laboratories. The capacity of the subject is limited by the possibilities of the seminar teacher semester. World Economy and Business sented in Czech. The course introduces students of technical university to the international business. It does that predominantly by co	KZ of different types of be prepared to pe d in the product und Z,ZK metic-logic unit , c ssor is practically in Z of failures and attack subject is work wir s. The topics are n Z failures and attack subject is work wir s. The topics are n Z,ZK omparing individua	4 software rform a test der test. 5 ontrollers, nplemented 4 ks. Students th scientific ew for each 4 ks. Students th scientific ew for each 4 l countries
This course intro development and v analysis, desig BI-SAP.21 Students will get memory, I/O comm BI-SCE1 The Seminar of Co are approached in articles and other p BI-SCE2 The Seminar of Co are approached in articles and other p BI-SEP This course is pre and key regions of	might be an advantage. No previous knowledge of physics is assumed. Quality Assurance duces students to the fundamentals of testing and quality management. Students will learn what the role of a tester is in the context of will experience hands-on application testing using both manual and automated testing. At the end of the semester, the student should a set of test scenarios, prepare test data, automate an appropriate portion of the scenarios, and prepare a report on the bugs found Computer Structure and Architecture acquainted with the basic architecture and units of a digital computer, understand the structure, function, and implementation of a rith unication, methods of data transfers between the units. The logic design and the implementation of a program-controlled simple procest in the labs using programmable circuits (FPGA), a single-chip microcomputer, and modern design (EDA) tools. Computer Engineering Seminar I mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the rofessional literature and/or work in K N laboratories. The capacity of the subject is limited by the possibilities of the seminar teacher semester. Computer Engineering Seminar II mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the rofessional literature and/or work in K N laboratories. The capacity of the subject is of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the rofessional literature and/or work in K N laboratories. The capacity of the subject is limited by th	KZ of different types of be prepared to pe d in the product und Z,ZK metic-logic unit , c ssor is practically in Z of ailures and attack subject is work wir s. The topics are n Z failures and attack subject is work wir s. The topics are n Z,ZK omparing individua indexes of econom	4 software rform a test der test. 5 ontrollers, nplemented 4 ks. Students th scientific ew for each 4 ks. Students th scientific ew for each 4 l countries nic freedom,
This course intro development and v analysis, desig BI-SAP.21 Students will get memory, I/O comm BI-SCE1 The Seminar of Co are approached in articles and other p BI-SCE2 The Seminar of Co are approached in articles and other p BI-SEP This course is pre and key regions of	might be an advantage. No previous knowledge of physics is assumed. Quality Assurance duces students to the fundamentals of testing and quality management. Students will learn what the role of a tester is in the context of will experience hands-on application testing using both manual and automated testing. At the end of the semester, the student should n a set of test scenarios, prepare test data, automate an appropriate portion of the scenarios, and prepare a report on the bugs found acquainted with the basic architecture and units of a digital computer, understand the structure, function, and implementation of arith unication, methods of data transfers between the units. The logic design and the implementation of a program-controlled simple proces in the labs using programmable circuits (FPGA), a single-chip microcomputer, and modern design (EDA) tools. Computer Engineering Seminar I mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the semester. Computer Engineering Seminar II mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the softensional literature and/or work in K N laboratories. The capacity of the subject is limited by the possibilities of the seminar teacher semester. World Economy and Business nomic development, which are needed for the right investment decision. Seminars help to improve on the knowledge in the form of di soft economy. Students get to know about different religions and cultures, necessary for doing business in diverse societies as w	KZ of different types of be prepared to pe d in the product und Z,ZK metic-logic unit , c ssor is practically in Z of ailures and attack subject is work wir s. The topics are n Z failures and attack subject is work wir s. The topics are n Z,ZK omparing individua indexes of econom	4 software rform a test der test. 5 ontrollers, nplemented 4 ks. Students th scientific ew for each 4 ks. Students th scientific ew for each 4 l countries nic freedom,
This course intro development and v analysis, desig BI-SAP.21 Students will get memory, I/O comm BI-SCE1 The Seminar of Co are approached in articles and other p BI-SCE2 The Seminar of Co are approached in articles and other p BI-SCE9 This course is pre and key regions of corruption and eco	might be an advantage. No previous knowledge of physics is assumed. Quality Assurance duces students to the fundamentals of testing and quality management. Students will learn what the role of a tester is in the context of will experience hands-on application testing using both manual and automated testing. At the end of the semester, the student should n a set of test scenarios, prepare test data, automate an appropriate portion of the scenarios, and prepare a report on the bugs found computer Structure and Architecture acquainted with the basic architecture and units of a digital computer, understand the structure, function, and implementation of arith unication, methods of data transfers between the units. The logic design and the implementation of a program-controlled simple proces in the labs using programmable circuits (FPGA), a single-chip microcomputer, and modern design (EDA) tools. Computer Engineering Seminar I mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the scenester. Computer Engineering Seminar II mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the scenester. Computer Engineering Seminar II mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the scenester. Computer Engineering Seminar II mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividu	KZ of different types of be prepared to pe d in the product unit Z,ZK metic-logic unit, c ssor is practically in Z of failures and attack subject is work wit s. The topics are n Z failures and attack subject is work wit s. The topics are n Z,ZK omparing individual indexes of econom scussions based of	4 software rform a test der test. 5 ontrollers, nplemented 4 ks. Students th scientific ew for each 4 ks. Students th scientific ew for each 4 l countries nic freedom, n individual
This course intro development and v analysis, desig BI-SAP.21 Students will get memory, I/O comm BI-SCE1 The Seminar of Co are approached in articles and other p BI-SCE2 The Seminar of Co are approached in articles and other p BI-SEP This course is pre and key regions of corruption and eco	might be an advantage. No previous knowledge of physics is assumed. Quality Assurance duces students to the fundamentals of testing and quality management. Students will learn what the role of a tester is in the context i vill experience hands-on application testing using both manual and automated testing. At the end of the semester, the student should a a set of test scenarios, prepare test data, automate an appropriate portion of the scenarios, and prepare a report on the bugs found a caquainted with the basic architecture and units of a digital computer, understand the structure, function, and implementation of arith unication, methods of data transfers between the units. The logic design and the implementation of a program-controlled simple proces in the labs using programmable circuits (FPGA), a single-chip microcomputer, and modern design (EDA) tools. Computer Engineering Seminar I mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the rofessional literature and/or work in K N laboratories. The capacity of the subject is limited by the possibilities of the seminar teacher semester. World Economy and Business sented in Czech. The course introduces students of technical university to the international business. It does that predominantly by c 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 di readings. It is advised to take bachelor level of this course BIE-SEP as a prerequisite. Network Programming	KZ of different types of be prepared to pe d in the product unit Z,ZK metic-logic unit, c ssor is practically in Z of failures and attack subject is work wit s. The topics are n Z failures and attack subject is work wit s. The topics are n Z,ZK omparing individual indexes of econom scussions based of Z	4 software rform a test der test. 5 ontrollers, nplemented 4 ks. Students th scientific ew for each 4 ks. Students th scientific ew for each 4 l countries nic freedom, n individual 5
This course intro development and v analysis, desig BI-SAP.21 Students will get memory, I/O comm BI-SCE1 The Seminar of Co are approached in articles and other p BI-SCE2 The Seminar of Co are approached in articles and other p BI-SEP This course is pre and key regions of corruption and eco BI-SIP.21 The course covers	might be an advantage. No previous knowledge of physics is assumed. Quality Assurance duces students to the fundamentals of testing and quality management. Students will learn what the role of a tester is in the context of will experience hands-on application testing using both manual and automated testing. At the end of the semester, the student should a a set of test scenarios, prepare test data, automate an appropriate portion of the scenarios, and prepare a report on the bugs found computer Structure and Architecture acquainted with the basic architecture and units of a digital computer, understand the structure, function, and implementation of arith unication, methods of data transfers between the units. The logic design and the implementation of a program-controlled simple proces in the labs using programmable circuits (FPGA), a single-chip microcomputer, and modern design (EDA) tools. Computer Engineering Seminar I mputer Engineering is a (s)elective course for students solves some interesting topic with the selected supervisor. Part of the rofessional literature and/or work in K N laboratories. The capacity of the subject is limited by the possibilities of the seminar teacher semester. Computer Engineering Seminar II mputer Engineering is a (s)elective course for students solves some interesting topic with the selected supervisor. Part of the rofessional literature and/or work in K N laboratories. The capacity of the subject is limited by the possibilities of the seminar teacher semester. World Economy and Business sented in Czech. The course introduces students of technical university to the international business. It does that predominantly by c 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 di readings. It is advised to take bachelor level of this course BIE-SEP as a prerequisite. Netwo	KZ of different types of be prepared to pe d in the product unit Z,ZK metic-logic unit, c ssor is practically in Z of failures and attack subject is work wit s. The topics are n Z of failures and attack subject is work wit s. The topics are n Z,ZK omparing individual indexes of econom scussions based of Z ming using BSD s	4 software rform a test der test. 5 ontrollers, nplemented 4 s. Students th scientific ew for each 4 s. Students th scientific ew for each 4 l countries nic freedom, n individual 5 ockets. The
This course intro development and v analysis, desig BI-SAP.21 Students will get memory, I/O comm BI-SCE1 The Seminar of Co are approached in articles and other p BI-SCE2 The Seminar of Co are approached in articles and other p BI-SEP This course is pre and key regions of corruption and eco BI-SIP.21 The course covers second part is deve	might be an advantage. No previous knowledge of physics is assumed. Quality Assurance duces students to the fundamentals of testing and quality management. Students will learn what the role of a tester is in the context of will experience hands-on application testing using both manual and automated testing. At the end of the semester, the students hould n a set of test scenarios, prepare test data, automate an appropriate portion of the scenarios, and prepare a report on the bugs found Computer Structure and Architecture acquainted with the basic architecture and units of a digital computer, understand the structure, function, and implementation of arith unication, methods of data transfers between the units. The logic design and the implementation of a program-controlled simple proces in the labs using programmable circuits (FPGA), a single-chip microcomputer, and modern design (EDA) tools. Computer Engineering Seminar I mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the rofessional literature and/or work in K. N laboratories. The capacity of the subject is limited by the possibilities of the seminar teacher semester. Computer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the rofessional literature and/or work in K. N laboratories. The capacity of the subject is limited by the possibilities of the seminar teacher semester. World Economy and Business sented in Czech. The course introduces students of technical university to the international business. It does that predominantly by c world economy. Students get to know about different religions and cultures, necessary for	KZ of different types of be prepared to pe d in the product unit Z,ZK metic-logic unit, c ssor is practically in Z of failures and attack subject is work wit s. The topics are n Z of failures and attack subject is work wit s. The topics are n Z,ZK omparing individual indexes of econom scussions based of Z ming using BSD s are technologies. The	4 software rform a test der test. 5 ontrollers, nplemented 4 s. Students th scientific ew for each 4 s. Students th scientific ew for each 4 l countries nic freedom, n individual 5 ockets. The ne final part
