Study plan

Name of study plan: Bachelor Specialization Information Security, in Czech, 2024

Faculty/Institute/Others:

Department:

Branch of study guaranteed by the department: Welcome page

Garantor of the study branch: Program of study: Informatika Type of study: Bachelor full-time

Required credits: 153
Elective courses credits: 27
Sum of credits in the plan: 180

Note on the plan: This version of the study plan is intended for students who have been enrolled for study from the academic year 2024/2025 into the full-time form of study of the bachelor's program. Guarantor:

prof. Ing. Róbert Lórencz, CSc., Email: robert.lorenz@fit.cvut.cz

Name of the block: Compulsory courses in the program

Minimal number of credits of the block: 106

The role of the block: PP

Code of the group: BI-PP.21

Name of the group: Compulsory Courses of Bachelor Study Program Informatics, presented in Czech, version

2021

Requirement credits in the group: In this group you have to gain 106 credits

Requirement courses in the group: In this group you have to complete 20 courses

Credits in the group: 106

Note on the group:

If you plan to profile the specialization Information Security, Management Informatics, Computer Networks and Internet, Computer Systems and Virtualization, Software Engineering, or Web Engineering, enroll in the course BI-PSI.21 in your 2nd semester of study. If you plan to profile the specialization Computer Graphics, Computer Engineering, Computer Science, or Artificial Intelligence, enroll in the course BI-PSI.21 in your 4th semester of study. If you plan to profile yourself in the Artificial Intelligence specialization, enroll in the course BI-PST.21 in your 3rd semester of study. Otherwise, enroll in the course BI-PSI.21 in your 5th semester of study. If you plan to profile the specialization Artificial Intelligence or Web Engineering, enroll in the course BI-AAG.21 in your 5th semester of study. Otherwise, enroll in the course BI-PSI.21 in your 3rd semester of study.

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
BI-AG1.21	Algorithms and Graphs 1 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 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 (Gar.)	Z,ZK	5	2P+1R+1C	Z	PP
BI-KAB.21	Cryptography and Security Ivana Trummová, Tomáš Rabas, Tomáš Zahradnický, Ji í Bu ek, Martin Jure ek, Josef Kokeš, Róbert Lórencz, Julia Plotnikova, David Pokorný, 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-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
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-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-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-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-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-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-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-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-GIT.21	SW Development Technologies Petr Pulc, Robin Ob rka Robin Ob rka Petr Pulc (Gar.)	Z	3	2P	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-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

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 curriculum. It links 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 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 notation.

BI-AAG.21 Automata and Grammars

Students are introduced to basic theoretical and implementation principles of the following topics: construction, use and mutual transformations of finite automata, regular expressions, and regular grammars, context-free grammars, construction and use of pushdown automata, and translation grammars and transducers. They know the hierarchy of formal languages

 BI-BAP.21
 Bachelor Thesis
 Z
 14

 BI-BPR.21
 Bachelor project
 Z
 1

and they understand the relationships between formal languages and automata. They are introduced to the Turing machine and complexity classes P and NP.

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 partial tasks that 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 learn to design small databases (including integrity constraints) using a conceptual model and implement them in a relational database engine. They get a hands-on experience with the SQL language, as well as with its theoretical foundation - the relational database model. They learn the principles of normalizing a relational database schema. They understand the fundamental concepts of transaction processing, controlling parallel user access to a single data source, as well as recovering a database engine from a failure. They are briefly introduced to special ways of storing data in relational databases with respect to speed of access to large quantities of data. This introductory-level course does not cover: Administration of database systems, debugging and optimizing database applications, distributed database systems, data stores.

BI-DML.21 Discrete Mathematics and Logic Z,ZK

Students will get acquainted with the basic concepts of propositional logic and predicate logic and learn to work with their laws. Necessary concepts from set theory will be explained. Special attention is paid to relations, their general properties, and their types, especially functional relations, equivalences, and partial orders. The course also lays down the 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 use cryptographic 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 applications. Within 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 field of real and complex 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 elimination 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 eigenvalues and eigenvectors of a matrix. We will also demonstrate some applications of these concepts in computer science.

BI-MA1.21 Mathematical Analysis 1 We begin the course by introducing students to the set of real numbers and its properties, and we note its differences with the set of machine numbers. Then we study real sequences and real functions of a real variable. We gradually introduce the notions of limits of sequences and functions, continuous functions, and derivatives of functions. This theoretical 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 simple optimization problems (i.e., the issue of finding extrema of functions). The course is closed with the Landaus asymptotic notation and methods of mathematical description of complexity of algorithms. Mathematical Analysis 2 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 learn how to integrate by parts and use the substitution method. The next part of the course is devoted to number series, and Taylor polynomials and series. We apply Taylors theorem to the computation of elementary functions with a prescribed accuracy. Then we study the linear recurrence equations with constant coefficients, the complexity of recursive algorithms, and its analysis using the Master theorem. Finally, we introduce the student to the theory of multivariate functions. After establishing basic concepts of partial derivative, gradient, and Hessian matrix, we study the analytical method of localization of local extrema of multivariate functions as well as the numerical descent method. We conclude the course with the integration of multivariate functions. BI-OSY.21 Operating Systems In this course that is a follow-up of the Unix-like operating systems course students deepen their knowledge in areas of OS kernels, process and thread implementations, race conditions, critical regions, thread scheduling, shared resource allocation and deadlocks, management of virtual memory and data storages, file systems, OS monitoring. They are able to design and implement simple multithreaded applications. General principles are illustrated on operating systems Solaris, Linux, or MS Windows. BI-PSI.21 Computer Networks The course introduces students to the principles of computer networking. It covers basic technologies, protocols, and services commonly used in local networks and in the Internet as well. The lectures will be amended by proseminars that introduce students into network programming and demonstrate the abilities of advanced network technologies. Students practically verify configurations and management of network devices in the lab within the environment of the operating systems Linux and Cisco IOS. **Probability and Statistics** Students will learn the basics of probabilistic thinking, the ability to synthesize prior and posterior information and learn to work with random variables. They will be able to apply basic models of random variable distributions and solve applied probabilistic problems in informatics and computer science. Using the statistical induction they will be able to perform estimations of unknown distributional parameters from random sample characteristics. They will also be introduced to the methods for testing statistical hypotheses and determining the statistical dependence of two or more random variables. Programming and Algorithmics 1 Students gain the ability to formulate algorithms for solving basic problems and write them in the C language. They understand data types (simple, structured, pointers), expressions, statements, functions, concept of recursion. They learn to analyse simple cases of algorithm complexity. They know fundamental algorithms for searching, sorting, and manipulating with linked lists and trees BI-PA2.21 Programming and Algorithmics 2 Students know the instruments of object-oriented programming and are able to use them for specifying and implementing abstract data types (stack, queue, enlargeable array, 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 programming, copying/moving of objects, operator overloading, inheritance, polymorphism). Computer Structure and Architecture Students will get acquainted with the basic architecture and units of a digital computer, understand the structure, function, and implementation of arithmetic-logic unit, controllers, memory, I/O communication, methods of data transfers between the units. The logic design and the implementation of a program-controlled simple processor is practically implemented in the labs using programmable circuits (FPGA), a single-chip microcomputer, and modern design (EDA) tools. Technological Fundamentals of Computers Students get acquainted with the fundamentals of digital and analog circuits, as well as basic methods of analyzing them. Students learn how computer structures look like at the lowest level. They are introduced to the function of a transistor. They will understand why processors generate heat, why cooling is necessary, and how to reduce the consumption; what the 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 computer power supply looks like (in principle). In the labs, students model the behavior of basic electrical circuits in SW Mathematica. BI-GIT.21 **SW Development Technologies** 3 This course is aimed at one of the rudimental team software development technology - version control. To be more specific, we will introduce students to Git, the information manager from hell, as Linus Torvalds nicknamed it, and provide a comprehensive guide into its depths, as well as for day-to-day use. BI-TDP.21 **Documentation and Presentation** ΚZ 3 The course is focused on the basics of creating electronic documentation with emphasis on the creation of technical reports of a larger scope, typically final university theses. Students exercises of the course, an active approach to the creation of individual parts of the bachelor's thesis is assumed.

learn to create text of a technical report in the LaTeX system, process an electronic presentation using the LaTeX Beamer system, and practically present it in front of classmates 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

Unix-like Operating Systems

Unix-like operating systems represent a large family mostly open-source codes that kept bringing during the history of computers efficient innovative functions of multiuser operating systems for computers and their networks and clusters. The most popular OS today, Android, has a unix kernel. Students get overview of basic properties of this OS family, 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 level of advanced users 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, called shell.

Name of the block: Compulsory courses in the specialization

Minimal number of credits of the block: 40

The role of the block: PS

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

Name of the group: Compulsory Courses of Specialization Information Security, 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-ADU.21	Unix Administration Zden k Muziká , Petr Zemánek, Miroslav Prágl Zden k Muziká Zden k Muziká (Gar.)	Z,ZK	5	2P+2C	L	PS
BI-ASB.21	Applied Network Security Yelena Trofimova, Ji í Dostál, Jakub Tetera, Michal Polák, Martin Šutovský, Martin Mandík Ji í Dostál Ji í Dostál (Gar.)	Z,ZK	5	2P+2C	Z	PS
BI-APS.21	Architectures of Computer Systems Michal Štepanovský, Pavel Tvrdík Michal Štepanovský Pavel Tvrdík (Gar.)	Z,ZK	5	2P+2C	Z	PS
BI-BEK.21	Secure Code Josef Kokeš Josef Kokeš (Gar.)	Z,ZK	5	2P+2C	L	PS
BI-EHA.21	Ethical Hacking Ji í Dostál, Martin Kolárik, Andrej Šimko Ji í Dostál Ji í Dostál (Gar.)	Z,ZK	5	2P+2C	L	PS
BI-HWB.21	Hardware Security Ji í Bu ek Ji í Bu ek Ji í Bu ek (Gar.)	Z,ZK	5	2P+2C	Z	PS
BI-UKB.21	Introduction to Cybersecurity Ivana Trummová, Jan B Iohoubek, David Pokorný, Jakub Tetera, František Ková, Martin Mandík, Tomáš Lu ák David Pokorný Jan B Iohoubek (Gar.)	Z,ZK	5	3P+1C	Z	PS
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	PS

Characteristics of the courses of this group of Study Plan: Code=BI-IB-PS.21 Name=Compulsory Courses of Specialization Information Security, version 2021

BI-ADU.21 Unix Administration Students will learn the internal structure of the UNIX operating system, with the administration of its basic subsystems and with the security principles. They will understand the differences between user and administrator roles. They will get theoretical and practical knowledge of user management and administration, of users access rights, file systems, disk subsystems, processes, memory, network services and remote access, and in the areas of system deployment and virtualization. In the labs, they will verify the knowledge from the lectures on specific examples from practice.

Applied Network Security

The aim of the course is to introduce selected topics from computer networks in terms of cybersecurity. These topics extend the basic knowledge gained in course BI-PSI with actual security applications like the public key infrastructure, encrypted network protocols, link and network layer security or wireless networks. After finishing the course student will get knowledge of security applications in computer networks.

Architectures of Computer Systems

Students will learn the construction principles of internal architecture of computers with universal processors at the level of machine instructions. Special emphasis is given on the pipelined instruction processing and on the memory hierarchy. Students will understand the basic concepts of RISC and CISC architectures and the principles of instruction processing not only in scalar processors, but also in superscalar processors that can execute multiple instructions in one cycle, while ensuring the correctness of the sequential model of the program. The course further elaborates the principles and architectures of shared memory multiprocessor and multicore systems and the memory coherence and consistency in such systems.

BI-BEK.21 Secure Code

The students will learn how to assess security risks and how to take them into account in the design phase of their own code and solutions. After getting familiar with the threat modeling theory, students gain practical experience with running programs with reduced privileges and methods of specifying these privileges, since not every program needs to run with administrator privileges. Dangers inherent in buffer overflows will be practically demonstrated. Students will be introduced to the principles of securing data and the relationships of security and database systems, web, remote procedure calls, and sockets in general. The module concludes with Denial of Service attacks and the defense against them.

BI-EHA.21 Ethical Hacking

The goal of the course is to introduce students to the field of penetration testing and ethical hacking. The course deals with cybersecurity threats, vulnerabilities, and their possible exploitation in computer networks, web applications, wireless networks, operating systems, and others like the Internet of Things or cloud. The focus is on hands-on experience with vulnerabilities testing and the following process of penetration test documentation.

BI-HWB.21 Hardware Security

The course deals with hardware resources used to ensure security of computer systems including embedded ones. Students become familiar with the operating principles of cryptographic modules, security features of modern processors, and storage media protection through encryption. They will gain knowledge about vulnerabilities of HW resources, including side-channel attacks and tampering with hardware during manufacture. Students will have an overview of contact and contactless smart card technology including applications and related topics for multi-factor authentication (biometrics). Students will understand methods of efficient implementations of ciphers.

BI-UKB.21 Introduction to Cybersecurity

Z,ZK

The goal of the course is to provide students with the introduction of basic concepts in modern approach to cybersecurity. Students will get a basic overview of threats in cyberspace and attacker techniques, security mechanisms in networks, operating systems and applications, as well as of basic cyberspace regulations.

Basics of System Security

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 such as malware analysis or incident response. After finishing the course student will get both theoretical and practical knowledge in the area of modern operating systems security, as well as skills needed for independent work in the area of operating system security incident analysis.

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-IB-PV.21

Name of the group: Compulsory elective courses of the specialization Information Security, 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-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	PV
BI-VES.21	Embedded Systems Miroslav Skrbek Miroslav Skrbek (Gar.)	Z,ZK	5	2P+2C	L	PV
BI-ZUM.21	Artificial Intelligence Fundamentals Pavel Surynek Pavel Surynek Pavel Surynek (Gar.)	Z,ZK	5	2P+2C	L	PV

Characteristics of the courses of this group of Study Plan: Code=BI-IB-PV.21 Name=Compulsory elective courses of the specialization Information Security, version 2021

BI-TAB.21 Applications of Security in Technology Z.ZK 5 The goal of the course is to introduce students to selected topics from cybersecurity technical applications that are utilized in different industries. Students get a broader overview of cybersecurity applications and extend their knowledge from the cryptology, the secure code, and system, network, and hardware security. Z,ZK BI-VES.21 **Embedded Systems** Students learn to design embedded systems and develop software for them. They get basic knowledge of the most common microcontrollers and embedded processors, their integrated peripheral circuits, programming methods, and applications. They get practical skills with development kits and tools BI-ZUM.21 Artificial Intelligence Fundamentals Z,ZK 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

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:

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

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.

Credits in the group: 0

Note on the group:

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
TVK1	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

Note on the group:

BI-ANG, ending with an exam for two credits, is enrolled by students who have completed preparator English courses and have a credit from the BI-A2L course.

br> BI-ANG1, ending with an exam for two credits, 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.

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-ANG1	English Language Examination without Preparatory Courses Kate ina Valentová Kate ina Valentová (Gar.)	Z,ZK	2	2D	L	PJ
BIE-EEC	English language external certificate Zden k Muziká Zden k Muziká Zden k Muziká (Gar.)	Z	4	2D	L	PJ
BI-ANG	English Language, Internal Certificate Kate ina Valentová Kate ina Valentová (Gar.)	ZK	2	2D	Z,L	PJ

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	an be recognized for any active semester after the submission of a certificate certificate that demonstrates their proficiency in E	nglish comparable	e to or exceeding
the B2 level of the Com	mon 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 gro	oup.					
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 Lud k Ku era (Gar.)	Z,ZK	4	2P+1C	L	٧
BI-A2L	English language, preparation for the B2 level exam Kate ina Valentová Kate ina Valentová (Gar.)	Z	2	2C	L	V
BI-APJ	Aplication Programming in Java Ji í Dan ek	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 (Gar.)	KZ	4	2P+2C	L	V
BI-ANGK	English language, contact preparation for the B2 level exam 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 Jií Dan ek Jií Dan ek Jií 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 Solcová 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 (Gar.)	Z	2	2C	Z	V
FITE-EHD	Introduction to European Economic History Tomáš Evan	Z,ZK	3	2P+1C	L	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 (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 (Gar.)	Z,ZK	5	2P+1C	Z	V
NI-MPL	Managerial Psychology Jan Fiala Jan Fiala (Gar.)	ZK	2	2P	Z,L	V
NI-MSI	Mathematical Structures in Computer Science	Z,ZK	4	2P+1C	L	V
BI-MPP.21	Methods of interfacing peripheral devices Miroslav Skrbek Miroslav Skrbek (Gar.)	Z,ZK	5	2P+2C	Z	V
BI-MIT	Mikrotik technologies 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 (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 (Gar.)	KZ	5	4C	L	V
BI-ACM2	Programming Practices 2 Ond ej Suchý, Tomáš Valla Tomáš Valla (Gar.)	KZ	5	4C	Z	V
BI-ACM3	Programming Practices 3 Ond ej Suchý, Tomáš Valla Tomáš Valla (Gar.)	KZ	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 Ji í Dan ek Ji í Dan ek Ji í Dan ek (Gar.)	Z,ZK	4	2P+2C	L	V
NI-PSL	Programming in Scala 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 Lukáš Ba inka	Z,ZK	4	2P+2C	L	V
NI-PDD	Data Preprocessing 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 Josef Kokeš (Gar.)	Z,ZK	5	1P+2C	Z	V
BI-SCE1	Computer Engineering Seminar I Hana Kubátová Hana Kubátová Hana Kubátová (Gar.)	Z	4	2C	L,Z	V
BI-SCE2	Computer Engineering Seminar II	Z	4	2C	L,Z	V
BI-ST1	Hana Kubátová Hana Kubátová Hana Kubátová (Gar.) Network Technology 1	Z	3	2C	Z	V
BI-ST2	Alexandru Moucha Álexandru Moucha (Gar.) Network Technology 2	Z	3	3C		V
BI-ST3	Alexandru Moucha Álexandru Moucha (Gar.) Network Technology 3	Z		2C	Z	-
	Alexandru Moucha Alexandru Moucha (Gar.) Network Technology 4		3			V
BI-ST4	Alexandru Moucha Álexandru 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
FIT-SEP	World Economy and Business Tomáš Evan	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 (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 (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 (Gar.)	Z	4	2C	Z	V
BI-TS2	Theoretical Seminar II Dušan Knop, Ond ej Suchý, Tomáš Valla Tomáš Valla Ond ej Suchý (Gar.)	Z	4	2C	L	V
BI-TS3	Theoretical Seminar III Ond ej Suchý, Tomáš Valla Tomáš Valla Tomáš Valla (Gar.)	Z	4	2C	Z	V
BI-TS4	Theoretical Seminar IV Ond ej Suchý, Tomáš Valla Tomáš Valla Tomáš Valla (Gar.)	Z	4	2C	L	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.)	KZ	4	3C	Z	V
FI-TOP	Academic writing Tomáš Nová ek	Z	2	10B	Z	V

BI-CCN		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 (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 Tyrdík	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 (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.)	KZ	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, Tomáš Sýkora Tomáš Sýkora Miroslav Hron ok (Gar.)	KZ	4	3C	L	V
		courses of this group of Study Plan: Code=BI-V.2021 Name=F	urely Electiv	ve Cours	es of Bac	helor Pro	gramme
	_	om 2021/22 till 2024/25				7	
ΓV1 ΓVV		vsical Education				Z	0
		vsical education				Z	0
TVK1		vsical Education				Z	1
TVV0		vsical education				Z	0
ΓV2		vsical Education				Z	0
TVKZV		rsical Education Course				Z	0
ΓVKLV		sical Education Course				Z	0
BI-ADW.1		ndows Administration szech. However, there is an English variant in the program Informatics (B1801 / 4753)			Z	,ZK	4
			•		7	71/	
BI-ALO The course extends	, 0	ebra and Logic pens the study of topics touched upon in the basic course in logic.			2	,ZK	4
BI-AVI.21		orithms visually			7	,ZK	4
	nente othe	•	from different field	de of the co	moutor ociono	,	Loubotontial

Compiler Construction

that make understanding the principles of algorithms easy.

This course is presented in Czech. Advanced technologies in Java.

class of the term.

BI-APJ

English language, preparation for the B2 level exam

Aplication Programming in Java

BI-CCN

Page 9 out of 30

The course complements other algorithm courses at FIT. It brings knowledge about particular important algorithms from different fields of the computer science that extend 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.org<http://www.algovision.org>)

The content of the course corresponds to the preparation for the English exam at the B2 level. Requirements for course credit. Academic Achievement - students are due to: -Take an active part in the language instruction. -Meet the requirements for writing assignments - Summary, Abstract, Argumentation Paper. -Succeed in both the midterm and the final term 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 teachers during the first

Z,ZK

4

NI-AFP	Applied Functional Programming	KZ	5
=	d in Czech. Functional programming represents one of the traditional programming paradigms. Traditional and novel functiona he functional paradigm becomes an important construct of traditionally imperative languages (C++, C#, Java). As such, mast		1
· · · · · · · · · · · · · · · · · · ·	of a software engineer: the theory and especially the practice.	ering this paracing	in becomes a
BIE-ZUM	Artificial Intelligence Fundamentals	Z,ZK	4
	to the fundamental problems in the Artificial Intelligence, and the basic methods for their solving. It focuses mainly on the class		
· · · · · · · · · · · · · · · · · · ·	nt systems, game theory, planning, and machine learning. Modern soft-computing methods, including the evolutionary algorithms.	hms and the neur	al networks, will
be presented as well. BI-BLE	Blender	Z,ZK	4
	pileTideT wiledge of opensource program Blender from BI-MGA (Multimedia and Graphics Applications) course. It is intended for those	, ,	•
	mplete and practically oriented introduction to Blender environment. Students may continue to BI-PGA (Programming graphic		
NI-DSP	Database Systems in Practes	Z,ZK	4
This course is presented			
BI-STO	Storage and Filesystems inciples and current solutions of storage systems architecture. The module explains principles of data store, protection, and ar	Z,ZK	4
load balancing and high		criivirig, as so as	storage scaling,
NI-PSD	Public Services Design	KZ	4
	e students to specifics of UX, Service design and development for public sector. We will look into the design and developmen	t process from the	e perspective of
,	ignesr) as well as clients. In small teams students will work on projects from partner organizations and will try out collaboration	on with client repre	esentatives.
BIE-DIF	ents-designers as well as clients.	7 71/	5
	Differential equations bufferential equations, starting with basic motivation and examples of ODEs and progressing to essential equations, starting with basic motivation and examples of ODEs and progressing to essentia	Z,ZK	-
•	ms on existence and uniqueness establish when solutions can be guaranteed. Linear and system-based ODEs are covered w		
• •	owed by examples of non-linear models such as predator-prey and epidemiological models to showcase real-world application	=	
•	ions (PDEs) extends these concepts to multi-variable contexts. The course will also cover numerical methods for solving ODE	s and PDEs, incl	uding implicit
NI-DZO	ds, Runge-Kutta methods, and finite element methods for both ODEs and PDEs. Digital Image Processing	Z,ZK	4
-	comprehensive overview of modern methods for interactive editing of digital images and video. It mainly deals with practical a		•
•	interesting theoretical basis. Visually attractive applications provide better understanding of basic theoretical background that is	_	
	ing. This course will introduce algorithms solving the following practical applications: edge-aware editing, tone mapping, HDR	-	- 1
	raction, hybrid images, gradient domain editing, seamless image stitching and cloning, digital photo-montage, color-to-gray or ossible image deformation, free-form image registration, texture synthesis, interactive segmentation, colorization, painting, ad		
NI-DDM	Distributed Data Mining	KZ	4
	e-of-the-art approaches for distributed data mining and parallelization of machine learning algorithms. Students will gain hand	Į.	•
· -	ork Apache Spark and with existing distributed DM / ML algorithms. They will learn principles of their parallel implementations	s and will be capa	able to propose
	e other algorithms. The course is prezented in czech language.	1/7	
BI-EP1.24 The course is taught in	Effective programming 1	KZ	4
BI-EP2	Efficient Programming 2	KZ	4
	Programming 1. Students will practice implementation of algorithms by solving typical problems. Various ways of solving indir	ı	re discussed,
	he best one and avoid implementation errors.		
	English language, contact preparation for the B2 level exam	Z	2
	se corresponds to the preparation for the English exam at the B2 level. Requirements for course credit. Academic Achievemen age instructionMeet the requirements for writing assignments - Summary, Abstract, Argumentation PaperSucceed in both		
	ate set at 70%80% and over in BOTH tests means ORAL EXAM ONLY (no written part). Requirements will be specified by i		
class of the term.			, and the second
BI-EJA	Enterprise Java	Z,ZK	4
	ced technologies in the Java programming language. The focus is on technologies for development of enterprise information s	systems which are	e connected to
BI-EJK	essed through the web interface. Enterprise Java and Kotlin	Z,ZK	4
	ced technologies in the Java and Kotlin programming languages. The focus is on technologies for developing enterprise inforr		•
architecture, that can be			
BI-FMU	Financial and Management Accounting	Z,ZK	5
	s explanation of basic terms in the theory of accounting, the principles of balancing the property amounts and liabilities in the		
•	and accounting statements including opening and closing of bookkeeping.The course provides students with a legal modifica based on current methods of double-entry bookkeeping for enterprising subjects in the Czech Republic. Principles of manag	•	
=	oduls in Business information systems.		,
BI-HAM	HW accelerated network traffic monitoring	KZ	4
	students to modern and widely used technologies and principles in the area of network infrastructure and traffic monitoring. T	-	- 1
	latory skills to network operators (planning and development of resources and infrastructure) and security analysts alike (as a of the course are to acquaint students with the modern trends and cornerstone principles in the area of monitoring network tr		
	ir practical abilities in this field.	anie on a narawa	ic and soliware
BI-HMI	History of Mathematics and Informatics	Z,ZK	3
This course is presented	d in Czech.		
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 appli- eripherals 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 therefore	=	
Software Engineering st			
		<u></u>	