This course intro development and v analysis, desig BI-SAP.21 Students will get memory, I/O comm BI-SCE1 The Seminar of Co are approached in articles and other p BI-SCE2 The Seminar of Co are approached in articles and other p BI-SEP This course is pre and key regions of corruption and eco BI-SIP.21 The course covers second part is deve	might be an advantage. No previous knowledge of physics is assumed. Quality Assurance duces students to the fundamentals of testing and quality management. Students will learn what the role of a tester is in the context of will experience hands-on application testing using both manual and automated testing. At the end of the semester, the student should a a set of test scenarios, prepare test data, automate an appropriate portion of the scenarios, and prepare a report on the bugs fourn Computer Structure and Architecture acquainted with the basic architecture and units of a digital computer, understand the structure, function, and implementation of arith unication, methods of data transfers between the units. The logic design and the implementation of a program-controlled simple proces in the labs using programmable circuits (FPGA), a single-chip microcomputer, and modern design (EDA) tools. Computer Engineering Seminar I mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the screenser. Computer Engineering Seminar II mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the screenser. World Economy and Business sented in Czech. The course introduces students of technical university to the international business. It does that predominantly by c world economy. Students get to know about different religions and cultures, necessary for doing business. It does that predominantly by c world economy. Students get to know about different religions and cultures, necessary for doing business an diverse societies as well as nomic development, which are needed for the right investment de	KZ of different types of be prepared to pe d in the product unit Z,ZK metic-logic unit, c ssor is practically in Z of failures and attack subject is work wit s. The topics are n Z of failures and attack subject is work wit s. The topics are n Z,ZK omparing individual indexes of econom scussions based of Z ming using BSD s are technologies. The	4 software rform a test der test. 5 ontrollers, nplemented 4 s. Students th scientific ew for each 4 s. Students th scientific ew for each 4 l countries nic freedom, n individual 5 ockets. The ne final part
This course intro development and v analysis, desig BI-SAP.21 Students will get memory, I/O comm BI-SCE1 The Seminar of Co are approached in articles and other p BI-SCE2 The Seminar of Co are approached in articles and other p BI-SCE9 This course is pre and key regions of corruption and eco BI-SIP.21 The course covers second part is dew introduces basic	might be an advantage. No previous knowledge of physics is assumed. Quality Assurance duces students to the fundamentals of testing and quality management. Students will learn what the role of a tester is in the context of will experience hands-on application testing using both manual and automated testing. At the end of the semester, the student should n as set of test scenarios, prepare test data, automate an appropriate portion of the scenarios, and prepare a report on the bugs found Computer Structure and Architecture acquainted with the basic architecture and units of a digital computer, understand the structure, function, and implementation of arith unication, methods of data transfers between the units. The logic design and the implementation of a program-controlled simple proce- in the labs using programmable circuits (FPGA), a single-chip microcomputer, and modern design (EDA) tools. Computer Engineering Seminar I mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the semester. Computer Engineering Seminar II mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the sofessional literature and/or work in K N laboratories. The capacity of the subject is limited by the possibilities of the seminar teacher semester. World Economy and Business sented in Czech. The course introduces students of technical university to the international business. It does that predominantly by c word 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 dec	KZ of different types of be prepared to pe d in the product unit Z,ZK metic-logic unit, c ssor is practically in Z of failures and attack subject is work wit s. The topics are n Z of failures and attack subject is work wit s. The topics are n Z,ZK omparing individual indexes of econom scussions based of Z ming using BSD s are technologies. The mputer labs using a	4 software rform a test der test. 5 ontrollers, nplemented 4 s. Students th scientific ew for each 4 s. Students th scientific ew for each 4 l countries nic freedom, n individual 5 ockets. The ne final part a chosen
This course intro development and v analysis, desig BI-SAP.21 Students will get memory, I/O comm BI-SCE1 The Seminar of Co are approached in articles and other p BI-SCE2 The Seminar of Co are approached in articles and other p BI-SEP This course is pre and key regions of corruption and eco BI-SIP.21 The course covers second part is devi introduces basic	might be an advantage. No previous knowledge of physics is assumed. Quality Assurance duces students to the fundamentals of testing and quality management. Students will learn what the role of a tester is in the context of will experience hands-on application testing using both manual and automated testing. At the end of the semester, the student should a set of test scenarios, prepare test data, automate an appropriate portion of the scenarios, and prepare a report on the bugs found Computer Structure and Architecture acquainted with the basic architecture and units of a digital computer, understand the structure, function, and implementation of arith unication, methods of data transfers between the units. The logic design and the implementation of a program-controlled simple proces in the labs using programmable circuits (FPGA), a single-chip microcomputer, and modern design (EDA) tools. Computer Engineering Seminar I mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the rofessional literature and/or work in K N laboratories. The capacity of the subject is limited by the possibilities of the seminar teacher semester. Computer Engineering Seminar II mputer Engineering is a (s)elective course for students solves some interesting topic with the selected supervisor. Part of the rofessional literature and/or work in K N laboratories. The capacity of the subject is limited by the possibilities of the seminar teacher semester. World Economy and Business sented in Czech. The course introduces students of technical university to the international business. It does that predominantly by c 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. Semina	KZ of different types of be prepared to per d in the product und Z,ZK metic-logic unit , c ssor is practically in Z of failures and attack subject is work wit s. The topics are n Z of failures and attack subject is work wit s. The topics are n Z,ZK omparing individua indexes of econom scussions based of Z ming using BSD s are technologies. The mputer labs using a Z,ZK	$\frac{4}{1}$ software rform a test der test. 5 ontrollers, nplemented 4 (xs. Students th scientific ew for each 4 (xs. Students th scientific ew for each 4 (xs. Students th scientific ew for each 4 (xs. Students th scientific ew for each 5 ockets. The ne final part a chosen 4
This course intro development and v analysis, desig BI-SAP.21 Students will get memory, I/O comm BI-SCE1 The Seminar of Co are approached in articles and other p BI-SCE2 The Seminar of Co are approached in articles and other p BI-SEP This course is pre and key regions of corruption and eco BI-SIP.21 The course covers second part is devi introduces basic	might be an advantage. No previous knowledge of physics is assumed. Quality Assurance duces students to the fundamentals of testing and quality management. Students will learn what the role of a tester is in the context of will experience hands-on application testing using both manual and automated testing. At the end of the semester, the student should a set of test scenarios, prepare test data, automate an appropriate portion of the scenarios, and prepare a report on the bugs found Computer Structure and Architecture acquainted with the basic architecture and units of a digital computer, understand the structure, function, and implementation of arith unication, methods of data transfers between the units. The logic design and the implementation of a program-controlled simple proces in the labs using programmable circuits (FPGA), a single-chip microcomputer, and modern design (EDA) tools. Computer Engineering Seminar I mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the rofessional literature and/or work in K N laboratories. The capacity of the subject is limited by the possibilities of the seminar teacher semester. World Economy and Business sented in Czech. The course introduces students of technical university to the international business. It does that predominantly by co world economy. Students get to know about different religions and cultures, necessary for doing business in diverse societies as well as nomic development, which are needed for the right investment decision. Seminars help to improve on the knowledge in the form of di readings. It is advised to take bachelor level of this course bif price prices of middle was the series as well as nomic development, which are needed for the right investment decision. Seminars help to improve on the knowledge in the form of di readings	KZ of different types of be prepared to per d in the product und Z,ZK metic-logic unit , c ssor is practically in Z of failures and attack subject is work wit s. The topics are n Z of failures and attack subject is work wit s. The topics are n Z,ZK omparing individua indexes of econom scussions based of Z ming using BSD s are technologies. The mputer labs using a Z,ZK	$\frac{4}{1}$ software rform a test der test. 5 ontrollers, nplemented 4 (xs. Students th scientific ew for each 4 (xs. Students th scientific ew for each 4 (xs. Students th scientific ew for each 4 (xs. Students th scientific ew for each 5 ockets. The ne final part a chosen 4
This course intro development and v analysis, desig BI-SAP.21 Students will get memory, I/O comm BI-SCE1 The Seminar of Co are approached in articles and other p BI-SCE2 The Seminar of Co are approached in articles and other p BI-SCE9 This course is pre and key regions of corruption and eco BI-SIP.21 The course covers second part is devi introduces basic BI-SKJ.21 Students gain a get	might be an advantage. No previous knowledge of physics is assumed. Quality Assurance duces students to the fundamentals of testing and quality management. Students will learn what the role of a tester is in the context of lifexperience hands-on application testing using both manual and automated testing. At the end of the semester, the student should n a set of test scenarios, prepare test data, automate an appropriate portion of the scenarios, and prepare a report on the bugs found computer Structure and Architecture acquainted with the basic architecture and units of a digital computer, understand the structure, function, and implementation of arith unication, methods of data transfers between the units. The logic design and the implementation of a program-controlled simple proce: in the labs using programmable circuits (FPGA), a single-chip microcomputer, and modern design (EDA) tools. Computer Engineering Seminar I mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the rofessional literature and/or work in K N laboratories. The capacity of the subject is limited by the possibilities of the seminar teacher semester. Computer Engineering Seminar II mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance tor dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the rofessional literature and/or work in K N laboratories. The capacity of the subject is limited by the possibilities of the seminar teacher semester.	KZ of different types of be prepared to per d in the product und Z,ZK metic-logic unit , c ssor is practically in C p failures and attack subject is work wit s. The topics are n C p failures and attack subject is work wit s. The topics are n Z,ZK omparing individua indexes of econom scussions based of Z ming using BSD s are technologies. The mputer labs using a Z,ZK on, they gain a dec	$\frac{4}{1}$ software rform a test der test. 5 ontrollers, nplemented 4 (xs. Students th scientific ew for each 4 (xs. Students th scientific ew for each 4 (xs. Students th scientific ew for each 4 (xs. Students th scientific ew for each 5 ockets. The ne final part a chosen 4 eper insight
This course intro development and v analysis, desig BI-SAP.21 Students will get memory, I/O comm BI-SCE1 The Seminar of Co are approached in articles and other p BI-SCE2 The Seminar of Co are approached in articles and other p BI-SCE2 This course is pre and key regions of corruption and eco BI-SIP.21 The course covers second part is dev introduces basic BI-SKJ.21 Students gain a get BI-SOJ	might be an advantage. No previous knowledge of physics is assumed. Quality Assurance duces students to the fundamentals of testing using both manual and automated testing. At the ord of the semester, the students to the semester and a propriate portion of the scenarios, and prepare a report on the bugs found a set of test scenarios, prepare test data, automate an appropriate portion of the scenarios, and prepare a report on the bugs found a set of test scenarios, prepare test data, automate an appropriate portion of the scenarios, and prepare a report on the bugs found acquainted with the basic architecture and units of a digital computer, understand the structure, function, and implementation of arit unication, methods of data transfers between the units. The logic design and the implementation of a program-controlled simple procee in the labs using programmable circuits (FPGA), a single-chip microcomputer, and modern design (EDA) tools. Computer Engineering Seminar I mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the rofessional literature and/or work in K. N laboratories. The capacity of the subject is limited by the possibilities of the seminar teacher semester. Computer Engineering Seminar II mputer Engineering Seminar II World Economy and Business World Economy and Business sented in Czech. The course introduces students of technical university to the international business. It does that predominantly by c world economy. Students get to know about different religions and cultures, necessary for doing business. It does that predominantly by c 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 know	KZ of different types of be prepared to per d in the product und Z,ZK metic-logic unit , c ssor is practically in Z of failures and attack subject is work wit is. The topics are n Z,ZK omparing individua indexes of econom scussions based of Z ming using BSD s are technologies. The mputer labs using a Z,ZK on, they gain a dee Z,ZK	$\frac{4}{1}$ software rform a test der test. 5 ontrollers, nplemented 4 (xs. Students th scientific ew for each 4 (xs. Students th scientific ew for each 4 (xs. Students th scientific ew for each 4 (xs. Students th scientific ew for each 5 ockets. The ne final part a chosen 4 eper insight 4
This course intro development and v analysis, desig BI-SAP.21 Students will get memory, I/O comm BI-SCE1 The Seminar of Co are approached in articles and other p BI-SCE2 The Seminar of Co are approached in articles and other p BI-SCE9 This course is pre and key regions of corruption and eco BI-SIP.21 The course covers second part is dev introduces basic BI-SKJ.21 Students gain a get BI-SOJ Students of the course	might be an advantage. No previous knowledge of physics is assumed. Quality Assurance duces students to the fundamentals of testing and quality management. Students will learn what the role of a tester is in the context of will experience hands-on application testing using both manual and automated testing. At the end of the semester, the student should a a set of test scenarios, prepare test data, automate an appropriate portion of the scenarios, and prepare a report on the bugs found acquainted with the basic architecture and units of a digital computer, understand the structure, function, and implementation of arith unication, methods of data transfers between the units. The logic design and the implementation of a program-controlled simple proces in the labs using programmable circuits (FPGA), a single-chip microcomputer, and modern design (EDA) tools. Computer Engineering Seminar I mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the rofessional literature and/or work in K. N laboratories. The capacity of the subject is limited by the possibilities of the seminar teacher semester. Computer Engineering Seminar II mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the world economy. Students get to know about different religions and cultures, necessary for doing business. It does that predominantly by c world economy. Students get to know about different religions and cultures, necessary for doing business. It does that predominantly by c world economy. Students get to know about different religions and cultures, necessary for doing business in diverse societies as wel	KZ of different types of be prepared to per d in the product und Z,ZK metic-logic unit, c ssor is practically in pailures and attack subject is work wit is. The topics are no Z p failures and attack subject is work wit is. The topics are no Z,ZK p failures and attack subject is work wit is. The topics are no Z,ZK p failures and attack subject is work wit is. The topics are no Z,ZK p failures and attack subject is work wit is. The topics are no Z,ZK p failures and attack subject is work wit is. The topics are no Z,ZK p failures and attack subject is work wit is. The topics are no Z,ZK p failures and attack subject is work wit is. The topics are no Z,ZK p failures and attack subject is work wit is. The topics are no Z,ZK p failures and attack subject is work wit is. The topics are no Z,ZK p failures and attack subject is work wit is. The topics are no Z,ZK p failures and attack subject is work wit is. The topics are no Z,ZK p failures and attack subject is work wit is. The topics are no Z,ZK p failures and attack subject is work wit is. The topics are no Z,ZK p failures and attack subject is work wit is. The topics are no Z,ZK	4 software rform a test der test. 5 ontrollers, nplemented 4 s. Students th scientific ew for each 4 s. Students th scientific ew for each 4 l countries nic freedom, n individual 5 ockets. The ne final part a chosen 4 or's features
This course intro development and v analysis, desig BI-SAP.21 Students will get memory, I/O comm BI-SCE1 The Seminar of Co are approached in articles and other p BI-SCE2 The Seminar of Co are approached in articles and other p BI-SCE9 This course is pre and key regions of corruption and eco BI-SIP.21 The course covers second part is dev introduces basic BI-SKJ.21 Students gain a get BI-SOJ Students of the course	might be an advantage. No previous knowledge of physics is assumed. Quality Assurance duces students to the fundamentals of testing using both manual and automated testing. At the end of the semester, the student should n a set of test scenarios, prepare test data, automate an appropriate portion of the scenarios, and prepare a report on the bugs found acquainted with the basic architecture and units of a digital computer, understand the structure, function, and implementation of ariti unication, methods of data transfers between the units. The logic design and the implementation of a program-controlled simple proces in the labs using programmable circuits (FPGA), a single-chip microcomputer, and modern design (EDA) tools. Computer Engineering Seminar I mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the rofessional literature and/or work in K N laboratories. The capacity of the subject is limited by the possibilities of the seminar teacher semester. Computer Engineering Seminar II mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the rofessional literature and/or work in K N laboratories. The capacity of the subject is limited by the possibilities of the seminar teacher semester. World Economy and Business sented in Czech. The course introduces students of teacision. Seminars help to improve on the knowledge in the form of readings. It is advised to take bachelor level of this course BIE-SEP as a preequisite. Network Programming fundamental topics of programming network applications. It consists of 4 parts. The introducers the principles and applications of middlewae n	KZ of different types of be prepared to per d in the product und Z,ZK metic-logic unit, c ssor is practically in pailures and attack subject is work wit is. The topics are no Z p failures and attack subject is work wit is. The topics are no Z,ZK p failures and attack subject is work wit is. The topics are no Z,ZK p failures and attack subject is work wit is. The topics are no Z,ZK p failures and attack subject is work wit is. The topics are no Z,ZK p failures and attack subject is work wit is. The topics are no Z,ZK p failures and attack subject is work wit is. The topics are no Z,ZK p failures and attack subject is work wit is. The topics are no Z,ZK p failures and attack subject is work wit is. The topics are no Z,ZK p failures and attack subject is work wit is. The topics are no Z,ZK p failures and attack subject is work wit is. The topics are no Z,ZK p failures and attack subject is work wit is. The topics are no Z,ZK p failures and attack subject is work wit is. The topics are no Z,ZK p failures and attack subject is work wit is. The topics are no Z,ZK p failures and attack subject is work wit is. The topics are no Z,ZK	$\frac{4}{1}$ software rform a test der test. 5 ontrollers, nplemented 4 (s. Students th scientific ew for each 4 (s. Students th scientific ew for each 4 (s. Students th scientific ew for each 4 (s. Students th scientific ew for each 5 ockets. The ne final part a chosen 4 eper insight 4 or's features
This course intro development and v analysis, desig BI-SAP.21 Students will get memory, I/O comm BI-SCE1 The Seminar of Co are approached in articles and other p BI-SCE2 The Seminar of Co are approached in articles and other p BI-SCE9 This course is pre and key regions of corruption and eco BI-SIP.21 The course covers second part is dev introduces basic BI-SKJ.21 Students gain a get BI-SOJ Students of the course	might be an advantage. No previous knowledge of physics is assumed. Quality Assurance duces students to the fundamentals of testing and quality management. Students will learn what the role of a tester is in the context of will experience hands-on application testing using both manual and automated testing. At the end of the semester, the student should a a set of test scenarios, prepare test data, automate an appropriate portion of the scenarios, and prepare a report on the bugs found acquainted with the basic architecture and units of a digital computer, understand the structure, function, and implementation of arith unication, methods of data transfers between the units. The logic design and the implementation of a program-controlled simple proces in the labs using programmable circuits (FPGA), a single-chip microcomputer, and modern design (EDA) tools. Computer Engineering Seminar I mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the rofessional literature and/or work in K. N laboratories. The capacity of the subject is limited by the possibilities of the seminar teacher semester. Computer Engineering Seminar II mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the world economy. Students get to know about different religions and cultures, necessary for doing business. It does that predominantly by c world economy. Students get to know about different religions and cultures, necessary for doing business. It does that predominantly by c world economy. Students get to know about different religions and cultures, necessary for doing business in diverse societies as wel	KZ of different types of be prepared to per d in the product und Z,ZK metic-logic unit, c ssor is practically in pailures and attack subject is work wit is. The topics are no Z p failures and attack subject is work wit is. The topics are no Z,ZK p failures and attack subject is work wit is. The topics are no Z,ZK p failures and attack subject is work wit is. The topics are no Z,ZK p failures and attack subject is work wit is. The topics are no Z,ZK p failures and attack subject is work wit is. The topics are no Z,ZK p failures and attack subject is work wit is. The topics are no Z,ZK p failures and attack subject is work wit is. The topics are no Z,ZK p failures and attack subject is work wit is. The topics are no Z,ZK p failures and attack subject is work wit is. The topics are no Z,ZK p failures and attack subject is work wit is. The topics are no Z,ZK p failures and attack subject is work wit is. The topics are no Z,ZK p failures and attack subject is work wit is. The topics are no Z,ZK p failures and attack subject is work wit is. The topics are no Z,ZK p failures and attack subject is work wit is. The topics are no Z,ZK	$\frac{4}{1}$ software rform a test der test. 5 ontrollers, nplemented 4 (s. Students th scientific ew for each 4 (s. Students th scientific ew for each 4 (s. Students th scientific ew for each 4 (s. Students th scientific ew for each 5 ockets. The ne final part a chosen 4 eper insight 4 or's features

BI-SP1.21	Team Software Project 1	KZ	5
	ands-on experience with the analysis, design, and prototyping of a large-scale software system. Theoretical support is provided in the		that runs
concurrently and t	hat teaches students necessary techniques and principles. Teams consisting of 4-6 students will work on a specific project. The teach	er, in the role of th	e team and
project leader, reg	ularly consults with the team (at the seminars) both the formal and material aspects of the software design. The resulting software art	efact will be furthe	r developed
	and finished in the BIE-SP2 course.		
BI-SP2.21	Team Software Project 2	KZ	5
Students gain han	ds-on experience with the iterative development process while working on a large-scale software project. The first iteration is the result	of the BIE-SP1 cou	urse project.
However, in this	follow-up, the functionality, testing, and documentation of the software system being developed will be emphasized. Students will work	in teams of 4-6 pe	eople. The
teach	ner, in the role of the team and project leader, regularly consults with the team (at the seminars) the formal as well as material aspects	of their solution.	
BI-SPS.21	Administration of Computer Networks and Services	Z,ZK	5
The aim of the cou	rrse is to deepen the theoretical knowledge of network technologies and protocols in the environment of network servers administrate	d under the operat	ing systems
Linux and Window	s. 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	experience
	with real network infrastructure.		