NI-IAM Internet and Multimedia	Z,ZK	4
The NI-IAM course is focused on principles and modern technologies for network transmissions of audiovisual (AV) signals. The syllabus includes a	cquisition of AV si	gnals (input),
presentation of AV signals (output), network communication protocols, device interfaces, codecs, data formats and stereoscopy. We will look at practi		
audiovisual transmissions. Within the labs, students will practically assemble AV transmission chains using HW and SW technologies and verify the		-
the quality and latency of AV transmissions. Students will learn how to build Internet infrastructure for end-to-end AV transmissions from the recording	ig the scene up to	the presentation
for audience. BIE-CSI Introduction to Computer Science	Z	2
BIE-CSI Introduction to Computer Science This is an introductory class on Elementary Computer Science for broad audiences: bachelor students in computer science, students majoring in oth		
science, high-school students, anybody with a background in basic math and the desire to understand the absolute basics of computer science. The		
and relate basic principles of computer science for students to understand, early on, what computer science is, why things such as high-level progra	•	
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 con	nputer 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 int	erested in comput	er science more
than expected, or even less than before.		
FITE-EHD Introduction to European Economic History	Z,ZK	3
The course introduces a selection of themes from the European economic history. It gives the student basic knowledge about forming of the global		
of the key periods in history. As European countries have been dominant actors in this process it focuses predominantly on their roles in the economic area of Roman Empire to fragmentation of the Middle Ages, from destruction of WWII to the current affairs, the development of modern financial ins	-	-
does not cover detailed economic history of particular European countries but rather the impact of trade and role of particular events, institutions an	•	
meetings will consist of a mixture of lecture and discussion.		
BIE-IMA2 Introduction to Mathematics 2	Z	2
Students refresh and extend knowledge of elementary functions and their properties. Students understand basic mathematical principles and they a	are able to apply th	nem in particular
examples.		
BI-CS2 C# language and data access	KZ	4
The C# language and data access course objective is to introduce students several data access technologies - database, XML, NoSQL - on the Mid	crosoft platform. Th	ne students will
get to know objects used to retrieve data - Connection, Command, Data Reader and DataAdapter v ADO.NET. Next, they will learn to use current to	•	
of features for querying and updating data, integrated directly with the .NET platform languages, which enable LINQ use with Objects, XML and SQ	•	
and LINQ to SQL). Another objective is the Entity Framework - an object-relational mapper that enables .NET developers to work with relational dat		-
(ORM). This part of the course introduces Code First, Database First, Model First approaches. The students will also get to know the Conceptual Me (XML description).	odei, Storage iviod	ei and iviapping
BI-CS3 Language C# - design of web applications	KZ	4
The students will be introduced to current technologies in web application development on the .NET platform. They will acquire a comprehensive overvi		•
on thisplatform. They will learn to create WebAPI and to use it by client programs.	iew of the developi	nent possibilities
BI-SQL.1 Language SQL, advanced	KZ	4
Module is based on knowledge obtained in BI-DBS. Students become familiar with advanced relational and non-relational features of SQL language.		•
triggers, recursive queries, OLAP support, object-relational constructions. Part of the course is dedicated to practical database optimization from the poly	-	
structures like indexes, clusters, index-organized tables, and materialized views. as well as from the point of view query optimization. Execution plan	and possibilities	of its. changes
will be discussed. Lectures will usually discuss SQL standard, but many features will be demonstrated on Oracle DBMS. Seminars are based on Oracle DBMS.	acle DBMS and pa	artially on
DtCOI		
PostgreSQL.		
BI-QAP Quantum algorithms and programming	KZ	5
BI-QAP Quantum algorithms and programming Course aims at giving students hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic	cs, on which quant	um technologies
BI-QAP Quantum algorithms and programming Course aims at giving students hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic are based, and algorithms showing advantages and limitations of quantum computing. During tutorials students work in open-source software developed.	cs, on which quant lopment kit Qiskit,	um technologies which is based
BI-QAP Quantum algorithms and programming Course aims at giving students hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic are based, and algorithms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel on Python language. 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-V	cs, on which quant lopment kit Qiskit,	um technologies which is based
BI-QAP Quantum algorithms and programming Course aims at giving students hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic are based, and algorithms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel on Python language. 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-V might be an advantage. No previous knowledge of physics is assumed.	cs, on which quant lopment kit Qiskit, MM and experiend	um technologies which is based be with Python
BI-QAP Quantum algorithms and programming Course aims at giving students hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic are based, and algorithms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel on Python language. 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-V might be an advantage. No previous knowledge of physics is assumed. NI-LSM Statistical Modelling Lab	cs, on which quant lopment kit Qiskit, MM and experienc	um technologies which is based the with Python
BI-QAP Quantum algorithms and programming Course aims at giving students hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic are based, and algorithms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel on Python language. 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-V might be an advantage. No previous knowledge of physics is assumed. NI-LSM Statistical Modelling Lab The subject is oriented on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is	cs, on which quant lopment kit Qiskit, MM and experienc KZ s put on the effecti	um technologies which is based be with Python 5 ve use of the
BI-QAP Quantum algorithms and programming Course aims at giving students hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic are based, and algorithms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel on Python language. 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-V might be an advantage. No previous knowledge of physics is assumed. NI-LSM Statistical Modelling Lab	cs, on which quant lopment kit Qiskit, MM and experienc KZ s put on the effecti	um technologies which is based be with Python 5 ve use of the
BI-QAP Quantum algorithms and programming Course aims at giving students hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic are based, and algorithms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel on Python language. 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-V might be an advantage. No previous knowledge of physics is assumed. NI-LSM Statistical Modelling Lab The subject is oriented on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is available information and its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms. 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).	ks, on which quant lopment kit Qiskit, MM and experienc KZ s put on the effecti , and analyses of t	um technologies which is based be with Python 5 ve use of the
BI-QAP Quantum algorithms and programming Course aims at giving students hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic are based, and algorithms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel on Python language. 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-V might be an advantage. No previous knowledge of physics is assumed. NI-LSM Statistical Modelling Lab The subject is oriented on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is available information and its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms. 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).	s, on which quant lopment kit Qiskit, MM and experience KZ s put on the effecti, and analyses of t	um technologies which is based se with Python 5 ve use of the heir properties.
BI-QAP Quantum algorithms and programming Course aims at giving students hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic are based, and algorithms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel on Python language. 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-V might be an advantage. No previous knowledge of physics is assumed. NI-LSM Statistical Modelling Lab The subject is oriented on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is available information and its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms. 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). BI-HAS Human Aspects in Cryptography and Security	s, on which quant lopment kit Qiskit, MM and experience KZ s put on the effecti, and analyses of t	um technologies which is based se with Python 5 ve use of the heir properties.
BI-QAP Quantum algorithms and programming Course aims at giving students hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic are based, and algorithms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel on Python language. 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-V might be an advantage. No previous knowledge of physics is assumed. NI-LSM Statistical Modelling Lab The subject is oriented on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is available information and its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms. 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). BI-HAS Human Aspects in Cryptography and Security This course is for students interested not only in technical scope of computer science, but also in making products usable - for users and for develop	s, on which quant lopment kit Qiskit, MM and experience KZ s put on the effecti, and analyses of t	um technologies which is based se with Python 5 ve use of the heir properties.
BI-QAP Quantum algorithms and programming Course aims at giving students hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic are based, and algorithms showing advantages and limitations of quantum computing. During tutorials students work in open-source software develon Python language. 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-V might be an advantage. No previous knowledge of physics is assumed. NI-LSM Statistical Modelling Lab The subject is oriented on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is available information and its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms. 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). BI-HAS Human Aspects in Cryptography and Security This course is for students interested not only in technical scope of computer science, but also in making products usable - for users and for develop use their gained knowledge to design, plan and analyse their own projects in the context of human-centered security.	s, on which quant lopment kit Qiskit, MM and experience KZ s put on the effecti, and analyses of to Z,ZK pers. Students of the state of	um technologies which is based se with Python 5 ve use of the heir properties. 5 his course can
BI-QAP Quantum algorithms and programming Course aims at giving students hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic are based, and algorithms showing advantages and limitations of quantum computing. During tutorials students work in open-source software develon Python language. 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-V might be an advantage. No previous knowledge of physics is assumed. NI-LSM Statistical Modelling Lab The subject is oriented on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is available information and its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms. 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). BI-HAS Human Aspects in Cryptography and Security This course is for students interested not only in technical scope of computer science, but also in making products usable - for users and for develop use their gained knowledge to design, plan and analyse their own projects in the context of human-centered security. NI-MPL Managerial Psychology	KZ s put on the effectit, and analyses of t Z,ZK pers. Students of ti	um technologies which is based the with Python 5 ve use of the heir properties. 5 his course can
BI-QAP Quantum algorithms and programming Course aims at giving students hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic are based, and algorithms showing advantages and limitations of quantum computing. During tutorials students work in open-source software develor Python language. 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-V might be an advantage. No previous knowledge of physics is assumed. NI-LSM Statistical Modelling Lab The subject is oriented on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is available information and its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms. 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). BI-HAS Human Aspects in Cryptography and Security This course is for students interested not only in technical scope of computer science, but also in making products usable - for users and for develop use their gained knowledge to design, plan and analyse their own projects in the context of human-centered security. NI-MPL Managerial Psychology NI-MSI Mathematical Structures in Computer Science	KZ s put on the effectit, and analyses of t Z,ZK pers. Students of ti	um technologies which is based the with Python 5 ve use of the heir properties. 5 his course can
BI-QAP Quantum algorithms and programming Course aims at giving students hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic are based, and algorithms showing advantages and limitations of quantum computing. During tutorials students work in open-source software develor Python language. 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-V might be an advantage. No previous knowledge of physics is assumed. NI-LSM Statistical Modelling Lab The subject is oriented on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is available information and its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms. 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). BI-HAS	KZ s put on the effectit, and analyses of t Z,ZK pers. Students of ti	um technologies which is based the with Python 5 ve use of the heir properties. 5 his course can
BI-QAP Quantum algorithms and programming Course aims at giving students hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic are based, and algorithms showing advantages and limitations of quantum computing. During tutorials students work in open-source software develon Python language. 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-V might be an advantage. No previous knowledge of physics is assumed. NI-LSM Statistical Modelling Lab The subject is oriented on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is available information and its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms. 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). BI-HAS Human Aspects in Cryptography and Security This course is for students interested not only in technical scope of computer science, but also in making products usable - for users and for develop use their gained knowledge to design, plan and analyse their own projects in the context of human-centered security. NI-MPL Managerial Psychology NI-MSI Mathematical Structures in Computer Science Mathematical semantics of programming languages. Data types as continous lattices, Scott topology. Procedures as continuous mappings. The Scot Introduction to category theory.	KZ s put on the effecti , and analyses of t Z,ZK pers. Students of ti ZK Z,ZK tit model of lambda	um technologies which is based the with Python 5 veruse of the heir properties. 5 his course can 2 4 a calculus.
BI-QAP Quantum algorithms and programming Course aims at giving students hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic are based, and algorithms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel on Python language. 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-V might be an advantage. No previous knowledge of physics is assumed. NI-LSM Statistical Modelling Lab The subject is oriented on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is available information and its modelling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms. 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). BI-HAS Human Aspects in Cryptography and Security This course is for students interested not only in technical scope of computer science, but also in making products usable - for users and for develop use their gained knowledge to design, plan and analyse their own projects in the context of human-centered security. NI-MPL Managerial Psychology NI-MSI Mathematical Structures in Computer Science Mathematical semantics of programming languages. Data types as continous lattices, Scott topology. Procedures as continuous mappings. The Scot Introduction to category theory. BI-MPP.21 Methods of interfacing peripheral devices. Interfacing of real peripheral devices is focused on techniques based on Univincludes both PC side and peripheral devices side. Labs are practically oriented. Students gain experience with implementation of relevant parts of	cs, on which quant lopment kit Qiskit, MM and experience KZ s put on the effectit, and analyses of t Z,ZK pers. Students of till ZK Z,ZK ott model of lambdate Z,ZK versal serial bus (U	um technologies which is based the with Python 5 veruse of the heir properties. 5 his course can 2 4 a calculus. 5 SB). The course
BI-QAP Quantum algorithms and programming Course aims at giving students hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic are based, and algorithms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel on Python language. 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-V might be an advantage. No previous knowledge of physics is assumed. NI-LSM Statistical Modelling Lab The subject is oriented on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is available information and its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms. 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). BI-HAS Human Aspects in Cryptography and Security This course is for students interested not only in technical scope of computer science, but also in making products usable - for users and for develop use their gained knowledge to design, plan and analyse their own projects in the context of human-centered security. NI-MPL Managerial Psychology NI-MSI Mathematical Structures in Computer Science Mathematical semantics of programming languages. Data types as continous lattices, Scott topology. Procedures as continuous mappings. The Scott Introduction to category theory. BI-MPP.21 Methods of interfacing peripheral devices. Interduction to category theory. BI-MPP.21 Methods of interfacing peripheral devices. Interfacing of real peripheral devices is focused on techniques based on Univincludes both PC side and peripheral devices side. Labs are practically oriented. Students gain experience with implementation of relevant parts of drivers, simple application development, and APIs of selected devices.	S, on which quant lopment kit Qiskit, MM and experience KZ s put on the effection, and analyses of the Z,ZK pers. Students of the Z,ZK tot model of lambdate Z,ZK versal serial bus (UUSB devices, Linus lopment loss).	um technologies which is based the with Python 5 ve use of the heir properties. 5 his course can 2 4 a calculus. 5 SB). The course x and Windows
BI-QAP Quantum algorithms and programming Course aims at giving students hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic are based, and algorithms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel on Python language. 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-V might be an advantage. No previous knowledge of physics is assumed. NI-LSM Statistical Modelling Lab The subject is oriented on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is available information and its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms. 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). BI-HAS Human Aspects in Cryptography and Security This course is for students interested not only in technical scope of computer science, but also in making products usable - for users and for develop use their gained knowledge to design, plan and analyse their own projects in the context of human-centered security. NI-MPL Managerial Psychology NI-MS Mathematical Structures in Computer Science Mathematical semantics of programming languages. Data types as continuous lattices, Scott topology. Procedures as continuous mappings. The Scotntroduction to category theory. BI-MPP.21 Methods of interfacing peripheral devices The course is focused on methods for interfacing of peripheral devices. Interfacing of real peripheral devices is focused on techniques based on Univincludes both PC side and peripheral devices side. Labs are practically oriented. Students gain experience with implementation of relevant parts of drivers, simple application development, and APIs of selected devices. BI-MIT Mikrotik technologies	cs, on which quant lopment kit Qiskit, MM and experience KZ s put on the effecti, and analyses of the Z,ZK pers. Students of the Z,ZK at model of lambda Z,ZK versal serial bus (UUSB devices, Linu KZ	um technologies which is based the with Python 5 ve use of the heir properties. 5 his course can 2 4 a calculus. 5 SB). The course x and Windows 3
BI-QAP Quantum algorithms and programming Course aims at giving students hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanica are based, and algorithms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel on Python language. 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-V might be an advantage. No previous knowledge of physics is assumed. NI-LSM Statistical Modelling Lab The subject is oriented on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is available information and its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms. 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). BI-HAS Human Aspects in Cryptography and Security This course is for students interested not only in technical scope of computer science, but also in making products usable - for users and for develop use their gained knowledge to design, plan and analyse their own projects in the context of human-centered security. NI-MPL Managerial Psychology NI-MSI Mathematical Structures in Computer Science Mathematical semantics of programming languages. Data types as continous lattices, Scott topology. Procedures as continuous mappings. The Scott Introduction to category theory. BI-MPP.21 Methods of interfacing peripheral devices The course is focused on methods for interfacing of peripheral devices. Interfacing of real peripheral devices is focused on techniques based on Univincludes both PC side and peripheral devices side. Labs are practically oriented. Students gain experience with implementation of relevant parts of drivers, simple application development, and APIs of selected devices. BI-MIT Mikrotik technologies	cs, on which quant lopment kit Qiskit, MM and experience KZ s put on the effecti, and analyses of the Z,ZK pers. Students of the	um technologies which is based the with Python 5 veruse of the heir properties. 5 his course can 2 4 a calculus. 5 SB). The course x and Windows 3 y the small and
BI-QAP Quantum algorithms and programming Course aims at giving students hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic are based, and algorithms showing advantages and limitations of quantum computing. During tutorials students work in open-source software develon Python language. 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-V might be an advantage. No previous knowledge of physics is assumed. NI-LSM Statistical Modelling Lab The subject is oriented on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is available information and its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms. 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). BI-HAS Human Aspects in Cryptography and Security This course is for students interested not only in technical scope of computer science, but also in making products usable - for users and for develop use their gained knowledge to design, plan and analyse their own projects in the context of human-centered security. NI-MPL Managerial Psychology NI-MSI Mathematical Structures in Computer Science Mathematical semantics of programming languages. Data types as continous lattices, Scott topology. Procedures as continuous mappings. The Scott Introduction to category theory. BI-MPP.21 Methods of interfacing peripheral devices. Interfacing of peripheral devices side. Labs are practically oriented. Students gain experience with implementation of relevant parts of drivers, simple application development, and APIs of selected devices. BI-MIT Mikrotik technologies The main motivation of the subject stands in the introduction of the RouterOS operating system and some network Mikrotik technologies which are middle internet ser	Es, on which quant lopment kit Qiskit, MM and experience KZ s put on the effecti, and analyses of the Estate Estat	um technologies which is based the with Python 5 veruse 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
BI-QAP Quantum algorithms and programming Course aims at giving students hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanica are based, and algorithms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel on Python language. 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-V might be an advantage. No previous knowledge of physics is assumed. NI-LSM Statistical Modelling Lab The subject is oriented on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is available information and its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms. 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). BI-HAS Human Aspects in Cryptography and Security This course is for students interested not only in technical scope of computer science, but also in making products usable - for users and for develop use their gained knowledge to design, plan and analyse their own projects in the context of human-centered security. NI-MPL Managerial Psychology NI-MSI Mathematical Structures in Computer Science Mathematical semantics of programming languages. Data types as continous lattices, Scott topology. Procedures as continuous mappings. The Scott Introduction to category theory. BI-MPP.21 Methods of interfacing peripheral devices The course is focused on methods for interfacing of peripheral devices. Interfacing of real peripheral devices is focused on techniques based on Univincludes both PC side and peripheral devices side. Labs are practically oriented. Students gain experience with implementation of relevant parts of drivers, simple application development, and APIs of selected devices. BI-MIT Mikrotik technologies	Es, on which quant lopment kit Qiskit, MM and experience KZ s put on the effecti, and analyses of the Estate Estat	um technologies which is based the with Python 5 veruse 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
BI-QAP Quantum algorithms and programming Course aims at giving students hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanica are based, and algorithms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel on Python language. 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-V might be an advantage. No previous knowledge of physics is assumed. NI-LSM Statistical Modelling Lab The subject is oriented on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is available information and its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms. 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). BI-HAS Human Aspects in Cryptography and Security This course is for students interested not only in technical scope of computer science, but also in making products usable - for users and for develop use their gained knowledge to design, plan and analyse their own projects in the context of human-centered security. NI-MPL Managerial Psychology NI-MSI Mathematical Structures in Computer Science Mathematical semantics of programming languages. Data types as continuous lattices, Scott topology. Procedures as continuous mappings. The Scotntroduction to category theory. BI-MPP21 Methods of interfacing peripheral devices Interfacing peripheral devices interfacing of real peripheral devices is focused on techniques based on Universe, simple application development, and APIs of selected devices. BI-MIT Mikrotik technologies The main motivation of the subject stands in the introduction of the RouterOS operating system and some network Mikrotik technologies which are middle internet service providers (ISPs). The st	Es, on which quant lopment kit Qiskit, MM and experience KZ s put on the effecti, and analyses of the Estate Estat	um technologies which is based the with Python 5 veruse 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
BI-QAP Quantum algorithms and programming Course aims at giving students hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanica are based, and algorithms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel on Python language. 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-V might be an advantage. No previous knowledge of physics is assumed. NI-LSM Statistical Modelling Lab The subject is oriented on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is available information and its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms. 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). BI-HAS Human Aspects in Cryptography and Security This course is for students interested not only in technical scope of computer science, but also in making products usable - for users and for develop use their gained knowledge to design, plan and analyse their own projects in the context of human-centered security. NI-MPL Managerial Psychology NI-MSI Mathematical Structures in Computer Science Mathematical semantics of programming languages. Data types as continuous lattices, Scott topology. Procedures as continuous mappings. The Scotntroduction to category theory. BI-MPP21 Methods of interfacing peripheral devices. Interfacing peripheral devices in focused on methods for interfacing of peripheral devices. BI-MIT Mikrotik technologies The main motivation of the subject stands in the introduction of the RouterOS operating system and some network Mikrotik technologies which are middle internet service providers (ISPs). The students learn how to use and create the architectures of the network solutions which	Es, on which quant lopment kit Qiskit, MM and experience KZ s put on the effecti, and analyses of the Estate Estat	um technologies which is based the with Python 5 ve use of the heir properties. 5 his course can 2 4 a calculus. 5 SSB). The course x and Windows 3 y the small and or wireless links pts like protocols
BI-QAP Quantum algorithms and programming Course aims at giving students hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanica are based, and algorithms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel on Python language. 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-V might be an advantage. No previous knowledge of physics is assumed. NI-LSM Statistical Modelling Lab The subject is oriented on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is available information and its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms. 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). BI-HAS Human Aspects in Cryptography and Security This course is for students interested not only in technical scope of computer science, but also in making products usable - for users and for develop use their gained knowledge to design, plan and analyse their own projects in the context of human-centered security. NI-MPL Managerial Psychology NI-MSI Mathematical Structures in Computer Science Mathematical semantics of programming languages. Data types as continous lattices, Scott topology. Procedures as continuous mappings. The Scotntroduction to category theory. BI-MPP.21 Methods of interfacing peripheral devices interfacing of real peripheral devices is focused on techniques based on Univinculudes both PC side and peripheral devices side. Labs are practically oriented. Students gain experience with implementation of relevant parts of drivers, simple application development, and APIs of selected devices. BI-MIT Mikrotik technologies The main motivation of the subject stands in the introduction of the Router	cs, on which quant lopment kit Qiskit, MM and experience KZ s put on the effecti, and analyses of the Z,ZK pers. Students of the	um technologies which is based the with Python 5 ve 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 stural abstraction
BI-QAP Quantum algorithms and programming Course aims at giving students hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic are based, and algorithms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel on Python language. 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-V might be an advantage. No previous knowledge of physics is assumed. NI-LSM Statistical Modelling Lab The subject is oriented on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is available information and its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms. 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). BI-HAS Human Aspects in Cryptography and Security This course is for students interested not only in technical scope of computer science, but also in making products usable - for users and for develop use their gained knowledge to design, plan and analyse their own projects in the context of human-centered security. NI-MPL Managerial Psychology NI-MSI Mathematical Structures in Computer Science Mathematical semantics of programming languages. Data types as continous lattices, Scott topology. Procedures as continuous mappings. The Scotntroduction to category theory. BI-MPP.21 Methods of interfacing peripheral devices. Interfacing of real peripheral devices is focused on techniques based on Univincules both PC side and peripheral devices side. Labs are practically oriented. Students gain experience with implementation of relevant parts of drivers, simple application development, and APIs of selected devices. BI-MIT Mikrotik technologies BI-MIT Mikrotik technologies The main motivation of the subject stands in	Es, on which quant lopment kit Qiskit, MM and experience KZ s put on the effecti, and analyses of the Estate Estat	um technologies which is based the with Python 5 veruse 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 of implementation of of interest. In
BI-QAP Quantum algorithms and programming Course aims at giving students hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic are based, and algorithms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devee on Python language. 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-V might be an advantage. No previous knowledge of physics is assumed. NI-LSM Statistical Modelling Lab The subject is oriented on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is available information and its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms. 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). BI-HAS Human Aspects in Cryptogramphy and Security This course is for students interested not only in technical scope of computer science, but also in making products usable - for users and for develog use their gained knowledge to design, plan and analyse their own projects in the context of human-centered security. NI-MPL Managerial Psychology NI-MSI Mathematical Structures in Computer Science Mathematical semantics of programming languages. Data types as continous lattices, Scott topology. Procedures as continuous mappings. The Scot Introduction to category theory. BI-MP21 Methods of interfacing peripheral devices The course is focused on methods for interfacing of peripheral devices. Interfacing of real peripheral devices is focused on techniques based on Univinctudes both PC side and peripheral devices side. Labs are practically oriented. Students gain experience with implementation of relevant parts of drivers, simple application development, and APIs of selected devices. BI-MIT Mikrotik technologies The	Es, on which quant lopment kit Qiskit, MM and experience KZ s put on the effectit, and analyses of the Estate Esta	um technologies which is based the with Python 5 ve use of the heir properties. 5 his course can 2 4 a calculus. 5 ISB). The course is and Windows 3 of the small and for wireless links pts like protocols 4 itural abstraction of implementation is of interest. In projects and OO
BI-QAP Quantum algorithms and programming Course aims at giving students hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic are based, and algorithms showing advantages and limitations of quantum computing. During tutorials students work in open-source software deve on Python language. 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-V might be an advantage. No previous knowledge of physics is assumed. NI-LSM Statistical Modelling Lab The subject is oriented on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is available information and its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms. 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). BI-HAS Hurman Aspects in Cryptography and Security This course is for students interested not only in technical scope of computer science, but also in making products usable - for users and for develop use their gained knowledge to design, plan and analyse their own projects in the context of human-centered security. NI-MPL Managerial Psychology NI-MSI Mathematical Structures in Computer Science Mathematical semantics of programming languages. Data types as continuous lattices, Scott topology. Procedures as continuous mappings. The Scottroduction to category theory. BI-MPP.21 Methods of interfacing peripheral devices. BI-MPP.21 Methods of interfacing of peripheral devices. BI-MIT Mikrotik technologies The course is focused on methods for interfacing of peripheral devices. BI-MIT Mikrotik technologies The main motivation of the subject stands in the introduction of the RouterOS operating system and some network Mikrotik technologies which are middle internet service providers (ISPs). The students lea	cs, on which quant lopment kit Qiskit, MM and experience KZ s put on the effectit, and analyses of the Z,ZK pers. Students of the	um technologies which is based the with Python 5 veruse 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 of implementation of of interest. In projects and OO ro Consortium.
BI-QAP Course aims at giving students hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic are based, and algorithms showing advantages and limitations of quantum computing. During tutorials students work in open-source software dever on Python language. 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-V might be an advantage. No previous knowledge of physics is assumed. NI-LSM Statistical Modelling Lab The subject is oriented on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is available information and its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms. 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). BI-HAS Human Aspects in Cryptography and Security This course is for students interested not only in technical scope of computer science, but also in making products usable - for users and for develor use their gained knowledge to design, plan and analyse their own projects in the context of human-centered security. NI-MPL Managerial Psychology Mathematical Structures in Computer Science Mathematical semantics of programming languages. Data types as continous lattices, Scott topology. Procedures as continuous mappings. The Scotntroduction to category theory. BI-MPP.21 Methods of interfacing peripheral devices. Interfacing of real peripheral devices is focused on techniques based on Univincludes both PC side and peripheral devices side. Labs are practically oriented. Students gain experience with implementation of relevant parts of drivers, simple aptication development, and AP1s of selected devices. BI-MIT Mikrotik technologies The main motivation of the subject stands in the introduction of the RouterOS operating system and some network Mikrotik	Es, on which quant lopment kit Qiskit, MM and experience KZ s put on the effecti, and analyses of the Estate Estat	um technologies which is based the with Python 5 ve use of the heir properties. 5 his course can 2 4 a calculus. 5 ISB). The course is and Windows 3 yithe small and for wireless links pts like protocols 4 tural abstraction dimplementation of interest. In projects and OO ro Consortium.
BI-QAP Course aims at giving students hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic are based, and algorithms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel on Python language. 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-V might be an advantage. No previous knowledge of physics is assumed. NI-LSM Statistical Modelling Lab The subject is oriented on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress i available information and its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms. 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). BI-HAS Human Aspects in Cryptography and Security This course is for students interested not only in technical scope of computer science, but also in making products usable - for users and for develop use their gained knowledge to design, plan and analyse their own projects in the context of human-centered security. NI-MPL Managerial Psychology NI-MSI Mathematical Structures in Computer Science Mathematical semantics of programming languages. Data types as continous lattices, Scott topology. Procedures as continuous mappings. The Scc Introduction to category theory. BI-MPP-21 Methods of interfacing peripheral devices The course is focused on methods for interfacing of peripheral devices. BI-MIT Mikrotik technologies The main motivation of the subject stands in the introduction of the Subdents gain experience with implementation of relevant parts of drivers, simple application development, and APIs of selected devices. BI-MIT Mikrotik technologies The main motivation of the subject stands in the introduction of the RouterOS operating system and some netwo	Es, on which quant lopment kit Qiskit, MM and experience KZ s put on the effecti, and analyses of the Estate Estat	um technologies which is based the with Python 5 ve 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 d implementation of interest. In projects and OO ro Consortium. 5 visualization on
BI-QAP Course aims at giving students hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic are based, and algorithms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel on Python language. 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-V might be an advantage. No previous knowledge of physics is assumed. NI-LSM Statistical Modelling LaD The subject is oriented on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is available information and its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms. 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). BI-HAS Human Aspects in Cryptography and Security This course is for students interested not only in technical scope of computer science, but also in making products usable - for users and for develous their time and knowledge to design, plan and analyse their own projects in the context of human-centered security. NI-MPL Managerial Psychology NI-MSI Mathematical Structures in Computer Science Mathematical semantics of programming languages. Data types as continuous lattices, Scott topology. Procedures as continuous mappings. The Scottrioduction to category theory. BI-MP21 Methods of interfacing of peripheral devices Introduction to category theory. BI-MP21 Methods of interfacing of peripheral devices. Interfacing of real peripheral devices is focused on techniques based on Univoludes both PC side and peripheral devices side. Labs are practically oriented. Students gain experience with implementation of relevant parts of drivers, simple application development, and APIs of selected devices. BI-MIT Mikrotik technologies Modern Object-Oriented P	Es, on which quant lopment kit Qiskit, MM and experience KZ s put on the effecti, and analyses of the Estate Estat	um technologies which is based the with Python 5 ve 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 d implementation of interest. In projects and OO ro Consortium. 5 visualization on
BI-QAP Course aims at giving students hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanic are based, and algorithms showing advantages and limitations of quantum computing. During tutorials students work in open-source software devel on Python language. 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-V might be an advantage. No previous knowledge of physics is assumed. NI-LSM Statistical Modelling Lab The subject is oriented on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress i available information and its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms. 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). BI-HAS Human Aspects in Cryptography and Security This course is for students interested not only in technical scope of computer science, but also in making products usable - for users and for develop use their gained knowledge to design, plan and analyse their own projects in the context of human-centered security. NI-MPL Managerial Psychology NI-MSI Mathematical Structures in Computer Science Mathematical semantics of programming languages. Data types as continous lattices, Scott topology. Procedures as continuous mappings. The Scc Introduction to category theory. BI-MPP-21 Methods of interfacing peripheral devices The course is focused on methods for interfacing of peripheral devices. BI-MIT Mikrotik technologies The main motivation of the subject stands in the introduction of the Subdents gain experience with implementation of relevant parts of drivers, simple application development, and APIs of selected devices. BI-MIT Mikrotik technologies The main motivation of the subject stands in the introduction of the RouterOS operating system and some netwo	Es, on which quant lopment kit Qiskit, MM and experience KZ s put on the effecti, and analyses of the Estate Estat	um technologies which is based the with Python 5 ve 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 d implementation of interest. In projects and OO ro Consortium. 5 visualization on