BI-SQL.1	Language SQL, advanced	KZ	4
	n knowledge obtained in BI-DBS. Students become familiar with advanced relational and non-relational features of SQL language. In pa		
	queries, OLAP support, object-relational constructions. Part of the course is dedicated to practical database optimization from the point of	-	
	lexes, clusters, index-organized tables, and materialized views. as well as from the point of view query optimization. Execution plan ar	-	-
will be discuss	ed. Lectures will usually discuss SQL standard, but many features will be demonstrated on Oracle DBMS. Seminars are based on Ora PostgreSQL.	icle DBIVIS and par	tially on
		7 71/	
BI-SRC.21	Real-time systems	Z,ZK	5
	he basic knowledge in the real-time (RT) system theory and in the design methods for RT systems including the dependability issues		-
lectures will be ex	perimentally verified in computer labs. The course is mainly focused on embedded RT systems, therefore the design kits in the lab an course.	e life same as in li	IE DIE-VES
BI-ST1		Z	3
	Network Technology 1 riented to providing the students basic information and practical skills from the area of digital and IP networks. The subject is acredited	_	-
The subject is o	CCNA1 - R&S Introduction to Networks.	a under the Cisco i	velacau -
DI CTO		Z	
BI-ST2	Network Technology 2	Z	3
	This course is presented in Czech.	7	
BI-ST3	Network Technology 3	Z	3
	er enhance their knowledge acquired from previous BI-ST1 and BI-ST2 courses. Principles of routing and switching presented during E		
get further exter	ded in the course. Students will be able to start fine-tune protocols' settings to gain certain advantages like increased efficiency, predi simple topology, security, etc.	clability, extension	beyond a
		7	
BI-ST4	Network Technology 4	Z	3
	er enhance their knowledge already acquired from previous BI-ST1, BI-ST2, and BI-ST3 courses. Principles of routing and switching ot further extended in BI-ST3. Students were able to start fine-tune protocols' settings to gain certain advantages like increased effici		
-	e topology, security, etc. This module teaches students to configure and fine-tune Wide Area Networks and to experience a completely		
	le Access) which radically differs from well-known Ethernet (broadcast) type of networks. Students will also manage router and switch		
	mergency procedures. Also the security aspect is treated; students will learn possible intra- and inter-network attacks and the mitigation		
	network running.		itali ili g ti lo
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 archi	· ·	
	load balancing and high availability.	ring, do do do do	ago ocanng,
BI-SVZ.21	Machine vision and image processing	Z,ZK	5
	are becoming a common part of life by being universally available. Related to this phenomenon is the need to process and evaluate in		-
-	s to different types of camera systems and a variety of methods for image and video processing. The course is focused on practical use	-	
	problems of practice that the graduates may encounter.		Ŭ
BI-SWI.21	Software Engineering	Z,ZK	5
	ainted with methods of analysis and design of larger software projects that are typically designed and implemented in teams. They co		
	uring the analysis and design of larger software systems that will be developed in the concurrent course BIE-SP1. Students get hands-t		
using the visual la	anguage UML for modeling and solving software problems. Students learn the basics of object-oriented analysis, architecture design a	and testing. Within	the course,
st	udents also gain a theoretical basis in the field of project management, estimation of costs of software projects, and methods of their	development.	
BI-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 o	overview of
	cybersecurity applications and extend their knowledge from the cryptology, the secure code, and system, network, and hardware	security.	
BI-TDA	Test driven architecture	KZ	4
The course is fo	used on practical examples of how to develop, test, and deploy software with tools like GitLab, Docker, Kubernetes, and more that ar	e well known in the	e DevOps
world. This co	purse 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	r in the semester p	roject.
BI-TDP.21	Documentation and Presentation	KZ	3
The course is focu	sed on the basics of creating electronic documentation with emphasis on the creation of technical reports of a larger scope, typically fi	nal university these	es. Students
learn to create tex	t 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	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.	Within the
	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
This course is pres	ented in Czech. This course gives basics of programming in TeX (plain TeX, ConTeXt, LaTeX, OpTeX, LuaTeX). Te second part of the	course focuses on	typographic
	rules.		
BI-TIS.21	Information Systems	Z,ZK	5
The goal of this c	burse is to familiarise students with the information systems topic and information systems implementation principles. During the court	se, students are in	troduced to
	xisting types of systems and their usage in specific industry segments. Students are familiarised with the CRM, ERP, MRP and other		-
	ntal part of the course is the introduction to key ideas of an information system selection, evaluation of information system benefits, wa	-	-
-	nd information system implementation based on the project management principles. The emphasis is on the initial customer analysis,	-	
I decide whether it is	s better to implement any existing information system or to develop a new one from scratch. These factors determine the information sy	stem implementati	on success.
	of the course information systems security, operation, support, maintenance, legislation impacts, and government information system		

BI-TJV.21	Java Technology	Z,ZK	5
The goal is to provi	de knowledge and skills for developing information systems and applications through concepts used in software development and exp	erience with librarie	es and tools
	from Java language ecosystem. At the course end, the students are able to develop software systems in Java platform.	7 71/	
BI-TPS.21	Computer Networks Technologies	Z,ZK	5 Internet of the
	uces students with basic and advanced technologies, components, and interfaces of contemporary computer networks at the physica ires provide theoretical foundations of these technologies and explain relevant physical principles. In the labs, the respective technolo	-	-
	ortant ones students will get hands-on experience. Thematically, the course covers both local and long-range optical networks, Ethern	•	
	always with focus on high-speed networks.		
BI-TS1	Theoretical Seminar I	Z	4
	ir is intended for students which want to come in deeper contact with contemporary theoretical computer science. It is mostly a classic		
are treated individu	ally and concern themselves with interesting topics from the latest research in the area. Therefore, an integral part of the course is a v	work with scientific	papers and
	other scholarly literature. The capacity is limited by the the potentials of the teachers of the seminar.	7	4
BI-TS2	Theoretical Seminar II religionary theoretical computer science. It is mostly a classic		4
	ar is intended for students which want to come in deeper contact with contemporary theoretical computer science. It is mostly a classic ally and concern themselves with interesting topics from the latest research in the area. Therefore, an integral part of the course is a		
	other scholarly literature. The capacity is limited by the the potentials of the teachers of the seminar.		papere ana
BI-TS3	Theoretical Seminar III	Z	4
Theoretical semina	ir 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 individu	ally and concern themselves with interesting topics from the latest research in the area. Therefore, an integral part of the course is a v	work with scientific	papers and
	other scholarly literature. The capacity is limited by the the potentials of the teachers of the seminar.	7	
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 ally and concern themselves with interesting topics from the latest research in the area. Therefore, an integral part of the course is a v		
	other scholarly literature. The capacity is limited by the the potentials of the teachers of the seminar.		paporo ana
BI-TUR.21	User Interface Design	Z.ZK	5
	asic overview of methods for designing and testing common user interfaces. They get experience to solve the problems where softwa	· · ·	-
communicate with	the user optimally, since the needs and characteristics of users are not taken into account during product development. Students gain	n an overview of m	ethods that
	bring users into the development process to ensure optimal interface for them.		
BI-TWA.21	Design of Web Applications	Z,ZK	5
	e of web application development. Initially, the students become familiar with HTTP and its possibilities and partly with some propertie and presentation of document on the Web (CSS). These skills provide the necessary basis for the development of Web applications, version of the development of Web applications.		-
	acilitate the development of Web pages applications. Server side will be demonstrated on PHP technology using frameworks Symfony		
	on the client side will be demonstrated using a JavaScript language with library jQuery and possibly MV* framework React		
BI-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	t the lowest
-	oduced to the function of a transistor. They will understand why processors generate heat, why cooling is necessary, and how to redu		
limits to the maxim	num operating frequency are and how to raise them; why a computer bus needs to be terminated, what happens if it is not; how a com	nputer power suppl	y looks like
BI-UKB.21	(in principle). In the labs, students model the behavior of basic electrical circuits in SW Mathematica. Introduction to Cybersecurity	Z.ZK	5
	urse is to provide students with the introduction of basic concepts in modern approach to cybersecurity. Students will get a basic over	, ,	-
	and attacker techniques, security mechanisms in networks, operating systems and applications, as well as of basic cyberspace reg		.,
BI-ULI	Introduction to Linux	Z	2
Students become	familiar with the basics of the Linux operating system using e-learning form. They learn to work with the command line and become f		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
	g systems represent a large family mostly open-source codes that kept bringing during the history of computers efficient innovative fu uters and their networks and clusters. The most popular OS today, Android, has a unix kernel. Students get overview of basic propert		
	eads, access rights and user identity, filters, or handling files in a file system. They learn to use practically these systems at the level of		
	e 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
The course aims to	introduce students in an accessible form to various branches of theoretical computer science and combinatorics. In contrast to the base	asic courses, we a	oproach the
	tions to theory. Together, we will first refresh the basic knowledge needed to design and analyze algorithms and introduce some basic		
	ticipation of students, we will focus on solving popular and easily formulated problems from various areas of (not only theoretical) info		
will select probler	ns to be solved will include, for example, graph theory, combinatorial and algorithmic game theory, approximation algorithms, optimize also try to implement solutions to the studied problems with a special focus on the effective use of existing tools.	ation and more. Stu	idents will
BI-VDC.21	Virtualization and Data Centers	Z,ZK	5
	rse is to familiarize students with technology basis of cloud computer systems. It shows principles and techniques used in design and		
	h as various kinds of virtualization and high availability of servers, storages, and software layers. The course guides through data cer	-	
to public and hyb	rid clouds. Student learn current trends in the architecture of IT infrastructure and its configuration for classic and cloud applications.	Students will under	stand the
-	ation, and operation of complex infrastructures for modern applications with respect to scalability and protection against overloads, ou	-	
BI-VES.21	Embedded Systems	Z,ZK	5
Students learn to d	esign embedded systems and develop software for them. They get basic knowledge of the most common microcontrollers and embedd peripheral circuits, programming methods, and applications. They get practical skills with development kits and tools.	eu processors, thei	i integrated
BI-VHS	Virtual game worlds	ZK	4
	tudents to create a complex virtual world. The course is a continuation of basic graphical courses (MGA, PGR, BLE,). This current stud		
	the theory of game design, principles of writing dialogues and characters in order to create a functional and complex virtual world. The	-	
	the course MI-PVR with the task of converting scenes and their dynamics into a fully virtual environment suitable for VR device		
BI-VIZ.21	Data Visualization	KZ	5
	an overview of the types and characteristics of data as well as suitable visualization methods. This will aid the students in understanding	-	
	eas such as data mining and machine learning. Within the course, students will be introduced to exploratory data analysis, preprocess		-
unierent kinds of da	ata such as text, social networks, time series or basic image data processing. Students will get hands-on experience in applications of s examples in the Python programming language.	selected methods to	J real-world
1			

BI-VMM	Selected Mathematical Methods	Z,ZK	4			
-	s with an introduction to the analysis of complex functions of a complex variable. Next, we present the Lebesgue integral. We then ad					
	er, we introduce and study the properties of the Discrete Fourier Transform (DFT) and its fast implementation (FFT). We discuss the we the linear programming problem in more detail and its solution using the Simplex algorithm. Each topic is demonstrated with interesting the structure of the str		/e examine			
BI-VPS.21	Selected Topics in Computer Networking	Z.ZK	5			
	upon the Computer Networks course (BI-PSI), obligatory for the program. Students will learn in detail principles, protocols, and technology	. ,				
	al area networks up to Internet, with focus on switching, routing, security, and virtualization. The emphasis will be on gaining practical	•				
	vices in the lab and learning important methods of local area and wide area networks from the viewpoint of functionality, performance	-				
BI-VR1	Virtual reality I	KZ	4			
Introduction to Virt	ual Reality (VR), virtual reality operating system and virtual reality creation. Another objective is to meet the rules and requirements of	virtual worlds com	munication.			
The course focus	ses on the ways of teaching using virtual reality technologies and interactive activities in educational virtual 3D worlds. It improves con	nputational thinking	g, empathy			
	and shared social activities.					
BI-VR2	Virtual reality II	KZ	3			
Continuation of the	e course Virtual Reality I. The new course focuses on collaborative telepresence, spatial computing and social life of avatars. The obje for computer science and gamification in various social metaverse and desktop engines.	ctive is to develop a	applications			
BI-VWM.21	Searching the Web and Multimedia Databases	Z,ZK	5			
	ic overview about search techniques in the web environment that is interpreted as a very large distributed and heterogeneous storag	1 · · ·				
-	information about search techniques in text and hypertext documents (the web pages themselves) and about feature extraction from					
knowledge of simila	arity search in multimedia databases (generally in collections of unstructured data). They also learn techniques for programming web se	arch engines for the	e mentioned			
data types (documents).						
BI-ZIVS	Intelligent Embedded System Fundamentals	KZ	4			
	led system fundamentals course is focused on high-level technology embedded systems integrating artificial intelligence. The aim of the					
	robot control and development of applications in a graphical development environment. Lectures provide fundamentals of motion cont	-				
	avigation and development tools. In labs, students program a set of basic task by using the robot simulator and real hardware to get p technologies.					
BI-ZNF	PHP Framework Nette - basics	KZ	3			
	the basics of PHP framework Nette. They will learn how to practically work with MVP architecture and various libraries of this Czech po	1 1				
	knowledge should serve for the efficient creation of a web backend in PHP language.		Ŭ			
BI-ZPI	Process engineering	KZ	4			
Students will learn	fundamentals of process engineering in this subject. Students will get necessary foundations for understanding formal principles of p	rocess modelling a	and they will			
learn basics of the	used notations (UML, BPMN, BORM). The focus in this subject lies in training of practical skills of formalisation and modelling of bus	iness processes us	sing modern			
CASE tools. The re	ole of process engineering for information systems development is discussed as well as its importance in the overall context of inform	ation and business	strategy of			
DI 700.04	an enterprise.	7 71				
BI-ZRS.21	Basics of System Control	Z,ZK	5			
-	an introduction to the field of automatic control. Students will gain knowledge in this rapidly evolving field of great future. We will focu ering and physical systems. We will provide basic information from the feedback control of linear dynamical SISO systems, description	-	-			
-	ic systems analysis and design verification, simple PID feedback, PSD, and fuzzy controllers. Students will learn the methods of creat					
	linear dynamic systems analysis and design verification and simple PID feedback, PSD, and fuzzy controllers. Attention is also giver		-			
control loops, issu	ies of stability in control systems, single and continuous adjustment of the controller parameters, and certain aspects of the industrial	implementation of	continuous			
	and digital controllers and PLC control.					
BI-ZS10	Bachelor internship abroad for 10 credits	Z	10			
	n once within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scientific and/or re					
	an of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of the profession y courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Every 10 credits cor					
	a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can be divided int					
	exceeds the academic year's dead-line.	, ,	•			
BI-ZS20	Bachelor internship abroad for 20 credits	Z	20			
	n once within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scientific and/or re	search institution.				
	an of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of the profession					
	y courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Every 10 credits cor					
employment with a	a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can be divided int	o two subjects if th	e internship			
DI 7000	exceeds the academic year's dead-line.	Z				
BI-ZS30	Bachelor internship abroad for 30 credits n once within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scientific and/or re		30 Boforo tho			
	an of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of the professional content.					
	y courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Every 10 credits cor					
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 int	o two subjects if th	e internship			
	exceeds the academic year's dead-line.					
BI-ZSB.21	Basics of System Security	Z,ZK	5			
-	ourse is to provide introduction to basic concepts in security of computer systems. Further, the course introduces the basics of forens	-				
such as malware	analysis or incident response. After finishing the course student will get both theoretical and practical knowledge in the area of model as well as skills needed for independent work in the area of operating system security incident analysis.	n operating system	hs security,			
BI-ZUM.21	Artificial Intelligence Fundamentals	Z,ZK	5			
		1 1				
Basic course on introduction to artificial intelligence with emphasis on symbolic techniques. The design of an intelligent agent and the techniques needed to create it will be discussed, especially at the decision-making level. The intelligent agent in the context of the course can be represented for example by a physical robot, but also by a non-physical entity, such						
as a virtual assistant or a character in a computer game. We will not only introduce the basics, but also show the current state-of-the-art during the course.						
BI-ZWU	Introduction to Web and User Interfaces	Z,ZK	4			
	This course is presented in Czech.		·			
BIE-CSI	Introduction to Computer Science	Z	2			
	tory class on Elementary Computer Science for broad audiences: bachelor students in computer science, students majoring in other fi					
-	ool students, anybody with a background in basic math and the desire to understand the absolute basics of computer science. The g					
and relate basic p	principles of computer science for students to understand, early on, what computer science is, why things such as high-level program	ning languages an	a tools are			

done the way they are, and even how, on a basic yet representative and practically relevant level. After taking the class, students are able to answer not just basic computer science questions but also questions about themselves such as which courses to take next and which books to follow up with, ideally realizing if they are interested in computer science more

	than expected, or even less than before.					
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 su	olution methods like	e separation			
of variables. Key theorems on existence and uniqueness establish when solutions can be guaranteed. Linear and system-based ODEs are covered with methods like characteristic						
polynomial analysis, followed by examples of non-linear models such as predator-prey and epidemiological models to showcase real-world applications. Finally, an introduction to						
partial differential	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.	-	4			
BIE-EEC	English language external certificate		4			
The BIE-ECC cours	se can be recognized for any active semester after the submission of a certificate certificate that demonstrates their proficiency in Engli the B2 level of the Common European Framework of Reference for Languages.	sn comparable to o	or exceeding			
BIE-IMA2	Introduction to Mathematics 2	Z	2			
	nd extend knowledge of elementary functions and their properties. Students understand basic mathematical principles and they are a	1 1	1			
Students reliesinal	examples.		in particular			
BIE-SEG	Systems Engineering	Z	0			
	ory class on systems engineering for bachelor students in computer science. The goal of the class is to introduce basic principles of the class is to principle basic		-			
	essor and memory virtualization. Seeing and actually understanding virtualization is the overarching theme of the class. After taking					
understand the	difference between processes and threads as well as emulation and virtualization, what virtual memory is and how it works, what con	ncurrency is, as op	posed to			
	parallelism, and how processes and threads synchronize efficiently to overcome concurrency for communication.					
BIE-ZUM	Artificial Intelligence Fundamentals	Z,ZK	4			
	uced to the fundamental problems in the Artificial Intelligence, and the basic methods for their solving. It focuses mainly on the classic					
space search, multi	i-agent systems, game theory, planning, and machine learning. Modern soft-computing methods, including the evolutionary algorithm	is and the neural ne	etworks, will			
	be presented as well.	_				
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 a second state of the seco		•			
	e useful for students not only in their own publishing activities but also in the preparation of a bachelor's or master's thesis. In the cou icle, what parts such an article should have, and how the peer review process works. Students will also try their hand at presenting an	,				
	course will be taught in blocks, with one lecture at the beginning of the semester and one practicum in the middle of the semester. Da		-			
	on the availability of enrolled students.					
NI-AFP	Applied Functional Programming	KZ	5			
	ented in Czech. Functional programming represents one of the traditional programming paradigms. Traditional and novel functional p	1	-			
the rise nowadays	and the functional paradigm becomes an important construct of traditionally imperative languages (C++, C#, Java). As such, master	ring this paradigm b	becomes a			
	necessary competence of a software engineer: the theory and especially the practice.		_			
NI-DDM	Distributed Data Mining	KZ	4			
Course focuses on	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					
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	to propose			
	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					
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 This course is presented in Czech.	and will be capable	to propose			
data processing fra NI-DSP NI-DZO	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 This course is presented in Czech. Digital Image Processing	Z,ZK	to propose 4 4			
data processing fra NI-DSP NI-DZO This course prese	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 This course is presented in Czech. Digital Image Processing Ints a comprehensive overview of modern methods for interactive editing of digital images and video. It mainly deals with practical algorithms and solve the solve of the solve o	AND WILL be capable Z,ZK Z,ZK gorithms that are bo	to propose 4 4 oth easy to			
Atta processing fra NI-DSP NI-DZO This course prese implement and have	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 This course is presented in Czech. Digital Image Processing	AND WILL BE CAPABLE Z,ZK Z,ZK gorithms that are bo so valuable outside	4 4 oth easy to e the domain			
Atta processing fra NI-DSP NI-DZO This course prese implement and have of digital image p	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 This course is presented in Czech. Digital Image Processing Ints a comprehensive overview of modern methods for interactive editing of digital images and video. It mainly deals with practical algor e an interesting theoretical basis. Visually attractive applications provide better understanding of basic theoretical background that is also	Z,ZK Z,ZK gorithms that are be so valuable outside compression, de-b	4 4 oth easy to the domain plurring in			
Atta processing fra NI-DSP NI-DZO This course prese implement and have of digital image p frequency domain,	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 This course is presented in Czech. Digital Image Processing Ints a comprehensive overview of modern methods for interactive editing of digital images and video. It mainly deals with practical algore an interesting theoretical basis. Visually attractive applications provide better understanding of basic theoretical background that is also processing. This course will introduce algorithms solving the following practical applications: edge-aware editing, tone mapping, HDR	Z,ZK Z,ZK gorithms that are be so valuable outside compression, de-te version, context en	4 4 oth easy to e the domain olurring in hancement,			
Ata processing fra NI-DSP NI-DZO This course prese implement and have of digital image p frequency domain, interactive as-rig NI-IAM	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 This course is presented in Czech. Digital Image Processing Interactive editing of digital images and video. It mainly deals with practical algorithms are interesting theoretical basis. Visually attractive applications provide better understanding of basic theoretical background that is also processing. This course will introduce algorithms solving the following practical applications: edge-aware editing, tone mapping, HDR abstraction, hybrid images, gradient domain editing, seamless image stitching and cloning, digital photo-montage, color-to-gray convigid-as-possible image deformation, free-form image registration, texture synthesis, interactive segmentation, colorization, painting, an Internet and Multimedia	Z,ZK Z,ZK z,ZK z,ZK zorithms that are be so valuable outside compression, de-t version, context en dding depth, alpha Z,ZK	4 4 oth easy to e the domain olurring in hancement, matting. 4			
Atta processing fra NI-DSP NI-DZO This course prese implement and have of digital image p frequency domain, interactive as-rig NI-IAM The NI-IAM course	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 This course is presented in Czech. Digital Image Processing ants a comprehensive overview of modern methods for interactive editing of digital images and video. It mainly deals with practical algorithms rowide better understanding of basic theoretical background that is also processing. This course will introduce algorithms solving the following practical applications: edge-aware editing, tone mapping, HDR abstraction, hybrid images, gradient domain editing, seamless image stitching and cloning, digital photo-montage, color-to-gray convigid-as-possible image deformation, free-form image registration, texture synthesis, interactive segmentation, colorization, painting, ar Internet and Multimedia se is focused on principles and modern technologies for network transmissions of audiovisual (AV) signals. The syllabus includes acquired to	Z,ZK Z,ZK Z,ZK z,ZK z,ZK z,ZK z,ZK z,ZK	4 4 oth easy to the domain olurring in hancement, matting. 4 als (input),			