BI-MMP Multimedia team project This course is presented in Czech.	KZ	4
BI-ORL Operations Research and Linear Programming	KZ	5
The subject aims to introduce students to the issues of operational research and primarily to the practical application of linear programming as a fu		ation technique.
Operational research primarily focuses on the use of engineering methods (with a mathematical background) to solve practical problems (such as NI-OLI Linux Drivers	Z,ZK	4
The Linux operating system is an important operating system for personal computer and also for embedded systems. Systems on chip and combini		1
increase the variability of peripheral subsystems requiring specific software drivers. This course is an advanced course in the Linux driver developer course provides knowledge of Linux operating system architecture, principles of development of various types drivers, including practical experience	nent for master's st	
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 This is a selective course for preparing talented student for representation in international programming contests.	KZ	5
BI-ACM4 Programming Practices 4 This is a selective course for preparing talented student for representation in international programming contests.	KZ	5
BI-AND.21 Programming for the Android Operating System This course is presented in Czech.	KZ	4
BI-CS1 Programming in C#	KZ	4
The goal of the course is to introduce .NET Framework as a multi-language development platform. Then, programming language C#, its fundament		
operators, arrays, loops, definitions and calls of functions will be discussed. Attention is focused on the object oriented programming in C# - class constructors, methods, properties, static members, Garbage Collector, inheritance and polymorphism, collections, delegates, and generics. Debug		_
well as work with files are emphasized.	ging and exception	i processing, as
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-PJS.1 JavaScript Programming	KZ	4
Main goal of the course is an introduction to Javascript programming. Students will learn also best practices and will use tool that eases development and after students of RIF, WOLWI 2005 have been dependent on the course of RIF, WOLWI 2005 have been dependent on the course of the	=	
recommended for students of BIE-WSI-WI.2015 branch of study and do not have required knowledge to register for BIE-TWA.1. They should register of study.	ior this course in tr	ieii 4th semester
BI-KOT Programing in Kotlin	Z,ZK	4
Kotlin is a modern, statically-styled object-functional language that exploits the extensive Java language ecosystem while delivering a number of ac	1 '	constructions.
The language is fully Java compliant and allows for mixed projects that preserve existing parts written in Java, and continue with the development of the language is fully Java compliant and allows for mixed projects that preserve existing parts written in Java, and continue with the development of the language is fully Java compliant and allows for mixed projects that preserve existing parts written in Java, and continue with the development of the language is fully Java compliant and allows for mixed projects that preserve existing parts written in Java, and continue with the development of the language is fully Java compliant and allows for mixed projects that preserve existing parts written in Java, and continue with the development of the language is fully Java compliant and allows for mixed projects that preserve existing parts written in Java, and continue with the development of the language is fully Java compliant.	of a modern, object	t-functional way
with minimum of boiler-plate code. Last but not least, Kotlin is suitable for designing of DSLs (Domain-Specific Languages). NI-PSL Programming in Scala	Z,ZK	4
NI-PSL Programming in Scala The course introduces the modern programming language Scala which exploits object-functional paradigm. Scala comprises advance language fe		1
advance standard library. Scala enables to use of applications functional patterns e.g. H-List, Monads, etc. Scala is used by many powerful framework		-
Scalaz, etc.		,
BI-PMA Programming in Mathematica	Z,ZK	4
Students will be working with modern technical and scientific software. Students will learn how to use different programming styles (functional progetc.), how to create dynamic interactive applications and visualisations, data processing and presentations.	ramming, rule-base	ed programming,
BI-PHP.1 Programing in PHP	KZ	4
The course is taught in Czech Main goal of the course is an introduction to PHP - language and technology. Students will learn also best practices	1	1 -
development in PHP. The course is recommended for students of BIE-WSI-WI.2015 branch of study and do not have required knowledge to registe		
register for this course in their 3rd semester of study.		,
BI-PS2 Programming in shell 2	Z,ZK	4
Students gain a general overview of available scripting languages, their syntax, semantics, programming style, data structures, pros and cons. In a into shell and some other particular scripting languages and will get practical experience with shell script programming.	adition, they gain a	a deeper insignt
NI-PDD Data Preprocessing	Z,ZK	5
Students learn to prepare raw data for further processing and analysis. They learn what algorithms can be used to extract information from various of	1	-
time series, etc., and learn the skills to apply these theoretical concepts to solve specific problems in individual projects - e.g., extraction of characteristics and learn the skills to apply these theoretical concepts to solve specific problems in individual projects - e.g., extraction of characteristics and the skills to apply these theoretical concepts to solve specific problems in individual projects - e.g., extraction of characteristics are solved as the same of the skills to apply these theoretical concepts to solve specific problems in individual projects - e.g., extraction of characteristics are solved as the same of the skills are solved as the same of the sa	eristics from image	es or from web
pages.		1
BI-PKM Introduction to mathematics This course is presented in Czech.	Z	4
NI-REV Reverse Engineering	Z,ZK	5
Students will get acquainted with the essentials of reverse engineering of computer software. They will learn how processes start and what happen		1
is called. Students will understand how executable files are organized and how they interact with 3rd party libraries. Another part of the course is defined as a contract of the course of the course is defined as a contract of the course of	edicated to reverse	engineering of
applications written in C++. Students will also understand principles of disassemblers and obfuscation techniques. A part of the course will also be		
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 comp the course is on the seminars, where students will solve practically oriented tasks from the real world.	iter maiware scene	e. The focus of
BI-SCE1 Computer Engineering Seminar I	Z	4
The Seminar of Computer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistant	I .	1
are approached individually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of	•	
articles and other professional literature and/or work in K N laboratories. The capacity of the subject is limited by the possibilities of the seminar te	achers. The topics	are new for each
BI-SCE2 Computer Engineering Seminar II	Z	4
The Seminar of Computer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistant	I	1
are approached individually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of		
articles and other professional literature and/or work in K N laboratories. The capacity of the subject is limited by the possibilities of the seminar te	achers. The topics	are new for each
semester.		

BI-ST1 Network Technology 1 The subject is oriented to providing the students basic information and practical skills from the area of digital and IP networks. The subject is acredit	Z	3 O Netacad -
CCNA1 - R&S Introduction to Networks.	ed drider trie orse	o Netacad
BI-ST2 Network Technology 2 This course is presented in Czech.	Z	3
BI-ST3 Network Technology 3	Z	3
Students will further enhance their knowledge acquired from previous BI-ST1 and BI-ST2 courses. Principles of routing and switching presented duri		
get further extended in the course. Students will be able to start fine-tune protocols' settings to gain certain advantages like increased efficiency, presimple topology, security, etc.	edictability, extensi	ion beyond a
BI-ST4 Network Technology 4	Z	3
Students will further enhance their knowledge already acquired from previous BI-ST1, BI-ST2, and BI-ST3 courses. Principles of routing and switch		_
BI-ST2 courses got further extended in BI-ST3. Students were able to start fine-tune protocols' settings to gain certain advantages like increased ef 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 swi		-
recoveries, and emergency procedures. Also the security aspect is treated; students will learn possible intra- and inter-network attacks and the mitig	gation ways while	maintaining the
network running. BI-SKJ.21 Scripting Languages	Z,ZK	4
Students gain a general overview of available scripting languages, their syntax, semantics, programming style, data structures, pros and cons. In ac		
into shell and some other particular scripting languages and will get practical experience with shell script programming.		
BI-SOJ Machine Oriented Languages Students of the course will gain an ability to create their own programs in the assembly language of the most common PC platform focusing on optimal plants.	Z,ZK	4
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		
This knowledge will be used during reverse engineering, optimization, and evaluation of code security.		
FIT-SEP World Economy and Business This serves in presented in Creek The serves introduces at ideat of technical university to the interrestical business. It does that predeminantly be	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 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		
readings. It is advised to take bachelor level of this course BIE-SEP as a prerequisite.		т .
BI-SEP World Economy and Business This course is presented in Czech. The course introduces students of technical university to the international business. It does that predominantly by	Z,ZK	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 discussions bas	sed on individual
readings. It is advised to take bachelor level of this course BIE-SEP as a prerequisite.	7 71/	
NI-SYP Parsing and Compilers The module builds upon the knowledge of fundamentals of automata theory, formal language and formal translation theories. Students gain knowledge	Z,ZK	and applications
of LR parsing and are introduced to special applications of parsers, such as incremental and parallel parsing.	or various variants	ана аррисаноно
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 preven the implementation details will be shown. Students will be challenged to use Git as users, project managers, team leaders as well as Git serve	, ,	articular system
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	. –	
to understand processor and memory virtualization. Seeing and actually understanding virtualization is the overarching theme of the class. After take	•	
understand the difference between processes and threads as well as emulation and virtualization, what virtual memory is and how it works, what coparallelism, and how processes and threads synchronize efficiently to overcome concurrency for communication.	oncurrency is, as o	opposed to
TV2K1 Physical Education 2	Z	1
BI-TS1 Theoretical Seminar I	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 in other scholarly literature. The capacity is limited by the the potentials of the teachers of the seminar.	s a work with scie	ntific papers and
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	1	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 in other scholarly literature. The capacity is limited by the potentials of the teachers of the seminar.	s a work with scie	ntific papers and
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	1	I
are treated individually and concern themselves with interesting topics from the latest research in the area. Therefore, an integral part of the course in the latest research in the area.	s a work with scie	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	1	· -
are treated individually and concern themselves with interesting topics from the latest research in the area. Therefore, an integral part of the course in		-
other scholarly literature. The capacity is limited by the the potentials of the teachers of the seminar.		
BI-TDA Test driven architecture The course is focused on practical examples of how to develop, test, and deploy software with tools like GitLab, Docker, Kubernetes, and more that	KZ	the DevOns
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		· · · · · · · · · · · · · · · · · · ·
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		· ·
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.	i puiit-iii-seli-test (ечирттепт. ТПеу
BI-QUA Quality Assurance	KZ	4
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		
development and will experience hands-on application testing using both manual and automated testing. At the end of the semester, the student she 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		-
and appropriate position of the desired at the state of the section of the desired at the state of the state	product di	

FI-TOP	Academic writing	Z	2
	int and required part of research activity. It is not only about obtaining research results but also about applying them in the for ful for students not only in their own publishing activities but also in the preparation of a bachelor's or master's thesis. In the c		
•	what parts such an article should have, and how the peer review process works. Students will also try their hand at presenting		
	e will be taught in blocks, with one lecture at the beginning of the semester and one practicum in the middle of the semester.		- 1
on the availability of enr	olled students.		
BI-CCN	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
	and implementation of programming languages. Seeing and actually understanding self-compilation is the overarching theme		
BI-TEX	TeX and Typography	Z,ZK	. 4
rules.	d in Czech. This course gives basics of programming in TeX (plain TeX, ConTeXt, LaTeX, OpTeX, LuaTeX). Te second part of the context of the course gives basics of programming in TeX (plain TeX, ConTeXt, LaTeX, OpTeX, LuaTeX). Te second part of the course gives basics of programming in TeX (plain TeX, ConTeXt, LaTeX, OpTeX, LuaTeX).	ne course tocuses	s on typograpnic
BI-EHD	Introduction to European Economic History	Z,ZK	3
ı	d in Czech. However, there is an English variant in the program Informatics (B1801 / 4753).	۷,۷۱۲	5
BI-KSA	Cultural and Social Anthropology	ZK	2
The one-semester cours	se aims to acquaint students with the basics of social and cultural anthropology as a scientific discipline dealing with the dive	rsity of the world	examples from
· -	h from our "exotic" cultures (topics: kinship, religion, social exclusion, migration, globalization, , material culture, language, he	alth, history, deat	h, etc) will be
shown. The course is pr			
BI-ULI	Introduction to Linux	Z	. 2
	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
BI-OPT	x-like system. Topics can be studied first theoretically and then practically verified in a virtual machine (terminal). Introduction to Optical Networks	Z,ZK	4
	view of optical networking technology with the emphasis on practical utilization in Internet and in network infrastructures, on pr		•
_	ology and on their solutions. The course will include the history of optical communications, an overview of passive componer	•	
dispersion compensator	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
	cs presented at premium research conferences, such as ECOC or OFC. Attention will also be paid to new applications, such		
· · · · · · · · · · · · · · · · · · ·	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.	Vistorialization and Claud Commuting	7 71/	
NI-VCC Students will gain know	Virtualization and Cloud Computing ledge of architectures of large computer systems that are used in data centers and computer infrastructure of companies and	Z,ZK	5 hev will get
-	ration principles, tools and technologies that serve to facilitate and automate configuration, testing and monitoring, and to effi	-	
	s of modern computer systems. Theoretically and practically, they will get acquainted with containerization as the most effect		
	computer systems and with specific technologies of cloud systems. Finally, they will learn the principles and gain practical skil		
	Continuous integration and development).		
BI-VHS	Virtual game worlds	ZK	4
	nts to create a complex virtual world. The course is a continuation of basic graphical courses (MGA, PGR, BLE,). This current s neory of game design, principles of writing dialogues and characters in order to create a functional and complex virtual world.	•	
	the task of converting scenes and their dynamics into a fully virtual environment suitable for VR devices.	The Course Carri	be followed by
BI-VR1	Virtual reality I	KZ	4
Introduction to Virtual Re	eality (VR), virtual reality operating system and virtual reality creation. Another objective is to meet the rules and requirements	of virtual worlds	communication.
	the ways of teaching using virtual reality technologies and interactive activities in educational virtual 3D worlds. It improves co	mputational think	king, empathy
and shared social activit			
BI-VR2	Virtual reality II	KZ	3
	se Virtual Reality I. The new course focuses on collaborative telepresence, spatial computing and social life of avatars. The o Indigamification in various social metaverse and desktop engines.	bjective is to deve	elop applications
BI-VAK.21	Selected Applications of Combinatorics	Z	3
	induce students in an accessible form to various branches of theoretical computer science and combinatorics. In contrast to the		
	to theory. Together, we will first refresh the basic knowledge needed to design and analyze algorithms and introduce some ba		
with the active participat	tion of students, we will focus on solving popular and easily formulated problems from various areas of (not only theoretical) i	nformatics. Areas	from which we
•	e solved will include, for example, graph theory, combinatorial and algorithmic game theory, approximation algorithms, optimized	zation and more.	Students will
	lutions to the studied problems with a special focus on the effective use of existing tools.	7.71	
BI-VMM	Selected Mathematical Methods	Z,ZK	4
-	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.	wavolot transform	ii. Wo oxarriirio
NI-VYC	Computability	Z,ZK	4
-	rsive functions and effective computability.	_,,	
BI-ZS10	Bachelor internship abroad for 10 credits	Z	10
Each student can once	within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scientific and/or i	esearch institutio	n. Before the
•	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	•	
exceeds the academic y		into two subjects	ii tile iiiteriisiiip
BI-ZS20	Bachelor internship abroad for 20 credits	Z	20
	within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scientific and/or i		
	he FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of the professional		
	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	into two subjects	if the internship
exceeds the academic y	real 5 ueau-ille.		