Atta processing fra NI-DSP NI-DZO This course prese implement and have of digital image p frequency domain, interactive as-rig NI-IAM The NI-IAM course presentation of AV	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 This course is presented in Czech. Digital Image Processing ants a comprehensive overview of modern methods for interactive editing of digital images and video. It mainly deals with practical algorithms concessing. This course will introduce algorithms solving the following practical applications: edge-aware editing, tone mapping, HDR abstraction, hybrid images, gradient domain editing, seamless image stitching and cloning, digital photo-montage, color-to-gray convigid-as-possible image deformation, free-form image registration, texture synthesis, interactive segmentation, colorization, painting, ar Internet and Multimedia se is focused on principles and modern technologies for network transmissions of audiovisual (AV) signals. The syllabus includes acq signals (output), network communication protocols, device interfaces, codecs, data formats and stereoscopy. We will look at practical to the state of the syllabus includes acquered to the state of the syllabus includes acquered to the state of the syllabus includes acquered to the syl	Z,ZK Z,ZK Z,ZK z,ZK z,ZK z,ZK z,ZK z,ZK	4 4 0th easy to the domain olurring in hancement, matting. 4 als (input), of real-time			
Atta processing fra NI-DSP NI-DZO This course prese implement and have of digital image p frequency domain, interactive as-rig NI-IAM The NI-IAM course presentation of AV audiovisual transm	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 This course is presented in Czech. Digital Image Processing ants a comprehensive overview of modern methods for interactive editing of digital images and video. It mainly deals with practical algorithms solving the following practical applications: edge-aware editing, tone mapping, HDR abstraction, hybrid images, gradient domain editing, seamless image stitching and cloning, digital photo-montage, color-to-gray conv gid-as-possible image deformation, free-form image registration, texture synthesis, interactive segmentation, colorization, painting, ar Internet and Multimedia se is focused on principles and modern technologies for network transmissions of audiovisual (AV) signals. The syllabus includes acq signals (output), network communication protocols, device interfaces, codecs, data formats and stereoscopy. We will look at practical on insistons. Within the labs, students will practically assemble AV transmission chains using HW and SW technologies and verify the eff	Z,ZK Z,ZK Z,ZK z,ZK z,ZK z,ZK z,ZK z,ZK	4 4 0th easy to the domain olurring in hancement, matting. 4 als (input), to freal-time ponents on			
Atta processing fra NI-DSP NI-DZO This course prese implement and have of digital image p frequency domain, interactive as-rig NI-IAM The NI-IAM course presentation of AV audiovisual transm	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 This course is presented in Czech. Digital Image Processing ants a comprehensive overview of modern methods for interactive editing of digital images and video. It mainly deals with practical algorithms solving the following practical applications: edge-aware editing, tone mapping, HDR abstraction, hybrid images, gradient domain editing, seamless image stitching and cloning, digital photo-montage, color-to-gray conv gid-as-possible image deformation, free-form image registration, texture synthesis, interactive segmentation, colorization, painting, ar Internet and Multimedia se is focused on principles and modern technologies for network transmissions of audiovisual (AV) signals. The syllabus includes acq signals (output), network communication protocols, device interfaces, codecs, data formats and stereoscopy. We will look at practical unissions. Within the labs, students will practically assemble AV transmission chains using HW and SW technologies and verify the effinery of AV transmissions. Students will learn how to build Internet infrastructure for end-to-end AV transmissions from the recording the	Z,ZK Z,ZK Z,ZK z,ZK z,ZK z,ZK z,ZK z,ZK	4 4 0th easy to the domain olurring in hancement, matting. 4 als (input), to freal-time ponents on			
Atta processing fra NI-DSP NI-DZO This course prese implement and have of digital image p frequency domain, interactive as-ric NI-IAM The NI-IAM course presentation of AV audiovisual transm the quality and later	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 This course is presented in Czech. Digital Image Processing ants a comprehensive overview of modern methods for interactive editing of digital images and video. It mainly deals with practical algorithms. This course is presented in czech. Digital Image Processing ants a comprehensive overview of modern methods for interactive editing of digital images and video. It mainly deals with practical algorithms course will introduce algorithms solving the following practical applications: edge-aware editing, tone mapping, HDR abstraction, hybrid images, gradient domain editing, seamless image stitching and cloning, digital photo-montage, color-to-gray convigid-as-possible image deformation, free-form image registration, texture synthesis, interactive segmentation, colorization, painting, ar Internet and Multimedia se is focused on principles and modern technologies for network transmissions of audiovisual (AV) signals. The syllabus includes acq signals (output), network communication protocols, device interfaces, codecs, data formats and stereoscopy. We will look at practical unissions. Within the labs, students will practically assemble AV transmission chains using HW and SW technologies and verify the effinery of AV transmissions. Students will learn how to build Internet infrastructure for end-to-end AV transmissions from the recording the for audience.	Z,ZK Z,ZK gorithms that are be so valuable outside compression, de-te version, context end dding depth, alpha Z,ZK uisition of AV signal use case scenarios ect of various comple e concernence	4 4 oth easy to the the domain olurring in hancement, matting. 4 als (input), of real-time ponents on oresentation			
data processing fra NI-DSP NI-DZO This course prese implement and have of digital image p frequency domain, interactive as-rig NI-IAM The NI-IAM cours presentation of AV audiovisual transm the quality and later NI-LSM	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 This course is presented in Czech. Digital Image Processing Interesting theoretical basis. Visually attractive applications provide better understanding of basic theoretical background that is also processing. This course will introduce algorithms solving the following practical applications: edge-aware editing, tone mapping, HDR abstraction, hybrid images, gradient domain editing, seamless image stitching and cloning, digital photo-montage, color-to-gray convigid-as-possible image deformation, free-form image registration, texture synthesis, interactive segmentation, colorization, painting, are is focused on principles and modern technologies for network transmissions of audiovisual (AV) signals. The syllabus includes acq signals (output), network communication protocols, device interfaces, codecs, data formats and stereoscopy. We will look at practical unissions. Within the labs, students will practically assemble AV transmission chains using HW and SW technologies and verify the effinery of AV transmissions. Students will learn how to build Internet infrastructure for end-to-end AV transmissions from the recording the for audience. Statistical Modelling Lab	And will be capable Z,ZK gorithms that are be so valuable outside compression, de-te version, context end dding depth, alpha Z,ZK uusition of AV signa use case scenarios ect of various comp e scene up to the p	4 4 0th easy to the domain oburring in hancement, matting. 4 als (input), of real-time ponents on oresentation 5			
data processing fra NI-DSP NI-DZO This course prese implement and have of digital image p frequency domain, interactive as-rig NI-IAM The NI-IAM cours presentation of AV audiovisual transm the quality and later NI-LSM The subject is original	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 This course is presented in Czech. Digital Image Processing e an interesting theoretical basis. Visually attractive applications provide better understanding of basic theoretical background that is allo processing. This course will introduce algorithms solving the following practical applications: edge-aware editing, tone mapping, HDR abstraction, hybrid images, gradient domain editing, seamless image stitching and cloning, digital photo-montage, color-to-gray convigid-as-possible image deformation, free-form image registration, texture synthesis, interactive segmentation, colorization, painting, and internet and Multimedia se is focused on principles and modern technologies for network transmissions of audiovisual (AV) signals. The syllabus includes acquisignals (output), network communication protocols, device interfaces, codecs, data formats and stereoscopy. We will look at practical price of AV transmissions. Students will practically assemble AV transmission chains using HW and SW technologies and verify the effinery of AV transmissions. Students will learn how to build Internet infrastructure for end-to-end AV transmissions from the recording the for audience. Statistical Modelling Lab	Z,ZK Z,ZK gorithms that are be so valuable outside compression, de-te version, context end dding depth, alpha Z,ZK usisition of AV signal use case scenarios ect of various comple e scene up to the p KZ put on the effective	4 4 0th easy to the domain oburring in hancement, matting. 4 als (input), of real-time ponents on oresentation 5 use of the			
data processing fra NI-DSP NI-DZO This course prese implement and have of digital image p frequency domain, interactive as-rig NI-IAM The NI-IAM cours presentation of AV audiovisual transm the quality and later NI-LSM The subject is original	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 This course is presented in Czech. Digital Image Processing Interesting theoretical basis. Visually attractive applications provide better understanding of basic theoretical background that is also processing. This course will introduce algorithms solving the following practical applications: edge-aware editing, tone mapping, HDR abstraction, hybrid images, gradient domain editing, seamless image stitching and cloning, digital photo-montage, color-to-gray convigid-as-possible image deformation, free-form image registration, texture synthesis, interactive segmentation, colorization, painting, are is focused on principles and modern technologies for network transmissions of audiovisual (AV) signals. The syllabus includes acq signals (output), network communication protocols, device interfaces, codecs, data formats and stereoscopy. We will look at practical unissions. Within the labs, students will practically assemble AV transmission chains using HW and SW technologies and verify the effinery of AV transmissions. Students will learn how to build Internet infrastructure for end-to-end AV transmissions from the recording the for audience. Statistical Modelling Lab	Z,ZK Z,ZK gorithms that are be so valuable outside compression, de-te version, context end dding depth, alpha Z,ZK usisition of AV signal use case scenarios ect of various comple e scene up to the p KZ put on the effective d analyses of their	4 4 0th easy to the domain oburring in hancement, matting. 4 als (input), of real-time ponents on oresentation 5 use of the			
data processing fra NI-DSP NI-DZO This course prese implement and have of digital image p frequency domain, interactive as-rig NI-IAM The NI-IAM cours presentation of AV audiovisual transm the quality and later NI-LSM The subject is original	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 This course is presented in Czech. Digital Image Processing Interesting theoretical basis. Visually attractive applications provide better understanding of basic theoretical background that is all processing. This course will introduce algorithms solving the following practical applications: edge-aware editing, tone mapping, HDR abstraction, hybrid images, gradient domain editing, seamless image stitching and cloning, digital photo-montage, color-to-gray convigid-as-possible image deformation, free-form image registration, texture synthesis, interactive segmentation, colorization, painting, au Internet and Multimedia se is focused on principles and modern technologies for network transmissions of audiovisual (AV) signals. The syllabus includes acquisitions. Within the labs, students will practically assemble AV transmission chains using HW and SW technologies and verify the effinery of AV transmissions. Students will learn how to build Internet infrastructure for end-to-end AV transmissions from the recording the for audience. Statistical Modelling Lab ented on a single and multi-target tracking. The second half of the semester is focused on the design of methods and algorithms, an one and its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms, an one and its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms, an one and its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms, an one and its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms, and one and its modeling using numpy and scipy. The second half of the seme	Z,ZK Z,ZK gorithms that are be so valuable outside compression, de-te version, context end dding depth, alpha Z,ZK usisition of AV signal use case scenarios ect of various comple e scene up to the p KZ put on the effective d analyses of their	4 4 0th easy to the domain oburring in hancement, matting. 4 als (input), of real-time ponents on oresentation 5 use of the			
data processing fra NI-DSP NI-DZO This course prese implement and have of digital image p frequency domain, interactive as-rig NI-IAM The NI-IAM cours presentation of AV audiovisual transm the quality and later NI-LSM The subject is oria available information NI-MOP	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 This course is presented in Czech. Digital Image Processing Interesting theoretical basis. Visually attractive applications provide better understanding of basic theoretical background that is all processing. This course will introduce algorithms solving the following practical applications: edge-aware editing, tone mapping, HDR abstraction, hybrid images, gradient domain editing, seamless image stitching and cloning, digital photo-montage, color-to-gray convigid-as-possible image deformation, free-form image registration, texture synthesis, interactive segmentation, colorization, painting, ar Internet and Multimedia se is focused on principles and modern technologies for network transmissions of audiovisual (AV) signals. The syllabus includes acq signals (output), network communication protocols, device interfaces, codecs, data formats and stereoscopy. We will look at practical usions. Within the labs, students will practically assemble AV transmission chains using HW and SW technologies and verify the effinery of AV transmissions. Students will learn how to build Internet infrastructure for end-to-end AV transmissions from the recording th for audience. Statistical Modelling Lab ented on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is pro an and its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms, an At this point, the subject is on the border of own research and may result in the topic of final work (diploma or bachelor thesi	Z,ZK Z,ZK gorithms that are be so valuable outside compression, de-be version, context end dding depth, alpha Z,ZK usistion of AV signation use case scenarios ect of various completer of various comp	4 4 oth easy to e the domain oburring in hancement, matting. 4 als (input), o f real-time ponents on oresentation 5 use of the properties.			