BI-ZS30	Bachelor internship abroad for 30 credits	Z	30
	e within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scientific and/or		
•	the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of the profes		
· · · · · · · · · · · · · · · · · · ·	urses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Every 10 credits		
	ign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can be divided	d into two subjects	if the internship
exceeds the academic	year's dead-line.		
BI-ZIVS	Intelligent Embedded System Fundamentals	KZ	4
Intelligent embedded s	ystem fundamentals course is focused on high-level technology embedded systems integrating artificial intelligence. The aim	of the course is to	teach students
modern humanoid rob	ot control and development of applications in a graphical development environment. Lectures provide fundamentals of motion c	control, sensor rea	ding, application
interfaces, robot navig	ation and development tools. In labs, students program a set of basic task by using the robot simulator and real hardware to g	et practical experi	ence with these
technologies.			
BI-ZPI	Process engineering	KZ	4
Students will learn fun	damentals of process engineering in this subject. Students will get necessary foundations for understanding formal principles	of process model	ing and they will
learn basics of the use	d notations (UML, BPMN, BORM). The focus in this subject lies in training of practical skills of formalisation and modelling of I	business process	es using modern
	d notations (UML, BPMN, BORM). The focus in this subject lies in training of practical skills of formalisation and modelling of I of process engineering for information systems development is discussed as well as its importance in the overall context of info		•
			•
CASE tools. The role of			•
CASE tools. The role of an enterprise.	of process engineering for information systems development is discussed as well as its importance in the overall context of info	ormation and busi	ness strategy of
CASE tools. The role of an enterprise. BI-ZNF Students will gain the base of the students will gain the stude	of process engineering for information systems development is discussed as well as its importance in the overall context of information PHP Framework Nette - basics	ormation and busi	ness strategy of
CASE tools. The role of an enterprise. BI-ZNF Students will gain the base of the students will gain the stude	of process engineering for information systems development is discussed as well as its importance in the overall context of information systems development is discussed as well as its importance in the overall context of information PHP Framework Nette - basics PHP Framework Nette - basics	ormation and busi	ness strategy of
CASE tools. The role of an enterprise. BI-ZNF Students will gain the knowledge should service.	If process engineering for information systems development is discussed as well as its importance in the overall context of information systems development is discussed as well as its importance in the overall context of information PHP Framework Nette - basics PHP Framework Nette - basics PHP framework Nette. They will learn how to practically work with MVP architecture and various libraries of this Czech we for the efficient creation of a web backend in PHP language. Fundamentals of iOS Application Development for iPhone and iPad	KZ h popular framewo	ness strategy of 3 ork. The resulting
CASE tools. The role of an enterprise. BI-ZNF Students will gain the beknowledge should services BI-IOS	If process engineering for information systems development is discussed as well as its importance in the overall context of information systems development is discussed as well as its importance in the overall context of information PHP Framework Nette - basics PHP Framework Nette - basics PHP framework Nette. They will learn how to practically work with MVP architecture and various libraries of this Czech we for the efficient creation of a web backend in PHP language. Fundamentals of iOS Application Development for iPhone and iPad	KZ h popular framewo	ness strategy of 3 ork. The resulting
CASE tools. The role of an enterprise. BI-ZNF Students will gain the knowledge should server BI-IOS This course is present	PHP Framework Nette - basics passics of PHP framework Nette. They will learn how to practically work with MVP architecture and various libraries of this Czeck for the efficient creation of a web backend in PHP language. Fundamentals of iOS Application Development for iPhone and iPad and in Czech. Introduction to Web and User Interfaces	KZ h popular framewo	3 abrk. The resulting

Code of the group: BI-IB-VO.21

Name of the group: Elective vocational Courses originating from neighboring spec. for bachelor spec.BI-IB.21,

ver. 2021

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-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
BI-AG2.21	Algorithms and Graphs 2 Dušan Knop, Michal Opler, Ond ej Suchý, Tomáš Valla, Radek Hušek Ond ej Suchý Ond ej Suchý (Gar.)	Z,ZK	5	2P+2C	L	V
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 David Buchtela David Buchtela Tomáš Evan (Gar.)	Z,ZK	5	2P+2C	L,Z	V
BI-FBI.21	Financial Business Intelligence David Buchtela David Buchtela Petra Pavlí ková (Gar.)	Z,ZK	5	2P+2C	Z,L	V
BI-IOT.21	Internet of Things Viktor erný, Lenka Kosková T ísková Lenka Kosková T ísková Lenka Kosková T ísková (Gar.)	Z,ZK	5	2P+2C	Z	V
BI-JPO.21	Computer Units Pavel Kubalík Pavel Kubalík (Gar.)	Z,ZK	5	2P+2C	Z	V
BI-KOM.21	Conceptual Modelling Robert Pergl, Marek B Iohoubek Robert Pergl Robert Pergl (Gar.)	Z,ZK	5	2P+2C	Z	V
BI-LA2.21	Linear Algebra 2 Daniel Dombek, Lud k Kleprlík, Karel Klouda, Marta Nollová, Jakub Šístek Lud k Kleprlík Karel Klouda (Gar.)	Z,ZK	5	2P+2C	L	V
BI-LOG.21	Mathematical Logic Kate ina Trlifajová Kate ina Trlifajová (Gar.)	Z,ZK	5	2P+2C	Z	V
BI-MPP.21	Methods of interfacing peripheral devices Miroslav Skrbek Miroslav Skrbek (Gar.)	Z,ZK	5	2P+2C	Z	V
BI-MDF.21	Modern Data Formats Petr Pauš Petr Pauš Petr Pauš (Gar.)	KZ	3	1P+1C	Z	V
FIT-ITI	Modern IT infrastructure Ivan Šime ek	Z,ZK	5	2P+1C	Z,L	V
BI-MVT.21	Modern Visualisation Technologies Ji í Chludil, Petr Pauš Petr Pauš (Gar.)	Z,ZK	5	2P+2C	Z	V
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-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	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 (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 ika 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-PPA.21	Programming Paradigms Jan Janoušek, Tomáš Pecka, Petr Máj, Tomáš Jakl Jan Janoušek Jan Janoušek (Gar.)	Z,ZK	5	2P+2R	Z	V
BI-PGA.21	Programming of Graphic Applications Ji i Chludil, 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.)	KZ	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 Fesl Jan Fesl (Gar.)	Z	5	2P+2C	Z	V
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	V
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.)	KZ	5	2C	L	V
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.)	KZ	5	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-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	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-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	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 (Gar.)	Z,ZK	5	2P+2C	L	V
BI-VIZ.21	Data Visualization 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

Artificial Intelligence Fundamentals Z,ZK 5 ZP+2C L V							
Invalve Suyows Pavil Suyows Pavil Suyows Pavil Suyows (Sac) Interaction stocks of the courses of this group of Study Plans: Code=BHB-V0.21 Name=Elective vocational Courses originating from elighboring spee. For bachelor spec. BHB.21, ver. 2021 Interaction of Study Pavil Suyows (Sac) Interaction of Study Pavil Suyows (Sa	BI-ZRS.21	Basics of System Control Kate ina Hyniová Kate ina Hyniová (Gar.)	Z,ZK	5	2P+2C	Z	V
Eighborful space. For bachelor spec. Bit Ba21, ver. 2021 MVES 21 Embadded Systems and develop unbodded systems are develop systems for them. They get basic knowledge of the root common nicocontrollers and embadded processors, their integrate withheld crists. Document of the policy processors, their integrate withheld crists. Document of the policy processors in the policy processor in t	BI-ZUM.21		Z,ZK	5	2P+2C	L	V
situations found design embedded systems and devolves optimized into the group embed actions. programming methods, and applications. They group process all situation in the embedded processours, their integration of the street	neighboring spec. for	bachelor spec.BI-IB.21, ver. 2021	=Elective vo	cational			
SIZUM 21 Antificial Intelligence of Impartmentals assess course on intelligent agent and the ischiniques readed to create it will be discussed or a changed in a contract of the course can be represented for example by a physical rodox, but also by a non-physical entity, such as a virtual assistant or a changed in a compression great and the ischiniques readed to create it will be discussed assistant or a changed in a compression great period for the course can be represented for example by a physical rodox, but also by a non-physical entity, such as a virtual assistant or a changed in a compression greater and the course in course of the	Students learn to design emb	pedded systems and develop software for them. They get basic knowledge of the most of		trollers and			
sease course on introduction to artificial realilipance with emphasis on symbolic techniques. The design of an intelligent agent and the obtinities precised by the design of an intelligent agent and the contract of the course on the representation of example by a physical rocal, but also by an overly-stude entity, such as 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. Intelligent also shows the current state-of-the-art during the course. Intelligent also shows the current state-of-the-art during the course. Intelligent also shows the current state-of-the-art during the course. Intelligent also shows the current state-of-the-art during the course. Intelligent also shows the current state-of-the-art during the course. Intelligent also shows the current state-of-the-art during the course. Intelligent also shows the current state-of-the-art during the current shows the current parts of USB divers. Intelligent shows the current shows the current parts of USB divers. Intelligent shows the current or shows the current current shows the shows the current creation of which and sugmented makely, visualization or one of the course is to give an overview of incodent visualization than the current or shows the current current shows the shows the shows the current creation for the mentioned extensions. In the current current shows the shows the shows the current creation of the mentioned extensions. In the current current shows the shows the shows the current creation of the mentioned extensions. In the current current shows the current current shows the shows the shows the current creation of the mentioned extensions. In the current shows the shows the current creation of the current shows the current creation of the current shows the current current shows the current creation of the current sho			lls.		1 -	7 71/	5
is 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. AIM-MP221 Methods of infracting of prejetheral devices. Interfacing of replaced activates for the course is focused on methods for interfacing of prejetheral devices which are the course included both PC and and prepheral devices sele, tables are practically virtualed. Shudents gain experience with implementation of relevant parts of USB devices, Linux and Virtual Control (1985). The course of the course is to give an overview of modern visualization technologies and their principles, namely technologies related to virtual and augmented reality, visualization and procedural visualization. In Control (1986) and possibility of the course is to give an overview of modern visualization technologies and their principles, namely technologies related to virtual and augmented reality, visualization and procedural visualization. In Control (1986) and possibility of the course is to give an overview of modern visualization technologies and their principles, namely technologies related to virtual and augmented reality, visualization and procedural visualization. In Control (1986) and possibility of the course is to give an overview of modern visualization technologies and possibility. When and Database and visualization and procedural visualization. In Control (1986) and possibility of the possibility of the possibility of the possibility of the possibility. The possibility of the principles is the device of the possibility of the principles and possibility of the principles and possibility. The principles will be deviced to the possibility of the principles and po			gent agent and th	e technique			-
SI-MPP21 Methods of interfacing peripheral devices the course is bound on methods for interfacing peripheral devices in focused on techniques based on Universal setting by USB). The course includes both PC side and peripheral devices side. Laba are practically oriented. Students gain experience with implementation of relevant parts of USB devices, Linux and Windows Interns. simple application development, and APB of a selected devices. SI-MWT21 Modern Visualisation Technologies he goal of the course is to give an overwise or forcem's visualization technologies and their principles, namely technologies related to virtual and augmented reality, visualization on high revolution displays (e.g., SAGE and video mapping) and their applications in practica. Several lectures deal with the content creation for the mentioned sociented parts of the practical original and sequences and the principles, namely technologies related to virtual and augmented reality, visualization on high revolution displays (e.g., SAGE and video mapping) and their applications in practica. Several lectures deal with the content creation for the mentioned sociented gains and procedural visualizations, societific date visualization, and 50 media scanning. SI-AWD21 Web and Database Server Administration Web and Database Server Administration of stabases and web servers are wist services systems. The principles will be communicated on the Petagric SQL relational disabses engine and Reaches will be used as an assumption of a web servers. SI-AGE 21 Algorithms and Graphia 2 Algorithms and concepts of graph theory as a follow-up on the introduction given in the company of the visual services and the principles of the process are serviced. The process are serviced as structures and name of the course as the principles of the pr	especially at the decision-ma	aking level. The intelligent agent in the context of the course can be represented for ex	ample by a physic	cal robot, bu	ut also by a r		
The courses is boosed on methods for interfacing of propheral devices. Interfacing of real puripheral devices is boused on techniques based on Universal serial bus (USB). This course is to give and perpleted advices advice adult a propheral devices and the propheral devices of the propheral properties. The propheral properties of the properties of the properties of the properties of the course is to give an overview of modern visualization technologies and their principles, namely technologies related to virtual and augmented mality, visualization properties of the course is to give an overview of modern visualization technologies, or properties of the course is to give an overview of modern visualization technologies, or properties and propheral properties of the course is to give an overview of modern visualization, and 30 model scanning. 31-MADD 21 Web and Database Server Administration of database and web servers and services. They will be able to install, configure, operate, test, and backup complex database and web servers and services. They will be able to install, configure, operate, test, and backup complex database and web services years. The principles will be demonstrated on the Potage-SQL relational databases and propheral databases and web services. 31-AG22.1 Algorithms and Graphs 2 31-AG22.1 Algorithms and Graphs 2 31-AG22.1 Algorithms and Graphs 2 31-AG22.1 DB Technologies for Big Data services and services are services and services and sentitive and services are serviced to the course services and sentitive and the propheral database and services are serviced to increase services and services are serviced to increase ser		· · · ·	urrent state-of-the	e-art during		7 71/	
includes both PC cide and peripheral devices side. Laba are practically oriented. Students gain experience with implementation of relevant parts of USB devices, Linux and Windowstrews, simple application development, and APIe of selected devices. 3.H.W.P.Z.1 Modern Visualisation Technologies he page 1.			ised on technique	s based on			-
32-MVT21			•			•	•
his goal of the course is to give an overview of modern visualization technologies and their principles, namely technologies related to virtual and sugmented reality, visualization, goal of proceedium visualization, and video mappenging and their applications in practice. Several lectures deal with the content creation for the mentioned technologies, namely fract and procedural visualization, scientific data visualization, and 3D model scanning. 3HAVID 21 Web and Database Server Administration 3LAVID 21 Web and Database Server Administration of clatabase and web servers and services. They will be able to install, configure, operate, test, and backing complex distabase and visualization, and services. They will be able to install, configure, operate, test, and backing complex distabase and visualization. The principles will be demonstrated on the PostgreSQL relational distabase engine and Apache will be used as an example of a web server. 3HAG2.21 Algorithms and Graphs 2 3HAG2.21 Algorithms and Graphs 2 3HAG2.21 DB B Technologies for Big Data Section of the course of the co		·					
ingh resolution displays (e.g., SACE and video mapping) and their applications in practices. Several lectures deal with the content creation for the mentioned technologies, namely fract and proceedural visiousizations, osientified data visualization, and 3D model scanning and proceedural visiousizations, osientified data visualization, and 3D model scanning and proceedural visiousizations (an international content of the post process of the p					ı	, ,	-
and procedum insularization, scientific data visualization, and 3D model scanning. 3.HAVID 21 Web and Database Server Administration of database and web servers and services. They will be able to install, configure, operate, test, and backup complex database and web servers are stream. The principles will be demonstrated on the PostgreSQL relational database engine and Apache will be used as an example of a web server. 3.HAG2.21 Algorithms and Graphs 2 Algorithms and concepts of graph theory as a follow-up on the introduction given in the computery of the course see the Acc 2x1. 3.HAG2.21 DB Technologies for Big Data 4.HAG2.22 DB Technologies for Big Data 5.HAG2.22 DB Technologies for Big Data 5.HAG2.22 DB Technologies for Big Data 5.HAG2.22 DB Technologies for Big Data 6.HAG2.22 DB Technologies for Big Data 7.HAG2.22 DB Technologies for Big Data 7.HAG2.23 DB Technologies for Big Data 8.HAG2.24 DB Technologies for Big Data 8.HAG2.25 DB Technologies for Big Data 8.HAG2.25 DB Technologies for Big Data 8.HAG2.27 DB Technologies for Big Data 8.HAG2.27 DB Technologies for Big Data 8.HAG2.28 DB Technologies for Big Data 8.HAG2.28 DB Technologies for Big Data 8.HAG2.29 DB Technologies for Big Data 8.HAG2.29 DB Technologies for Big Data 8.HAG2.20 DB Technologies for Big Data 8.HAG2.20 DB Technologies for Big Data 8.HAG2.21 DB Technologies for Big Data 8.HAG2.21 DB Technologies for Big Data 8.HAG2.21 DB Technologies for Big Data 8.HAG2.22 DB Technologies for Big Da	-	· · · · · · · · · · · · · · · · · · ·	-		_	-	
Students will get acquainted with the administration of database and web services and services. They will be able to install, configure, operate, test, and backup complex database and web services yesterms. The principles will be demonstrated on the Postgree Cycle relational database on the very service with the properties of the prop		· · · · · · · · · · · · · · · · · · ·	ir the content cree		memorica k	somiologics,	mamory madian
Students will get acquainted with the administration of database and web services and services. They will be able to install, configure, operate, test, and backup complex database and web services yesterms. The principles will be demonstrated on the Postgree Cycle relational database on the very service with the properties of the prop						Z,ZK	5
3H-AG2.21 Algorithms and Graphs 2 his course presented in Cazech, Introduces basic algorithms and concepts of graph theory as a follow-up on the introduction given in the compalisary course BLAG1.21. It further televes into advances data structures and amortized complexity analysis. It also includes a very light introduction to approximation algorithms. For English version of the course set in AG2.21. DB Technologies for Big Data DB Technologies for Big Data DB Technologies for Big Data processing where nonrelational (NoSQL) databases engines are typically used today. The course is to describe the course students were able to choose suitable tools (mostly open source) and techniques, design and implement a simplest reproducible method of data processing data collection, transformation/agorgation, presentation, presentation, and the collection interaction of the data processing data of the course students were able to choose suitable tools (mostly open source) and techniques, design and implement a simplest reproducible method of data processing in dividual technologies will be supplemented with specific examples from practice. ACC Data D	Students will get acquainted	with the administration of database and web servers and services. They will be able to	o install, configure	e, operate, te			database and
Fise course, presented in Czech, introduces basic algorithms and concepts of graph theory as a follow-up on the introduction given in the compulsory course BH-AGI 21. It further levels into advances data structures and amortized complexity analysis, it also includes a very light introduction to approximation algorithms. For English version of the course see site. Acc. 21. BE Technologies for Big Data KZ 5		inciples will be demonstrated on the PostgreSQL relational database engine and Apa	che will be used a	as an examp			
selves into advances data strutures and amortized complexity analysis. It also includes a very light introduction to approximation algorithms. For English version of the course see site-Ne221. B-BIG 21 DB Technologies for Big Data KZ 5	- -	•				, I	
SIE-ABC 2.1 DB Technologies for Big Data KZ 5 Students will be introduced into the field of Big Data processing where nonrelational (NoSQL) database engines are typically used today. The course is tocused practically so that after instincting the course students were able to choose suitable tools (mostly open source) and techniques, design and implement a simplest reproducible method of data processing (and instincting the course students were able to choose suitable tools (mostly open source) and techniques, design and storing big data. A theoretical foundation and presentatic individual technologies will be supplemented with specific examples from practice. SIE-EPP21 Economic Business Processes The aim of the course is to present typical processes related to the usual life cycle of a company. The course focuses mainly on the basic commangany's life cycle, from the stabilishment of the company, through the management of property and capital structure, financing of the company, determining the cost function of the company and labor costs, to wait the company, through the management of property and capital structure, financing of the company, determining the cost function of the company and labor costs, to wait and their indicators for company and use work and the company and labor costs, to wait and other indicators for company and with other companies and management accounting as a too for recording business operations and documents for business analysis, determining its value of the course is to acquaint students primarily with financial accounting as a too for recording business operations and documents for business analysis, determining its value of financial management and prediction of business development. Management accounting allows monotring of the financial status and performance of business analysis, determining its value of financial management and prediction of business development. Management accounting allows monotring of the financial status and performance of business and internationa	·		_		-		
SEIG. 21 DB Technologies for Big Data Selected Data processing where nonrelational (NoSQL) database engines are typically used today. The course is focused practically so that after inshing the courses students were able to choose suitable tools (mostly open source) and techniques, design and implement a simplest reproducible method of data processing (database engines are typically used today. The course is focused practically so that after inshining the courses students were able to choose suitable tools (mostly open source) and techniques, design and implement a simplest reproducible method of data processing (database engines are typically used today. The course is to present processes. The individual techniques with the supplemented with specific examples from practical. 31-EPP.21 Economic Business Processes 13-EPP.21 Economic Business Processes 14-EPP.21 Economic Business Processes 15-EPP.21 Economic Business Processes 16-EPP.21 Economic Business Processes 18-EPP.21 Economic Business Processes 18-EPP.22 Economic	BIE-AG2.21.	ructures and amortized complexity analysis. It also includes a very light introduction to	д арргохіпіацоп а	igoritiinis. i	Of English v	ersion or the	Course see
Students will be introduced into the field of Big Data processing where nonrelational (NoSCL) database engines are typically used today. The course is focused practically so that afficially described to the several processing data to the consess subtlents were able to choose suitable tools (mostly open source) and techniques, design) and implement an embed of data processing data collection, transformation/aggregation, presentation). Students get acquainted with various architectures for processing and storing big data. A theoretical foundation and presentation of the development of the processes of the same of the course is to present typical processes related to the usual life cycle of a company. The course focuses mainly on the basic economic and financial aspects of business in the market environment of the Coenplary Site (peck), from the stablishment of the company, through the management of property and capital structure, financing of the company, determining the cost function of the company and labor costs, twalturing the financial health of the company and labor costs, twalturing the financial Business Intelligence The aim of the course is to acquaint students primarily with financial accounting as a tool for recording business operations and documents for business analysis, determining its valued of their indicators for comparison with other companies and management accounting allows on the course of the company and labor costs. It was a company and the cost of the company and labor costs, two described in the cost of the company and labor costs, two described and prediction of business development. Management accounting allows a the tractical and strategic level. The second view is management accounting as a too for recording business softwales and middle individual process of the course of the company and labor to recording business development and prediction of business development. Management accounting as a too for recording business development with the course of the processor will be a subject		Technologies for Big Data				KZ	5
collection, transformation/aggregation, presentation). Students get acquainted with various architectures for processing and storing big data. A theoretical foundation and presentation of individual technologies will be supplemented with specific examples from practices. 31-EPP.21 Economic Business Processes The aim of the course is to present typical processes related to the usual life cycle of a company. The course focuses mainly on the basic economic and financial aspects of business in the market environment of the Czech Republic and the basics of management. In the course, students are acquainted with the typical phases of the company and labor costs, two the market environment of the company and rath the basic or management of property and capital structure, financing of the company, determining the cost function of the company and labor costs, two valuating the financial health of the company and labor costs, two valuating the financial health of the company and labor costs, two valuating the financial Business Intelligence The aim of the course is to acquaint students primarily with financial accounting as a tool for recording business operations and documents for business analysis, determining its valuation other indicators for comparison with other companies and management decision process at the tactical and strategic level. The second view is management accounting allows monitoring of the financial status and performance of business activities over sever accounting particular process on an accounting and processes are selected to future business development. Management accounting, allows monitoring of the financial status and performance of business and the sates and perceptional programment processes on an overview of sensors and actuator witnesses communication technologies and development tools used in the field of the Internet of Things (for). Lectures are devoted to an overview of sensors and actuator vitieses communication technologies designed primarily for this area, and appropriate prog			re typically used to	oday. The co	ourse is focu	sed practical	ly so that after
Individual technologies will be supplemented with specific examples from practice. Economic Business Processes Z,ZK 5				-		-	
B-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 focuses mainly on the basic economic and financial aspects of busines in the market environment of the Czech Republic and the basics of management. In the course, students are acquainted with the typical phases of the company sile cycle, from the stabilishment of the company, through the management of property and capital structure, financial of the company, determining the cost function of the company and labor costs, twadurating the financial health of the company and labor costs, twadurating the financial Business Intelligence Z,ZK 5 The aim of the course is to acquaint students primarily with financial accounting as a tool for recording business operations and documents for business analysis, determining its value and other indicators for comparison with other companies and management decision process at the tactical and strategic level. The second view is management accounting as low too financial management and production of business development. Management accounting allows monitoring of the financial status and performance of business activities ower sever to counting periods, enables a multifidensicosial view of business satic and strategic level. The second view is management accounting as low monitoring of the financial status and performance of business activities over sever to counting periods, enables a multifidensicosial view of business activities over sever to counting periods, enables an unfailed land to use value information as systems, decisions support systems, and other knowledge-orient effectively factors affecting the repair and and to use value information as systems, decisions support systems, and other knowledge-orient observations, and periodical programming methods. They include an overview of 16 architectures for different application reas. Within the computer labs, students will an advantance of the processor and a	=		ssing and storing	big data. A	theoretical fo	oundation an	d presentation
The aim of the course is to present typical processes related to the usual life cycle of a company. The course focuses mainly on the basic economic and financial aspects of busines in the market environment of the Czech Republic and the basics of management. In the course, students are acquainted with the typical phases of the company sile cycle, from the stabilishment of the company, through the management of property and capital structure, financing of the company, determining the cost function of the company and labor costs, it waits that the company and its eventual rehabilitation or termination. 3.17 FIJ FI FINANCIA BUSINESS Intelligence The aim of the course is to acquaint students primarily with financial accounting as a tool for recording business operations and documents for business analysis, determining its valued other indicators for comparison with other companies and management decision process at the tactical and stategic level. The second view is management and prediction of business decisions support instead to future business decisions. The principles of management and periated to future business decisions. The principles of management accounting, elsectively factors affecting the return on invested capital and to use value information to sesses options related to future business decisions. The principles of management accounting, described in this course, are the basis of Business Intelligence modules in business information systems, decisions support systems, and other knowledge-oriented systems. 3.1-OT.21 Internet of Things Z,ZK 5 The course focuses on an overview of technologies and development tools used in the field of the Internet of Things (loT). Lectures are devoted to an overview of sensors and actuator wireless communication technologies designed primarily for this area, and appropriate programming methods. They include an overview of Indiance - ARM, ESP, STM, fortware - Arduino, Raspberry Pi OS). 3.1-OT.21 Internet of Things Z,ZK 5 The course focuses on an over						7 71/	
the market environment of the Czech Republic and the basics of management. In the course, students are acquainted with the typical phases of the company's life cycle, from the substablishment of the company and labor costs, to evaluating the financial health of the company and list eventual rehabilitation or termination. 31-FBL.21 Financial Business Intelligence The aim of the course is to acquaints students primarily with financial accounting as a tool for recording business operations and documents for business analysis, determining its valuation of their indicators for companison with other companies and management decision process at the tactical and strategic level. The second view is management accounting as a too for inancial management and production of business development. Management accounting allows momitoring of the financial status and performance of business activities over executating periods, enables a multidimensional view of business data, enables to control effectively factors affecting the return on invested capital and to use value information to issess options related to future business decisions. The principles of management accounting, described in this course, are the basis of Business Intelligence modules in business information systems, decision support systems, and other knowledge-oriented systems. 31-IOT.21 Internet of Things The course focuses on an overview of technologies and development tools used in the filed of the Internet of Things (IoT). Lectures are devoted to an overview of sensors and actuator vireless communication technologies designed primarily for this area, and appropriate programming methods. They include an overview of IoT architectures for different application reass. Within the computer labs, students will gain practical experience with developing simple IoT systems using common development environments (hardware - ARM, ESP, STM, official computer units and processors and their internactions with the environment, including accelerating arithmetic-logic			ses mainly on the	hasic econ			_
In Financial Health of the company and its eventual rehabilitation or termination. In Financial Business Intelligence The aim of the course is to acquaint students primarily with financial accounting as a tool for recording business operations and documents for business analysis, determining its valued to the course is to acquaint students primarily with financial accounting as a tool for recording business operations and documents for business analysis, determining its valued to the companies and management accounting as a tool for recording business of the financial status and performance of business activities over sever exercice of financial management and prediction of business development. Management accounting allows monitoring of the financial status and performance of business activities over sever exercice. In the course focuses on an overview of business decisions. The principles of management accounting, described in this course, are the basis of Business Intelligence modules in business for subminimation systems, decisions upport systems, and other knowledge-oriented systems. In Internet of Things Internet of Th			-				
Financial Business Intelligence Z,ZK 5 The aim of the course is to acquaint students primarily with financial accounting as a tool for recording business operations and documents for business analysis, determining its valuand other indicators for comparison with other companies and management decision process at the tactical and strategic level. The second view is management accounting as a tool for recording business development. Management accounting allows monitoring of the financial status and performance of business activities over sever accounting periods, enables a multidimensional view of business date, enables to control effectively factors affecting the return on invested capital and to use value information to its sesses options related to future business decisions. The principles of management accounting, described in this course, are the basis of Business Intelligence modules in business information systems, decision support systems, and other knowledge-oriented systems. Internet of Things The course focuses on an overview of technologies and development tools used in the field of the Internet of Things (IoT). Lectures are devoted to an overview of sensors and actuator wireless communication technologies designed primarily for this area, and appropriate programming methods. They include an overview of loral rachitectures for different application reas. Within the computer labs, students will gain practical experience with developing simple IoT systems using common development environments (hardware - ARM, ESP, STM, offware - Arduino, Raspberry PI OS). In JPDO.21 Computer Units Students deepen their basic knowledge of digital computer units acquired in the obligatory course of the program (BIE-SAP), get acquainted in detail with the internal structure and organization of computer units and processors and their interactions with the environment, including accelerating arithmetic-logic units and using appropriate codes for implementatic of multiplication. The organization of main memory and	establishment of the compar	y, through the management of property and capital structure, financing of the compar	ny, determining the	e cost funct	ion of the co	mpany and I	abor costs, to
The aim of the course is to acquaint students primarily with financial accounting as a tool for recording business operations and documents for business analysis, determining its value of the indicators for comparison with other companies and management decision process at the tactical and strategic level. The second view is management accounting allows monitoring of the financial status and performance of business activities over sever accounting periods, enables a multidimensional view of business data, enables to control effectively factors affecting the return on invested capital and to use value information to incomplete the processor of the processor of the financial status and performance of business activities over sever recounting periods, enables a multidimensional view of business data, enables to control effectively factors affecting the return on invested capital and to use value information to sussess options related to future business decisions. The principles of management accounting, described in this course, are the basis of Business Intelligence modules in business information systems, decision support systems, and other knowledge-oriented systems. 3I-IOT.21							