data processing fra NI-DSP NI-DZO This course prese implement and have of digital image p frequency domain, interactive as-rig NI-IAM The NI-IAM cours presentation of AV audiovisual transm the quality and later NI-LSM The subject is oria available informatio NI-MOP Object-oriented pro is used to build com	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 This course is presented in Czech. Digital Image Processing Ints a comprehensive overview of modern methods for interactive editing of digital images and video. It mainly deals with practical algo e an interesting theoretical basis. Visually attractive applications provide better understanding of basic theoretical background that is all processing. This course will introduce algorithms solving the following practical applications: edge-aware editing, tone mapping, HDR abstraction, hybrid images, gradient domain editing, seamless image stitching and cloning, digital photo-montage, color-to-gray convide-as-possible image deformation, free-form image registration, texture synthesis, interactive segmentation, colorization, painting, are is focused on principles and modern technologies for network transmissions of audiovisual (AV) signals. The syllabus includes acquisignals (output), network communication protocols, device interfaces, codecs, data formats and stereoscopy. We will look at practical to for audience. Statistical Modelling Lab ented on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is pro and its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms, an At this point, the subject is on the border of own research and may result in the topic of final work (diploma or bachelor these of Modern Object-Oriented Programming in Pharo gramming is currently one of the most widespread paradigms of software creation, especially enterprise information systems, where the part of the king the solute on the knowledge acquired in the course BI-OOP and aim to further deepen the skills	Z,ZK Z,ZK gorithms that are be so valuable outside compression, de-be version, context end dding depth, alpha Z,ZK usition of AV signation use case scenarios ect of various completer of various compl	to propose 4 4 oth easy to e the domain olurring in hancement, matting. 4 als (input), o f real-time ponents on or esentation 5 use of the properties. 4 abstraction olurent			
data processing fra NI-DSP NI-DZO This course prese implement and have of digital image p frequency domain, interactive as-rig NI-IAM The NI-IAM cours presentation of AV audiovisual transm the quality and later NI-LSM The subject is oria available informatio NI-MOP Object-oriented pro is used to build com of object systems	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 This course is presented in Czech. Digital Image Processing Ints a comprehensive overview of modern methods for interactive editing of digital images and video. It mainly deals with practical algo e an interesting theoretical basis. Visually attractive applications provide better understanding of basic theoretical background that is also processing. This course will introduce algorithms solving the following practical applications: edge-aware editing, tone mapping, HDR abstraction, hybrid images, gradient domain editing, seamless image stitching and cloning, digital photo-montage, color-to-gray convide-as-possible image deformation, free-form image registration, texture synthesis, interactive segmentation, colorization, painting, are is focused on principles and modern technologies for network transmissions of audiovisual (AV) signals. The syllabus includes acquisignals (output), network communication protocols, device interfaces, codecs, data formats and stereoscopy. We will look at practical to for audience. Statistical Modelling Lab ented on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is pon and its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms, an At this point, the subject is on the border of own research and may result in the topic of final work (diploma or bachelor thesis) gramming is currently one of the most widespread paradigms of software creation, especially enterprise information systems, where	Z,ZK Qorithms that are be so valuable outside compression, de-be version, context end dding depth, alpha Z,ZK usition of AV signation use case scenarios ect of various completer of various co	to propose 4 4 oth easy to e the domain olurring in hancement, matting. 4 als (input), o f real-time ponents on or esentation 5 use of the properties. 4 abstraction olementation interest. In			
data processing fra NI-DSP NI-DZO This course prese implement and have of digital image p frequency domain, interactive as-rig NI-IAM The NI-IAM cours presentation of AV s audiovisual transm the quality and later NI-LSM The subject is oria available informatio NI-MOP Object-oriented pro is used to build com of object systems addition to deepeni	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 This course is presented in Czech. Digital Image Processing Ints a comprehensive overview of modern methods for interactive editing of digital images and video. It mainly deals with practical algor e an interesting theoretical basis. Visually attractive applications provide better understanding of basic theoretical background that is all processing. This course will introduce algorithms solving the following practical applications: edge-aware editing, tone mapping, HDR abstraction, hybrid images, gradient domain editing, seamless image stitching and cloning, digital photo-montage, color-to-gray connigid-as-possible image deformation, free-form image registration, texture synthesis, interactive segmentation, colorization, painting, are is focused on principles and modern technologies for network transmissions of audiovisual (AV) signals. The syllabus includes acquisignals (output), network communication protocols, device interfaces, codecs, data formats and stereoscopy. We will look at practical to for audience. Statistical Modelling Lab ented on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is point and its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms, an At this point, the subject is on the border of own research and may result in the topic of final work (diploma or bachelor thesis in modern pure object system Pharo (https://pharo.org). The course focuses on individual approach to students, their development in modern pure object system Pharo	Z,ZK Z,ZK gorithms that are be so valuable outside compression, de-be version, context end dding depth, alpha Z,ZK usition of AV signation use case scenarios ect of various completer of various compl	4 4 oth easy to e the domain oburring in hancement, matting. 4 als (input), of real-time ponents on oresentation 5 use of the properties. 4 abstraction otherest. In sets and OO			
data processing fra NI-DSP NI-DZO This course prese implement and have of digital image p frequency domain, interactive as-rig NI-IAM The NI-IAM cours presentation of AV s audiovisual transm the quality and later NI-LSM The subject is oria available informatio NI-MOP Object-oriented pro is used to build com of object systems addition to deepeni technologies in ter	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 This course is presented in Czech. Digital Image Processing Interactive editing of digital images and video. It mainly deals with practical algorithms to comprehensive overview of modern methods for interactive editing of digital images and video. It mainly deals with practical algor e an interesting theoretical basis. Visually attractive applications provide better understanding of basic theoretical background that is all processing. This course will introduce algorithms solving the following practical applications: edge-aware editing, tone mapping, HDR abstraction, hybrid images, gradient domain editing, seamless image stitching and cloning, digital photo-montage, color-to-gray congid-as-possible image deformation, free-form image registration, texture synthesis, interactive segmentation, colorization, painting, are is focused on principles and modern technologies for network transmissions of audiovisual (AV) signals. The syllabus includes acquisignals (output), network communication protocols, device interfaces, codecs, data formats and stereoscopy. We will look at practical to for audience. Statistical Modelling Lab ented on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is pro and its modeling using numpy and scipy. The second hall of the semester is focused on the design of methods and algorithms, an At this point, the subject is on the border of own research and may result in the topic of final work (diploma or bachelor these in pair applications. In this course, we build on the knowledge acquired in the course BI-OOP and aim to further deepen the skills in modern pure object system Pharo (https://pharo.org). The course focuses on individual approach to students, their development ni i	Z,ZK Quite State Quite State <t< td=""><td>to propose 4 4 oth easy to the domain oburring in hancement, matting. 4 als (input), o f real-time ponents on or esentation 5 use of the properties. 4 abstraction blementation interest. In exts and OO Consortium.</td></t<>	to propose 4 4 oth easy to the domain oburring in hancement, matting. 4 als (input), o f real-time ponents on or esentation 5 use of the properties. 4 abstraction blementation interest. In exts and OO Consortium.			