and other indicators for comparison with other companies and management decision process at the factical and strategic level. The second view is management accounting as a too ro financial management and prediction of business development. Management accounting allows monitoring of the financial status and performance of business activities over sever accounting periods, enables a multidimensional view of business data, enables to control effectively factors affecting the return on invested capital and to use value information to assess options related to future business decisions. The principles of management accounting, described in this course, are the basis of Business Intelligence modules in business information systems, adecision support systems, and other knowledge-oriented systems. 3H-IOT.21 Internet of Things Z,ZK 5 The course focuses on an overview of technologies and development tools used in the field of the Internet of Things (IoT), Lectures are devoted to an overview of sensors and actuator vireless communication technologies designed primarily for this area, and appropriate programming methods. They include an overview of IoT architectures for different application areas. Within the computer labs, students will gain practical experience with developing simple IoT systems using common development environments (hardware - ARM, ESP, STM; offware - Arduino, Raspberry Pi OS). 3I-JPO.21 Computer Units Z,ZK 5 Students deepen their basic knowledge of digital computer units acquired in the obligatory course of the program (BIE-SAP), get acquainted in detail with the internal structure and organization of computer units and processors and their interactions with the environment, including accelerating arithmetic-logic units and using appropriate codes for implementation of multiplication. The organization of main memory and other internal memories (addressable, LIFO, FIFO and CAM) will be discussed in detail, including codes for error detection are correction for parallel and serial dat							-
or financial management and prediction of business development. Management accounting allows monitoring of the financial status and performance of business activities over sever occounting periods, enables a multidimensional view of business data, enables to control effectively factors affecting the return on invested capital and to use value information to sussess options related to future business decisions. The principles of management accounting, described in this course, are the basis of Business Intelligence modules in business information systems, decision support systems, and other knowledge-oriented systems. 31-IOT.21						-	-
accounting periods, enables a multidimensional view of business data, enables to control effectively factors affecting the return on invested capital and to use value information to usesess options related to future business decisions. The principles of management accounting, described in this course, are the basis of Business Intelligence modules in business Information systems, decision support systems, and other knowledge-oriented systems. BI-IOT.21		i i	J		U		J
ASI-IOT.21 Internet of Things The course focuses on an overview of technologies and development tools used in the field of the Internet of Things (IoT). Lectures are devoted to an overview of sensors and actuator vireless communication technologies designed primarily for this area, and appropriate programming methods. They include an overview of loT architectures for different application areas. Within the computer labs, students will gain practical experience with developing simple IoT systems using common development environments (hardware - ARM, ESP, STM; obtaware - Arduino, Raspberry Pi OS). SI-JPO.21 Computer Units Situdents deepen their basic knowledge of digital computer units acquired in the obligatory course of the program (BIE-SAP), get acquainted in detail with the internal structure and organization of computer units and processors and their interactions with the environment, including accelerating arithmetic-logic units and using appropriate codes for implementatic of multiplication. The organization of main memory and other internal memories (addressable, LIFO, FIFO and CAM) will be discussed in detail, including codes for error detection are correction for parallel and serial data transmissions. They will also get acquainted with the methodology of controller design, with the principles of communication of the processor will be environment and the architecture of the bus system. The problems will be practically evaluated in the labs and with the help of the educational microprogrammed processor simulation programmable hardware design kits (FPGA). SI-KOM.21 Conceptual Modelling Conceptual Modelling AZ,ZK 5 The course is focused on developing abstract thinking and precise formulation skills using conceptual models. Students learn basics of notological structural modeling in the OntoUM cotation. Next, they learn how to express business rules and constraints using the OCL language and foundations of OWL/RDF semantic data representation in the Internet. They also earn the foundations of enterpris							
Internet of Things The course focuses on an overview of technologies and development tools used in the field of the Internet of Things (IoT). Lectures are devoted to an overview of sensors and actuator vireless communication technologies designed primarily for this area, and appropriate programming methods. They include an overview of IoT architectures for different application inteas. Within the computer labs, students will gain practical experience with developing simple IoT systems using common development environments (hardware - ARM, ESP, STM; offware - Arduino, Raspberry Pi OS). Students deepen their basic knowledge of digital computer units acquired in the obligatory course of the program (BIE-SAP), get acquainted in detail with the internal structure and organization of computer units and processors and their interactions with the environment, including accelerating arithmetic-logic units and using appropriate codes for implementation of multiplication. The organization of main memory and other internal memories (addressable, LIFO, FIFO and CAM) will be discussed in detail, including codes for error detection are internal processor with the environment and the architecture of the bus system. The problems will be practically evaluated in the labs and with the help of the educational microprogrammed processor winde environment and the architecture of the bus system. The problems will be practically evaluated in the labs and with the help of the educational microprogrammed processor simulation programmable hardware design kits (FPGA). Sal-KOM.21 Conceptual Modelling The course is focused on developing abstract thinking and precise formulation skills using conceptual models. Students learn basics of ontological structural modeling in the OntoUM totation. Next, they learn how to express business rules and constraints using the OCL language and foundations of OWL/RDF semantic data representation in the Internet. They alse are for the process of the process of the process of the process of the process. Stu	· · · · · · · · · · · · · · · · · · ·		ourse, are the bas	sis of Busin	ess Intelliger	nce modules	in business
The course focuses on an overview of technologies and development tools used in the field of the Internet of Things (IoT). Lectures are devoted to an overview of sensors and actuator wireless communication technologies designed primarily for this area, and appropriate programming methods. They include an overview of IoT architectures for different application 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 Students deepen their basic knowledge of digital computer units acquired in the obligatory course of the program (BIE-SAP), get acquainted in detail with the internal structure and organization of computer units and processors and their interactions with the environment, including accelerating arithmetic-logic units and using appropriate codes for implementation of multiplication. The organization of main memory and other internal memories (addressable, LIFO, FIFO and CAM) will be discussed in detail, including codes for error detection are processor or a parallel and serial data transmissions. They will also get acquainted with the methodology of controller design, with the principles of communication of the processor wince environment and the architecture of the bus system. The problems will be practically evaluated in the labs and with the help of the educational microprogrammed processor simulation programmable hardware design kits (FPGA). 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 domain, the ability to eategotize and specify correct relations in complex systems of social reality, mostly enterprises and institutions. Students learn basics of ontological structural modeling in the OntoUM processor of the deducations of enterprise engineering, be							
wireless communication technologies designed primarily for this area, and appropriate programming methods. They include an overview of IoT architectures for different application 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). Students deepen their basic knowledge of digital computer units acquired in the obligatory course of the program (BIE-SAP), get acquainted in detail with the internal structure and organization of computer units and processors and their interactions with the environment, including accelerating arithmetic-logic units and using appropriate codes for implementation of multiplication. The organization of main memory and other internal memories (addressable, LIFO, FIFO and CAM) will be discussed in detail, including codes for error detection are orrection for parallel and serial data transmissions. They will also get acquainted with the methodology of controller design, with the principles of communication of the processor will be environment and the architecture of the bus system. The problems will be practically evaluated in the labs and with the help of the educational microprogrammed processor simulation and programmable hardware design kits (FPGA). 31-KOM.21 Conceptual Modelling Z,ZK 5 The course is focused on developing abstract thinking and precise formulation skills using conceptual models. Students learn basics of ontological structural modeling in the Ontotal votation. Next, they learn how to express business rules and constraints using the OCL language and foundations of OWL/RDF semantic data representation in the Internet. They also earn the foundations of enterprise engineering, being a discipline for conceptual modelling of enterprises and institutes and their processes. The DEMO method and the BPMN notatic will be taught. The course is designed with the respect to continuation in software implementations. Re		<u> </u>	(1 T) 1				
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 Students deepen their basic knowledge of digital computer units acquired in the obligatory course of the program (BIE-SAP), get acquainted in detail with the internal structure and organization of computer units and processors and their interactions with the environment, including accelerating arithmetic-logic units and using appropriate codes for implementation multiplication. The organization of main memory and other internal memories (addressable, LIFO, FIFO and CAM) will be discussed in detail, including codes for error detection are correction for parallel and serial data transmissions. They will also get acquainted with the methodology of controller design, with the principles of communication of the processor with the environment and the architecture of the bus system. The problems will be practically evaluated in the labs and with the help of the educational microprogrammed processor simulation programmable hardware design kits (FPGA). BI-KOM.21 Conceptual Modelling 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 domain, the ability to actegorize and specify correct relations in complex systems of social reality, mostly enterprises and institutions. Students learn basics of notological structural modeling in the Ontol Modelling of enterprise engineering, being a discipline for conceptual modelling of enterprises and institutes and their processes. The DEMO method and the BPMN notation. Next, they learn how to express business rules and constraints using the OCL language and foundations of OWL/RDF semantic data representation in the Internet. They also earn the foundations of enterprise engineering, being a discipline for concept			. ,				
SI-JPO.21 Computer Units Students deepen their basic knowledge of digital computer units acquired in the obligatory course of the program (BIE-SAP), get acquainted in detail with the internal structure and organization of computer units and processors and their interactions with the environment, including accelerating arithmetic-logic units and using appropriate codes for implementation of multiplication. The organization of main memory and other internal memories (addressable, LIFO, FIFO and CAM) will be discussed in detail, including oodes for error detection are correction for parallel and serial data transmissions. They will also get acquainted with the methodology of controller design, with the principles of communication of the processor wine environment and the architecture of the bus system. The problems will be practically evaluated in the labs and with the help of the educational microprogrammed processor simulate and programmable hardware design kits (FPGA). SI-KOM.21 Conceptual Modelling The course is focused on developing abstract thinking and precise formulation skills using conceptual models. Students learn skills of discerning key terms in a domain, the ability to categorize and specify correct relations in complex systems of social reality, mostly enterprises and institutions. Students learn basics of ontological structural modeling in the OntoUM lotation. Next, they learn how to express business rules and constraints using the OCL language and foundations of OWL/RDF semantic data representation in the Internet. They alse earn the foundations of enterprise engineering, being a discipline for conceptual modelling of enterprises and institutes and their processes. The DEMO 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. SI-LA2.21 Linear Algebra 2 Studenti si v tomto p edm tu rozší í znalosti z p edm tu BI-LA1, kde se pracovalo pouze s vektory ve form n-tic (sel. Zde			-				
Students deepen their basic knowledge of digital computer units acquired in the obligatory course of the program (BIE-SAP), get acquainted in detail with the internal structure and organization of computer units and processors and their interactions with the environment, including accelerating arithmetic-logic units and using appropriate codes for implementation of multiplication. The organization of main memory and other internal memories (addressable, LIFO, FIFO and CAM) will be discussed in detail, including codes for error detection are organization for parallel and serial data transmissions. They will also get acquainted with the methodology of controller design, with the principles of communication of the processor with the environment and the architecture of the bus system. The problems will be practically evaluated in the labs and with the help of the educational microprogrammed processor simulated and programmable hardware design kits (FPGA). 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 domain, the ability to reategorize and specify correct relations in complex systems of social reality, mostly enterprises and institutions. Students learn basics of ontological structural modeling in the OntoUM rotation. Next, they learn how to express business rules and constraints using the OCL language and foundations of OWL/RDF semantic data representation in the Internet. They also earn the foundations of enterprise engineering, being a discipline for conceptual modelling of enterprises and institutes and their processes. The DEMO method and the BPMN notatic will be taught. The course is designed with the respect to continuation in software implementations. Recommended optional follow-up course: BI-ZPI. BI-LA2.21 Linear Algebra 2 Z,ZK 5 Students is victom to pedm tu rozší í znalostí z p edm tu BI-LA1, kde se pracovalo pouze s vektory ve form n-ti	· · · · · · · · · · · · · · · · · · ·		·				
organization of computer units and processors and their interactions with the environment, including accelerating arithmetic-logic units and using appropriate codes for implementation of multiplication. The organization of main memory and other internal memories (addressable, LIFO, FIFO and CAM) will be discussed in detail, including codes for error detection are correction for parallel and serial data transmissions. They will also get acquainted with the methodology of controller design, with the principles of communication of the processor with the environment and the architecture of the bus system. The problems will be practically evaluated in the labs and with the help of the educational microprogrammed processor simulate and programmable hardware design kits (FPGA). BI-KOM.21 Conceptual Modelling The course is focused on developing abstract thinking and precise formulation skills using conceptual models. Students learn skills of discerning key terms in a domain, the ability to categorize and specify correct relations in complex systems of social reality, mostly enterprises and institutions. Students learn basics of ontological structural modeling in the OntoUM notation. Next, they learn how to express business rules and constraints using the OCL language and foundations of OWL/RDF semantic data representation in the Internet. They alse earn the foundations of enterprise engineering, being a discipline for conceptual modelling of enterprises and institutes and their processes. The DEMO method and the BPMN notation between the study of the study of the respect to continuation in software implementations. Recommended optional follow-up course: BI-ZPI. BI-LA2.21 Linear Algebra 2 Z,ZK 5 Students is v tomto 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 prostor v abstraktní obecné form set aké aplikace lineární algebra, kde si ukážeme potíže s ešením soustav lineárních rovnic na po íta i a možnosti, jak se s tímto problémem vypo áda	BI-JPO.21 Co	mputer Units			Z	Z,ZK	5
of multiplication. The organization of main memory and other internal memories (addressable, LIFO, FIFO and CAM) will be discussed in detail, including codes for error detection are correction for parallel and serial data transmissions. They will also get acquainted with the methodology of controller design, with the principles of communication of the processor with the environment and the architecture of the bus system. The problems will be practically evaluated in the labs and with the help of the educational microprogrammed processor simulated and programmable hardware design kits (FPGA). 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 domain, the ability to categorize and specify correct relations in complex systems of social reality, mostly enterprises and institutions. Students learn basics of ontological structural modeling in the OntoUM notation. Next, they learn how to express business rules and constraints using the OCL language and foundations of OWL/RDF semantic data representation in the Internet. They also earn the foundations of enterprise engineering, being a discipline for conceptual modelling of enterprises and institutes and their processes. The DEMO 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-LA2.21 Linear Algebra 2 Z,ZK 5 Studenti si v tomto 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 prostor v abstraktní obecné form soude numerická lineární 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 rozklady mati Jakážeme si také aplikace lineární algebra, kde si ukážeme potíže s ešením soustav lineárních rovnic na po íta i a možnosti,	•		, , ,	•			
correction for parallel and serial data transmissions. They will also get acquainted with the methodology of controller design, with the principles of communication of the processor with the environment and the architecture of the bus system. The problems will be practically evaluated in the labs and with the help of the educational microprogrammed processor simulate and programmable hardware design kits (FPGA). 31-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 domain, the ability to categorize and specify correct relations in complex systems of social reality, mostly enterprises and institutions. Students learn basics of ontological structural modeling in the OntoUM notation. Next, they learn how to express business rules and constraints using the OCL language and foundations of OWL/RDF semantic data representation in the Internet. They also earn the foundations of enterprise engineering, being a discipline for conceptual modelling of enterprises and institutes and their processes. The DEMO 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. 31-LA2.21 Linear Algebra 2 Z,ZK 5 31-LA2.21 Linear Algebra 2 Z,ZK 5 32-LA2.21 Linear Algebra 2 Z,ZK 5 33-LA2.21 Linear Algebra 2 Z,ZK 5 34-LA2.21 Linear Algebra 2 Z,ZK 5 35-LA3.21 Linear Algebra 2 Z,ZK 5 36-LA3.21 Linear Algebra 2 Z,ZK 5 37-LA3.21 Linear Algebra 2 Z,ZK 5 38-LA3.21 Linear Algebra 2 Z,ZK 5 39-LA3.21 Linear Algebra 2 Z,ZK 5 30-LA3.21 Linear Algebra 2 Z,ZK 5 30-LA3.21 Linear Algebra 2 Z,ZK 5 30-LA3.21 Linear Algebra 2 Z,ZK 5 31-LA3.21 Linear Algebra 2 Z,ZK 5 31-LA3.21 Linear Algebra 2 Z,ZK 5 31-LA3.31 Linear Algebra 2 Z,ZK 5 31-LA3.32 Lin			•		•		•
the environment and the architecture of the bus system. The problems will be practically evaluated in the labs and with the help of the educational microprogrammed processor simulate and programmable hardware design kits (FPGA). BI-KOM.21 Conceptual Modelling The course is focused on developing abstract thinking and precise formulation skills using conceptual models. Students learn skills of discerning key terms in a domain, the ability to categorize and specify correct relations in complex systems of social reality, mostly enterprises and institutions. Students learn basics of ontological structural modeling in the OntoUM notation. Next, they learn how to express business rules and constraints using the OCL language and foundations of OWL/RDF semantic data representation in the Internet. They alse earn the foundations of enterprise engineering, being a discipline for conceptual modelling of enterprises and institutes and their processes. The DEMO 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-LA2.21 Linear Algebra 2 Studenti si v tomto 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 prostor v abstraktní obecné form Seznámíme se také s pojmem skalární sou in a lineární zobrazení, což nám dovolí ukázat souvislost s lineární algebrou, geometrií a po íta ovou grafikou. Dalším velkým tématem oude numerická lineární 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 rozklady mati Jkážeme si také aplikace lineární algebry v r zných oborech. BI-LOG.21 Mathematical Logic The course focuses on the basics of propositional and predicate logic. It starts from the semantic point of view. Based on the notion of truth, satisfiability, logical equivalence, and the			•		•		
BI-KOM.21 Conceptual Modelling The course is focused on developing abstract thinking and precise formulation skills using conceptual models. Students learn skills of discerning key terms in a domain, the ability to categorize and specify correct relations in complex systems of social reality, mostly enterprises and institutions. Students learn basics of ontological structural modeling in the OntoUM notation. Next, they learn how to express business rules and constraints using the OCL language and foundations of OWL/RDF semantic data representation in the Internet. They also earn the foundations of enterprise engineering, being a discipline for conceptual modelling of enterprises and institutes and their processes. The DEMO 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-LA2.21 Linear Algebra 2 Studenti si v tomto 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 prostor v abstraktní obecné form Seznámíme se také s pojmem skalární sou in a lineární zobrazení, což nám dovolí ukázat souvislost s lineární algebrou, geometrií a po íta ovou grafikou. Dalším velkým tématem bude numerická lineární 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 rozklady mati Jkážeme si také aplikace lineární algebry v r zných oborech. BI-LOG.21 Mathematical Logic The course focuses on the basics of propositional and predicate logic. It starts from the semantic point of view. Based on the notion of truth, satisfiability, logical equivalence, and the	· ·		_	-			
The course is focused on developing abstract thinking and precise formulation skills using conceptual models. Students learn skills of discerning key terms in a domain, the ability to categorize and specify correct relations in complex systems of social reality, mostly enterprises and institutions. Students learn basics of ontological structural modeling in the OntoUM notation. Next, they learn how to express business rules and constraints using the OCL language and foundations of OWL/RDF semantic data representation in the Internet. They also searn the foundations of enterprise engineering, being a discipline for conceptual modelling of enterprises and institutes and their processes. The DEMO 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-LA2.21 Linear Algebra 2 Students is victorized by the course of the basics of propositional and predicate logic. It starts from the semantic point of view. Based on the notion of truth, satisfiability, logical equivalence, and the course focuses on the basics of propositional and predicate logic. It starts from the semantic point of view. Based on the notion of truth, satisfiability, logical equivalence, and the course focuses on the basics of propositional and predicate logic. It starts from the semantic point of view. Based on the notion of truth, satisfiability, logical equivalence, and the course focuses on the basics of propositional and predicate logic. It starts from the semantic point of view. Based on the notion of truth, satisfiability, logical equivalence, and the course focuses on the basics of propositional and predicate logic. It starts from the semantic point of view.	and programmable hardware	e design kits (FPGA).					
categorize and specify correct relations in complex systems of social reality, mostly enterprises and institutions. Students learn basics of ontological structural modeling in the OntoUM notation. Next, they learn how to express business rules and constraints using the OCL language and foundations of OWL/RDF semantic data representation in the Internet. They also searn the foundations of enterprise engineering, being a discipline for conceptual modelling of enterprises and institutes and their processes. The DEMO 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-LA2.21	ļ.	·					-
notation. Next, they learn how to express business rules and constraints using the OCL language and foundations of OWL/RDF semantic data representation in the Internet. They also searn the foundations of enterprise engineering, being a discipline for conceptual modelling of enterprises and institutes and their processes. The DEMO 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-LA2.21 Linear Algebra 2 Studenti si v tomto 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 prostor v abstraktní obecné form Seznámíme se také s pojmem skalární sou in a lineární zobrazení, což nám dovolí ukázat souvislost s lineární algebrou, geometrií a po íta ovou grafikou. Dalším velkým tématem bude numerická lineární 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 rozklady maticularical staké aplikace lineární algebry v r zných oborech. BI-LOG.21 Mathematical Logic The course focuses on the basics of propositional and predicate logic. It starts from the semantic point of view. Based on the notion of truth, satisfiability, logical equivalence, and the							-
earn the foundations of enterprise engineering, being a discipline for conceptual modelling of enterprises and institutes and their processes. The DEMO 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-LA2.21 Linear Algebra 2 C,ZK 5 Studenti si v tomto 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 prostor v abstraktní obecné form Seznámíme se také s pojmem skalární sou in a lineární zobrazení, což nám dovolí ukázat souvislost s lineární algebrou, geometrií a po íta ovou grafikou. Dalším velkým tématem bude numerická lineární 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 rozklady maticula vykážeme si také aplikace lineární algebry v r zných oborech. BI-LOG.21 Mathematical Logic The course focuses on the basics of propositional and predicate logic. It starts from the semantic point of view. Based on the notion of truth, satisfiability, logical equivalence, and the				_		_	
BI-LA2.21 Linear Algebra 2 Studenti si v tomto 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 prostor v abstraktní obecné form Seznámíme se také s pojmem skalární sou in a lineární zobrazení, což nám dovolí ukázat souvislost s lineární algebrou, geometrií a po íta ovou grafikou. Dalším velkým tématem poude numerická lineární 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 rozklady matical Jkážeme si také aplikace lineární algebry v r zných oborech. BI-LOG.21 Mathematical Logic The course focuses on the basics of propositional and predicate logic. It starts from the semantic point of view. Based on the notion of truth, satisfiability, logical equivalence, and the					-		
Studenti si v tomto 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 prostor v abstraktní obecné form Seznámíme se také s pojmem skalární sou in a lineární zobrazení, což nám dovolí ukázat souvislost s lineární algebrou, geometrií a po íta ovou grafikou. Dalším velkým tématem bude numerická lineární 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 rozklady mati Jkážeme si také aplikace lineární algebry v r zných oborech. BI-LOG.21 Mathematical Logic The course focuses on the basics of propositional and predicate logic. It starts from the semantic point of view. Based on the notion of truth, satisfiability, logical equivalence, and the			=		II-ZPI.		
Seznámíme se také s pojmem skalární sou in a lineární zobrazení, což nám dovolí ukázat souvislost s lineární algebrou, geometrií a po íta ovou grafikou. Dalším velkým tématem bude numerická lineární 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 rozklady mati Jkážeme si také aplikace lineární algebry v r zných oborech. BI-LOG.21 Mathematical Logic The course focuses on the basics of propositional and predicate logic. It starts from the semantic point of view. Based on the notion of truth, satisfiability, logical equivalence, and the	!	<u>~</u>					
bude numerická lineární 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 rozklady mati Jkážeme si také aplikace lineární algebry v r zných oborech. BI-LOG.21 Mathematical Logic The course focuses on the basics of propositional and predicate logic. It starts from the semantic point of view. Based on the notion of truth, satisfiability, logical equivalence, and the	· ·						
Ukážeme si také aplikace lineární algebry v r zných oborech. BI-LOG.21 Mathematical Logic The course focuses on the basics of propositional and predicate logic. It starts from the semantic point of view. Based on the notion of truth, satisfiability, logical equivalence, and the		•			•		•
BI-LOG.21 Mathematical Logic The course focuses on the basics of propositional and predicate logic. It starts from the semantic point of view. Based on the notion of truth, satisfiability, logical equivalence, and the	-		, jan 50 5 mm0 p	. Joionneili V	, po adal o l	. razoni na i	oznady mano.
The course focuses on the basics of propositional and predicate logic. It starts from the semantic point of view. Based on the notion of truth, satisfiability, logical equivalence, and the					7	Z,ZK	5
and the second of the second o		3	sed on the notion	of truth, sa			_
ogical consequence of formulas are defined. Methods for determining the satisfiability of formulas, some of which are used for automated proving, are explained. This relates to the				-	-		
vs. NP problem and Boolean functions in propositional logic. In predicate logic, the course further deals with formal theories, such as arithmetics, and their models. The syntactic	•						syntactic
approach to mathematical logic is demonstrated on the axiomatic system of propositional logic and its properties. Gödel's incompleteness theorems is explained.		our in accompanies and an analysis and an analysis of the propositional logic and its proportion is	Goders incomplet	eness theo	rems is expl	ained	