data processing fra NI-DSP NI-DZO This course prese implement and have of digital image p frequency domain, interactive as-rig NI-IAM The NI-IAM cours presentation of AV audiovisual transm the quality and later NI-LSM The subject is orie available informatic NI-MOP Object-oriented pro is used to build com of object systems addition to deepeni technologies in ter NI-MPL	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 This course is presented in Czech. Digital Image Processing Ints a comprehensive overview of modern methods for interactive editing of digital images and video. It mainly deals with practical algo e an interesting theoretical basis. Visually attractive applications provide better understanding of basic theoretical background that is all processing. This course will introduce algorithms solving the following practical applications: edge-aware editing, tone mapping, HDR abstraction, hybrid images, gradient domain editing, seamless image stitching and cloning, digital photo-montage, color-to-gray com gid-as-possible image deformation, free-form image registration, texture synthesis, interactive segmentation, colorization, painting, ar Internet and Multimedia se is focused on principles and modern technologies for network transmissions of audiovisual (AV) signals. The syllabus includes acq signals (output), network communication protocols, device interfaces, codecs, data formats and stereoscopy. We will look at practical lo nissions. Within the labs, students will learn how to build Internet infrastructure for end-to-end AV transmissions from the recording the for audience. Statistical Modelling Lab ented on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is po on and sits point, the subject is on the border of own research and may result in the topic of final work (diploma or bachelor these of averted or were search and may result in the topic of and aim to further deepen the skills in modern upplicable in other OD languages, students will also gain the opportunity to work or modern applications. In this course, we build on the knowledge acquired in the course BI-OOP and aim to further deepen the s	Z,ZK Qorithms that are boso valuable outside compression, de-by compression, context end dding depth, alpha Z,ZK usition of AV signalise case scenarios ect of various complete scene up to the provide analyses of their is). KZ but on the effective d analyses of their is ability to natural so of design and impleteds and areas of on interesting projement in the Pharo C ZK	to propose 4 4 oth easy to the domain oblurring in hancement, matting. 4 als (input), of real-time ponents on or esentation 5 use of the properties. 4 abstraction interest. In exts and OO consortium. 2			
data processing fra NI-DSP NI-DZO This course prese implement and have of digital image p frequency domain, interactive as-rig NI-IAM The NI-IAM cours presentation of AV audiovisual transm the quality and laten NI-LSM The subject is orie available informatic NI-MOP Object-oriented pro is used to build com of object systems addition to deepeni technologies in ter NI-MPL NI-MSI	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 This course is presented in Czech. Digital Image Processing Ints a comprehensive overview of modern methods for interactive editing of digital images and video. It mainly deals with practical alge e an interesting theoretical basis. Visually attractive applications provide better understanding of basic theoretical background that is all orocessing. This course will introduce algorithms solving the following practical applications: edge-aware editing, tone mapping, HDR abstraction, hybrid images, gradient domain editing, seamless image stitching and cloning, digital photo-montage, color-to-gray com- gid-as-possible image deformation, free-form image registration, texture synthesis, interactive segmentation, colorization, painting, au internet and Multimedia es is focused on principles and modern technologies for network transmission chains using HW and SW technologies and verify the effinery of AV transmissions. Students will practically assemble AV transmission chains using HW and SW technologies and verify the effinery of AV transmissions. Students will practically assemble AV transmission chains using HW and SW technologies and verify the effinery of AV transmissions. Students will practically assemble AV transmission chains using HW and SW technologies and verify the effinery of AV transmissions. Students will practically assemble AV transmission chains using HW and SW technologies and verify the effinery of AV transmissions. Students will practically assemble AV transmission chains using HW and SW technologies and verify the effinery of AV transmissions. Students will practically assemble AV transmission chains using HW and SW technologies on the teored finan work (diploma or bachelor these on a single and multi-target tracking. The student both learns the existi	Z,ZK Qorithms that are boso valuable outside compression, de-by compression, context end dding depth, alpha Z,ZK usition of AV signalise case scenarios ect of various complete scene up to the provide the effective d analyses of their is). KZ its ability to natural so design and impleteds and areas of on interesting projement in the Pharo C ZK Z,ZK	to propose 4 4 oth easy to the domain oblurring in hancement, matting. 4 als (input), of real-time ponents on or esentation 5 use of the properties. 4 abstraction interest. In exts and OO consortium. 2 4			
data processing fra NI-DSP NI-DZO This course prese implement and have of digital image p frequency domain, interactive as-rig NI-IAM The NI-IAM cours presentation of AV audiovisual transm the quality and laten NI-LSM The subject is orie available informatic NI-MOP Object-oriented pro is used to build com of object systems addition to deepeni technologies in ter NI-MPL NI-MSI	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 This course is presented in Czech. Digital Image Processing Ints a comprehensive overview of modern methods for interactive editing of digital images and video. It mainly deals with practical alge e an interesting theoretical basis. Visually attractive applications provide better understanding of basic theoretical background that is al processing. This course will introduce algorithms solving the following practical applications: edge-aware editing, tone mapping, HDR abstraction, hybrid images, gradient domain editing, seamless image stitching and cloning, digital photo-montage, color-to-gray congid-as-possible image deformation, free-form image registration, texture synthesis, interactive segmentation, colorization, painting, at Internet and Multimedia e is focused on principles and modern technologies for network transmission of audiovisual (AV) signals. The syllabus includes acq signals (output), network communication protocols, device interfaces, codecs, data formats and stereoscopy. We will look at practical or insistoms. While interactive segments the chiral of audiovisual (AV) signals. The syllabus includes are sented on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is p on and its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms, an At this point, the subject is on the border of own research and may result in the topic of final work (diploma or bachelor thesi in modern applications. In this course, we build on the knowledge acquired in the course BI-OOP and aim to further deepen the skills in modern applications. In this course, we build on the knowledge acquired in the course BI-OOP and aim to further deepenent has full	Z,ZK Qorithms that are boso valuable outside compression, de-by compression, context end dding depth, alpha Z,ZK usition of AV signalise case scenarios ect of various complete scene up to the provide the effective d analyses of their is). KZ its ability to natural so design and impleteds and areas of on interesting projement in the Pharo C ZK Z,ZK	to propose 4 4 oth easy to the domain oblurring in hancement, matting. 4 als (input), of real-time ponents on or esentation 5 use of the properties. 4 abstraction interest. In exts and OO consortium. 2 4			
data processing fra NI-DSP NI-DZO This course prese implement and have of digital image p frequency domain, interactive as-rig NI-IAM The NI-IAM cours presentation of AV audiovisual transm the quality and laten NI-LSM The subject is orie available informatic NI-MOP Object-oriented pro is used to build com of object systems addition to deepeni technologies in ter NI-MPL NI-MSI Mathematical se	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 This course will processing Ints a comprehensive overview of modern methods for interactive editing of digital images and video. It mainly deals with practical algo e an interesting theoretical basis. Visually attractive applications provide better understanding of basic theoretical background that is al processing. This course will introduce algorithms solving the following practical applications: edge-aware editing, tone mapping, HDR abstraction, hybrid images, gradient domain editing, seamless image stitching and cloning, digital photo-montage, color-to-gray consigid-as-possible image deformation, free-form image registration, texture synthesis, interactive segmentation, colorization, painting, at Internet and Multimedia se is focused on principles and modern technologies for network transmissions of audiovisual (AV) signals. The syllabus includes acq signals (output), network communication protocols, device interfaces, codecs, data formats and stereoscopy. We will look at practical to resistions. Within the labs, students will practically assemble AV transmissions chains using HW and SW technologies and verify the eff for audience. Statistical Modelling Lab ented on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is pro an dis modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms, an At this point, the subject is on the border of own research and may result in the topic of final work (diploma or bachelor thesis in modern pure object system Pharo (https://pharco.rg). The course focuses on individual approach to students, their development n ing object programming skills, which are generally applicable in other OO languages, students	Z,ZK Qorithms that are boso valuable outside compression, de-by compression, context end dding depth, alpha Z,ZK quisition of AV signalise case scenarios ect of various completed of various completed of various completed analyses of their is). KZ its ability to natural so design and impleteds and areas of on interesting projement in the Pharo C ZK Z,ZK t model of lambda	to propose 4 4 oth easy to a the domain olurring in hancement, matting. 4 als (input), of real-time ponesentation 5 use of the properties. 4 abstraction olurents on or esentation 5 use of the properties. 4 abstraction olurents on or esentation interest. In exts and OO Consortium. 2 4 calculus.			
data processing fra NI-DSP NI-DZO This course prese implement and have of digital image p frequency domain, interactive as-rig NI-IAM The NI-IAM cours presentation of AV audiovisual transm the quality and later NI-LSM The subject is orig available informatic NI-MOP Object-oriented pro is used to build com of object systems addition to deepeni technologies in ter NI-MSI Mathematical se NI-OLI	amework Apache Spark and with existing distributed DM / ML algorithms. The ywill learn principles of their parallel implementations a approaches to parallelize other algorithms. The course is prezented in czech language. Digital Image Processing Ints a comprehensive overview of modern methods for interactive editing of digital images and video. It mainly deals with practical algor e an interesting theoretical basis. Visually attractive applications provide better understanding of basic theoretical background that is al comprehensive overview of modern methods for interactive editing of digital images and video. It mainly deals with practical algo recreasing. This course will introduce algorithms solving the following practical applications: edge-aware editing, tone mapping, HDR abstraction, hybrid images, gradient domain editing, seamless image stitching and cloning, digital photo-montage, color-to-gray com gid-as-possible image deformation, free-form image registration, texture synthesis, interactive segmentation, colorization, painting, as is focused on principles and modern technologies for network transmissions of audiovisual (AV) signals. The syllabus includes acquisignals (output), network communication protocols, device interfaces, codecs, data formats and stereoscopy. We will look at practical lonissions. Within the labs, students will practically assemble AV transmission chains using HW and SW technologies and verify the eff nev of AV transmissions. Students will learn how to build Internet infrastructure for end-to-end AV transmissions from the recording the for audience. Statistical Modelling Lab ented on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is pon and its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms, an At this point, the subject is on the border of own research and may result in the topic of final work (diploma or bachelor thesil in modern pupic	Z,ZK Z,ZK gorithms that are bo so valuable outside compression, de-b version, context end dding depth, alpha Z,ZK juisition of AV signal use case scenarios ect of various complete scene up to the p KZ but on the effective d analyses of their is). KZ its ability to natural s of design and implete on interesting projement in the Pharo C ZK Z,ZK t model of lambda Z,ZK	to propose 4 4 oth easy to a the domain olurring in hancement, matting. 4 als (input), of real-time ponents on or esentation 5 use of the properties. 4 abstraction olementation interest. In bets and OO Consortium. 2 4 calculus.			
Atta processing fra NI-DSP NI-DZO This course prese implement and have of digital image p frequency domain, interactive as-rig NI-IAM The NI-IAM course presentation of AV audiovisual transm the quality and later NI-LSM The subject is orig available informatic NI-MOP Object-oriented pro is used to build com of object systems addition to deepeni technologies in ter NI-MPL NI-MSI Mathematical se NI-OLI The Linux operating	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 This course will processing Ints a comprehensive overview of modern methods for interactive editing of digital images and video. It mainly deals with practical algo e an interesting theoretical basis. Visually attractive applications provide better understanding of basic theoretical background that is al processing. This course will introduce algorithms solving the following practical applications: edge-aware editing, tone mapping, HDR abstraction, hybrid images, gradient domain editing, seamless image stitching and cloning, digital photo-montage, color-to-gray consigid-as-possible image deformation, free-form image registration, texture synthesis, interactive segmentation, colorization, painting, at Internet and Multimedia se is focused on principles and modern technologies for network transmissions of audiovisual (AV) signals. The syllabus includes acq signals (output), network communication protocols, device interfaces, codecs, data formats and stereoscopy. We will look at practical to resistions. Within the labs, students will practically assemble AV transmissions chains using HW and SW technologies and verify the eff for audience. Statistical Modelling Lab ented on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is pro an dis modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms, an At this point, the subject is on the border of own research and may result in the topic of final work (diploma or bachelor thesis in modern pure object system Pharo (https://pharco.rg). The course focuses on individual approach to students, their development n ing object programming skills, which are generally applicable in other OO languages, students	Z,ZK Z,ZK gorithms that are bo so valuable outside compression, de-b version, context end dding depth, alpha Z,ZK juisition of AV signal use case scenarios ect of various completer of various complet	to propose 4 4 oth easy to a the domain olurring in hancement, matting. 4 als (input), of real-time ponents on or esentation 5 use of the properties. 4 abstraction olementation interest. In lects and OO Consortium. 2 4 and FPGAs			

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 debugging 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. The 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 various variants and 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				
Students will gain knowledge about circuit testing and about methods for increasing reliability and security. They will get practical skills to be able to prepare a test set with the help of							
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 2025-05-19, time 00:01.