The goal of the outside is to give an overleve of commonly used data formation for placed types drye and value description or dear data to prevent or control control of the place of the p			
state type show puts tooks available to work with such state. After finding the course, the state to such with common roads age, on the Westers FEFTITT Modern TE Infrastructure 2.2.K 5 BHMCA.2! Multimedia and Graphics Applications State of the stat	BI-MDF.21 Modern Data Formats	KZ	3
EFFITI Modern In Infrastructure Multimedia and Capathics Applications Students gas transpared with multimedia bethroughes and applications to 2000 brens part westire graphics. During the course, current tasks to available graphics and presented the introduced Students stem animality and inchronous control programs and ammonition in computer graphics, efforts control or graphs control or graphs control and control or graphs control and control or graphs control. 2.2. X 5 Graphics programs and the place of this pass of the place of the place of this pass of the place of this pass of the place of the place of this pass of this pass of the place of this pass o			its used for that
BHMCA21 Multimodia and Graphica Applications Students are expanded with multimode is obtinized and programming of the control			5
Suboths got orquanted with multimodulis schronogian and applications for 2000-00 bitmag and various graphics. During the course, current tools for exclining with images, visions, 30 graphics and immediate in the interfed and immediate the minimodulistic techniques of central and eligitizations from computing applics, indicated the process of organization representation systems, relating graph from multimodulistic paragraphics and immediate the process of organization and representation by spring and process. The process of the process of process of the pr			
graphics and similation will be introduced. Shadaris same award leasts be challeague of reaction and defining content in computing applies, production to pagin to controllegate. They lead processing 19 years in cluster and processing 19 years in cluster and processing 20 months of the processing 20 months and		, ,	
of graphos possessing cares. They gain an number of practical solids, such as veoleticing pages images, resoluting photos, or creating 30 models. BLOOP21 Diject-Oriented programming has been used in the last 50 years to salve computational programming has been used in the last 50 years to salve computational programming has been used in the last 50 years to salve computational programming and pages and programming has been used in the last 50 years to salve computational programming and pages and programming pages and programming and pages			
BHODO2! Object-Oriented Programming Grabes were used to tells all operands to tells all operands to tell all operands to tells all operands to tell all operands to tell all operands to the last of the programming and severe used to the last of operands and programming and design, used in modes programming languages. The emphases is on practical techniques for developing outbooks, within includes setting and programming and design, used in modes programming languages. The emphases is no practical techniques for developing outbooks, within includes setting and programming and programming. At the series films are included to the programming and programming and programming and programming. At the series films, they understand be included and programming and minimations. They are translated to the series and programming and minimations. They are translated to the programming and minimations. They are translated in the includes and programming and minimations. They are translated to the series and series and series of the complete gramming and developing and programming and	technologies. They learn to use multimedia transmission and representation systems, including real-time multimedia processing. They understand the	e principle of oper	ration and use
Objects contended programming has been send in the last 60 years to salve computational problems by using graphs of objects that collaborate tegrifies by message pleasing, in this courses students goal execution proclams of the process of the pro	of graphics processing cards. They gain a number of practical skills, such as vectorizing raster images, retouching photos, or creating 3D models.		
course students get acquainted with the realin principles of chipert-oriented programming and design, used in modern programming stinguages. The emphasis is no practical techniques for developing and very which includes techniques for the developing of the programming of the standard of the programming operation of the programming of the standard of the programming of the programming of the programming operation of the programming of the programming of the programming operation of the programming of the programming of the programming of the programming operation of the programming of the programming of the programming operation of the programming of the programming of the programming operation of the programming of the programming of the programming operation of the programming operation of the programming operation of the programming operation of the programming	1 ,		-
be downking antherwise, which includes teating, arror handring, influentings, and application of design patterns. BFPGR.21 Computer graphics programma any place interactive. SO gaphics application like a computer grane or scientific visualization, design the scene, add teatures imitiating geometric details and martiestific like valualization, or fighting model. They gain knowledge altoning in the same time, they understand the fundamental principles and representing solid fundamentals for your immediated flower than the principles and representing solid fundamentals for your immediation, and interactive that the principles and representing solid fundamentals for your immediation with the principles of the principles of the principles and representing solid fundamentals for your mediation with the principles of			-
BLPGR.21 Computer graphics programming formerine details and materials (the wall surface, which was the graph and surface, such extracts and programming generated details and materials (the wall surface, word, ext), and set up the lighting, At the same time, they undestand the fundamental principles and determinations, or sighting model. They gain howevides allowing controls for surface and surfaces, and scenario surface propriets and any surfaces and programming and animations. They give used to schridings using the fundamental for your processors and correlation and authorises, and scenario scenario. They give used to schridings using the graphics and surfaces, and scenario scenario scenario scenario. They give used to schridings using the graph and surfaces, and scenario scenario. The give used to schridings using the graph and surfaces, and scenario scenario. The give used to schridings using the graph and surfaces, and scenario scenario. The graph and surfaces and non-parameter models in surfaces and surfaces, and scenario scenario. The surfaces was also surfaces and non-parameter models and surfaces, and scenario scenario. The surfaces and non-parameter methods. Students will be an tous the statistical schridants R and wall apply the studied entropics on data from real problems. Practical Digital Design Practical Digital Design of the surface of th		npnasis is on prac	ctical techniques
After attending this curse, students can program a simple interactive 30 graphical application like a computer gambar to constitutive transmissing the washington, wood, skyl, and set up the lighting. And seems term, they understand the fundamental principles and representing social fundamentals for your proteosesantial evolution, exp. (2P) operationing and animators. They git used to independent principles and representing social fundamentals for your proteosesantial evolution, exp. (2P) operationing and animators. They git used to independent solidars in control proteoses and evolution, exp. (2P) operationing proteoses and such control and the students with the introduced to marchoid or adopted statistics. They will learn how to work with various types of data, perform analyses, and chosen workside litting the data. The course all managements represent to any control of the statistics of a statistics of a statistics of a special statistics. They will learn how to work with various types of data, perform analyses, and chosen workside litting the data. The course all managements represent the course of the statistics of solidars and statistics of the statistics of solidars and statistics. They will learn how to work with various types of data, perform analyses, and chosen workside litting the data. The course will increasing the statistics of the statistics o		7 7K	5
geometric details and materials (like wall surface, axout, say), and set up the lighting. At the same sime, they undestand the fundamental principles and terms used in computer graphics and segregation geometric confident principles and the production of the produ			- 1
protession development, e.g., oFU programming and animations. They got used to schridiques silliford in geometric modeling, modeling curves and surfaces, and scientific visualization. BPRS 2 5 The students will be introduced to methods of applied statistics. They will be an how to work with various types of data, perform analyses, and choose models fitting the data. The course will encompass registers and concretional analysis, analysis of variance and non-parametric methods. Students will learn to use the statistical schware R and will apply the student methods on data from real proteirum. Practical Digital Design Practical Digital Design Practical Digital Design RZ 5 5 5 5 5 5 5 5 5			- 1
BLPRS.21 Practical Statistics The students will be introduced to method of applied statistics. They will learn how to work with various types of data, perform analyses, and choose models filting the data. The course will encorrapses regression and correlation analysis, analysis of variance and non-parametric methods. Students will learn to use the statistical software R and will apply the studied methods on that born and proteins. BLPNO.21 Practical Digital Design Students get an overview of the contemporary digital design flow and learn practical statis to use synchronous design techniques. They understand the basics of the VHDL Inguage and implementation technologies PPCA and ASIC. Students demonstrate practical use of the design techniques in the course project using modern industry-standard CAD design tools. BLPNO.21 Law and Informatics of the VHDL Inguage and implementation technologies PPCA and ASIC. Students demonstrate practical use of the design techniques in the course project using modern industry-standard CAD design tools. BLPNO.21 Law and Informatics in which is a state of the project of the state of the pitalis that await them in business from the point of view of law. They will understand the process of concluding contracts in read and inferent environment, will show their responsibilities in working with the intentions of reflectiousing propriety by, and will be admitted to be used contracts of the pitalis that await them in business from the point of view of law. They will understand the process of concluding contracts in read and intention of the pitalis that await them in business from the point of view of law. They will understand the process of concluding contracts in read and intention of the pitalis that await them in the pitalis in view of law. They will understand the process of concluding operations are all intentions to the view of the pitalis that await them in the Carch Republic and the pitalis and the pitalis and pitalis and pitalis and pitalis and pitalis and pitalis and pitali	such as graphical pipeline, geometric transformations, or lighting model. They gain knowledge allowing orientation in computer graphics and represe	nting solid fundar	nentals for your
The students will be introduced 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 will encorporate registersion and correlation analysis, analysis of variance and non-parametric methods. Students will learn to use the statistical software R and will apply the student methods on data from real problems. BLPNO.21 Practical Digital Design Students age an overview of the contemporary digital design flow and learn practical skills to use synchronous design techniques. They understand the basics of the VHDL begrapes to the problems of the contemporary digital design flow and learn practical skills to use synchronous design techniques. They understand the basics of the VHDL begrapes to the course project using modern industry standard CAD design tools. BLPAN.21 Law and Informatics The aim of the course is to introduce students into the basic legal instruments that they will encounter in their practice. Students will gain be industry standard can be already to the problems of the course is to introduce students will not be basic legal instruments that they will encounter in their practice. Students will gain be able to some contracts in real and internet environment, will know their responsibilities in working with the Internet, will be familiar with the institutes of intellectual property like, and will be able to use contracts and present property like, and will be able to use to contract and present property like, and will be able to use to behaviour in the field of If that can be classified as criminal under the Czech law. The course will also include analyses of real cause from practice. BLP-DP.21 Programming Languages and Compilers Students share basic compiling methods of programming languages, including their basic execution models, benefits, and disadvantages of particular approaches, Functional programming language but any text is a language generated by a given LL injud grammar. BLPPA.21 Program			
will encompass regression and correlation enabysis, analysis of variance and non-parametric methods. Students will learn to use the statistical software R and will apply the students demonstrate programmy and the manufacture of the content of the programmy digital design flow and learn practical skills to use synchronous design techniques. They understand the basics of the VHD. Ingrage and implementation technologies FFGA and ASIC Students demonstrate practical use of the design techniques in the course project using modern industry-standard CAD design tools. BLPAL21 Law and Informatics BLPAL21 Law and Informatics BLPAL21 Law and Informatics to the printiple that avoid them in business from the point of view of law. They will understand the process of concluding contracts in real and internet flow aims of the aims of the course is to intriducte students into the basic legal instruments that they will encounter in their practice. Students will gain knowledge of Sing business in the Cache Republic and will be alterted to the prillable that avoid them in the Singer Sing of the Cache Republic and will be alterted to the prillable that avoid them in the Singer Singer them in the Cache Republic and will be alterted to the prillable that avoid them in the Internet, will be instituted and will be altered to the prillable that avoid in the singer students and the process of ordinate and the singer students and the singer students and the singer students are provided to a singer students and the singer students are provided to support them in the final IT that can be classified as a remining with the institutes of trailing the singer students are provided to programming languages. But any return is a ringuage generated by a given Linguity programming parage but any return is a ringuage parameted by a given Linguity programming parage but any return is a ringuage parameted by a programming inguage but any return is a ringuage parameted by a given Linguity programming parameter in programming parameters. Programming par			-
methods on data from real problems. BFNNO.21 Practical Digital Design Students age at an overview of the contemporary digital design flow and learn practical skills in use synchronous design techniques. They understand the basics of the WHD. language in a design technique in the contemporary digital design flow and learn practical skills in use synchronous design techniques. They understand the basics of the WHD. language incline and implementation technologies FPGA and ASIC. Students demonstrate practical use of the design techniques in the course project using modern industry-standard CAD design tools. BF-PAI.21 Law and Informatics The aim of the course is to introduce students into the basic legal instruments that they will encourser in their practice. Students will gain knowledge of doing basiness in the Capab Regulate and will be alerted to the political that award them in its unlesses from the point of view of lew. They will understand the process of conclusing contracts in real and 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 commercial learnes bytes will also be altered to such behaviour in the field of If that can be designed as criminal under the Capab have the registration of Internet chosens and propagation and complete in the field of If that can be designed as criminal under the Capab have the registration of Internet chosens and propagation and the such as Capab have a programming an advantage of the activation of the capab have a programming an advantage of the programming and progr		-	
BLPNO.21 Practical Digital Design Suddens get an overwise of the contemporary digital design flow and learn practical skills to use synchronous design storhniques. They understand the beaise of the VPL language and implementation technologies PFGA and ASIC. Students demonstrate practical use of the design techniques in the course project using modern industry-standard CAD design tools. BLPA1.21 Law and Informatics The aim of the course is to introduce subdents into the beats legal instruments that they will encounter in their practice. Students will gain knowledge of doing business in the Casch Republic and will be alerted to the pitalist that next them in beatiness from the point of view of law. They will understand the process of control to the pitalist that an well them in beatiness from the point of view of law. They will understand the process of controls in a control to the pitalist that a well as the increase of the process of th		are K and will app	ny trie studied
Students get an overview of the contemporary digital design flow and learn practical skills to use synchronous design techniques. They understand the basics of the VHOL language and implementation technologies PFGA and ASIC. Students demonstrate practical use of the design techniques in the course project using modern industry-standard CAD design tools. BLPAI.21 Law and Informatics The aim of the course is to introduce students into the basic legal instruments that they will encounter in their practica. Students will gain knowledge of doing business in the Czech Republic and will be altered to the pitting contracts in real and internet environment, will know their responsibilities in working with the internet, will be familiar with the intellucts of intellectual property law, and will be able to use commercial licenses byte and copen-source identifications. The programming and property of data on the internet, the registration of internet domains and protection against their insues. Students will also be bearted to such behaviour in the field of IT that can be disselled as criminal under the Czech law. The course will also include analyses of real cases from practice. BE-PLP2 1 Programming Languages and Compilers Students is seen basic compiling methods of programming languages and Compilers Language and Compilers and Students and		K7	5
In a war of the course is to introduce students into the basic legal instruments that they will encounter in their practice. Students will gain knowledge of doing business in the Czech Republic and will be altered to the pitting for their practice. Students will gain knowledge of doing business in the Czech Republic and will be altered to the pitting contracts in real and Internet environment, will know their esponsibilities in working with the Internet, will be familiar with the institutes of intellectual property law, and will be able to use commercial licence types and contracts the contract of the property should be altered 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. BIP.P2.1 Programming Languages and Compilers Students semble of the programming languages. They are introduced to intermediate representations used in current compilers GNU and LUM. They learn to create a specification of a translation of a text that conforms a given systax, to a target code and also to create a compiler based on the specification. The compiler can translation of a text that conforms a given systax, to a target code and also to create a compiler based on the specification. The compiler can translate not only a programming language but any text in a language perimental by a programming language but any text in a language perimental by a programming languages. The programming languages including their basic execution models, benefits, and disadvantages of particular approaches. Fundamental programming paraging and its basic principles are explained in details. Logic programming is introduced as another way of declarative programming. The principles are demonstrated on inabda calculus and on the Ling Explains will be placed on the possibilities of further enhancement of the presented software tools, both using bulk-in-scripting languages and by implementation of plugns. In programming paraging and its basic princ	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	I .	
BLPA.21 Law and Informatics The aim of the course is to introduce students into the basic legal instruments that they will encounter in their practice. Students will gain knowledge of doing business in the Carch Republic and will be altered to the pitfalls that swell them in basiness from the point of view of law. They will understand the process of concluding contracts in real and intermet environment, will, show wheir responsibilities in working with the internet, will be a familiar with the instituties of interfacts property law and personal property law and will also be altered to such therakoviar in the field of IT make the classified and a carcinal under the Czech law. The course will also include analyses of real cases from practice. BI-PJP.21 Programming Languages and Compilers Students than basic compiling methods of programming languages and compilers are specially and the programming languages and property law and also be remarked as puriodical or a farmalisation of a stratilation of a stratilation of a law that law continues a glove private. The acceptance of the programming languages but any text in a language generated by a given LL input gramming. BI-PPA.21 Programming Paradigms The course deals with basic paradigms of high-level programming languages, including their basic execution models, benefits, and disadvantages of particular approaches are explained in details. Logic programming is introduced as another way of declarative programming. The principles are demonstrated on lambac acticulus and on Lay (Racket) and Prolog programming languages, Morrover, usage of these principles is demonstrated on models members and programming languages and by implementation of layings. BI-PGA.21 Programming of Graphic Applications The course will present the possibilities of current professiona			
The aim of the course is to introduce students into the basic legal instruments that they will encounter in their practice. Students will gain knowledge of doing business in the Czech Republic and will be altered to the pitted live and the electred to the pitted will be altered the process of conducting contracts in real and Internet environment, will know their responsibilities in vorking with the Internet, will be familiar with the institutes of intellectual property law, and will be able to use commercial license pose and open-source locates. Emphasis will also be put on the legal protection of data on the Internet, the registration of internet domain or protection against their installes. Students will also be between the legal protection of data on the Internet, the registration of internet domain protection against their installes. Students will also be between the protection and the protection against their installes and the protection of a text that conforms a given syntax, to a target code and also to create a compiler based on the specification. The compiler can translate not only a programming language but any exit in a fanguage peneated by a given but Lin prot gramming. BLPPA.21 Programming Paradigms The course deals with basic paradigms of high-level programming languages, including their basic execution models, benefits, and disadvantages of particular programming programming paradigm and its basic principles are explained in details. Logic programming is introduced as another way of declarative programming. The principles are demonstrated on modern mainstratem programming languages such as C++ and laws. BLPGA.21 Programming of Graphic Applications The course will present the possibilities of current professional open-source looks for image editing, video editing, 30 animation (GIMP, Blender) and their use for visualization of specific data (3D scenes, anathematical data). Emphasis will be placed on the possibilities of further enhancement of the presented software tools, both using built-	tools.		
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 and Internet environment, will, whose where responsibilities in working with the Internet, will be Smill with the institutes of intellectual property law will be able to use commercial license by peasand open-source licenses. Emphasis will also be put on the legal protection of data on the Internet, the registration of Internet domains and protection against their missues. Students will also be believed to such behalvour in the field of IT that can be classified as criminal under the Czech law. The course will also include any appears of real accesses from practice. BI-PJP.21 Programming Languages and Compilers Students lake has been basic compiling methods of programming languages. They are introduced to intermediate representations used in current compilers GNU and LLVM. They learn to only a programming language but any text in a language generated by a given LL input grammar. BI-PJA.21 Programming Paradigms of the Programming Paradigms of the Programming Paradigms of the programming paradigms and its basic principles are explained in details. Logic programming in the programming and programming paradigms and its basic principles are receivable on lambda calculus and on Lay (Racket) and Prolog programming languages, Moreover, usage of these principles is demonstrated on modern mainstream programming languages such as C++ and Java. BI-PGA.21 Programming of Graphic Applications The course will present the possibilities of current protestional open-accurate tools, both using built-in scripting languages and by implementation of plugins. BI-PGA.21 Programming of Graphic Applications BI-PGA.21	BI-PAI.21 Law and Informatics	ZK	5
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 commercial license bytes and open-source learness. Emphasis will also be put on the legal protection of data on the Internet, the registration of Internet domain or protection against their imbases. Students will also be between the legal protection of data on the Internet, the registration of Internet domain or protection against their imbases. Students will also be between the Students will also be between the Students will also be between the Students will also be a learned to such behaviour in the field of IT that can be classified as criminal under the Czech law. The course data was perification 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. The compiler can translation of a text that conforms a given syntax, to a target code and also to create a compiler based on the specification. The compiler can translation of a text that conforms a given syntax, to a target code and also to create a compiler based on the specification. The compiler can translation of a text that conforms a given syntax, to a target code and also to create a compiler based on the specification. The compiler can translate not only a programming language generated by a given Lit. Input gramming language is much as CPL 200 programming paragramming languages and by the course will present the possibilities of translation and on Lisq (Racket) and Prologio programming languages. Moreover, usage of these principles is demonstrated on modern mainstream programming languages and by implementation of bugins. Bi-PGA.21 Programming of Graphic Applications The course will present the possibilities of current professional open-source tools for image editing, video editing, 30 animation (GIMP, Blender) and their use for visualization of specific data (20 Scenes, mathematical data). Emphasis will be p		_	
and open-source licenses. Emphasis will also be put on the legal protection of data on the Internet, the registration of Internet domains and protection against their misuse. Students will also be altered to such behaviour in the field of IT hat can be dissibilited as criminal under the Czech law. The course will also include analyses of real cases from protections. BI-PJP.21 Programming Languages and Compilers Students learn basic compiling methods of programming languages. They are introduced to intermediate representations used in current complers GNU and LLVM. They learn to crude a specification of a turst that conforms a given syntax, to a target code and also to create a compiler based on the specification. The compiler can translate not only a programming language but any text in a language generated by a given LL input grammar. BI-PPA.21 Programming Paradigms BI-PPA.21 Programming Paradigms BI-PPA.21 Programming Paradigms BI-PPA.21 Programming Paradigms BI-PPA.21 Programming of Programming languages, including their basic execution models, benefits, and disadvantages of particular approaches. Functional programming paradigms and its basic principles are explained in details. Logic programming is introduced as another way of decarated working programming languages such as C++ and Java. BI-PGA.21 Programming of Graphic Applications The course will present the possibilities of current professional open-acures tools for image editing, video editing, 3D animation (GIMP, Blender) and their use for visualization of specific data (2D scones, mathematical data). Emphasis will be placed on the possibilities of further enhancement of the presented software tools, both using built-in scripting languages and by implementation of plugins. BI-PJS.21 JavaScript Programming BI-PYS.21 Python Programming BI-PYS.21 Python Programming BI-PYS.21 Python Programming BI-PYS.21 Python Programming BI-PYS.22 Python Programming BI-PYS.23 Python Programming BI-PYS.24 Python Programming			
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. BFLPJP.21 Programming Languages and Compilers Students learn basic compiling methods of programming languages. They are introduced to intermediate representations used in current compilers GNU and LUMi. They learn to create a specification of a translation of a text that confirms a given syntax, to a target code and about to create a compiler based on the specification. The compiler can translate not only a programming language but my text in a language generated by a possibility of the programming paradigm and its basic paradigms of ligh-level programming languages, including their basic execution models, benefits, and disadvantages of particular approaches. Functional programming paradigm and its basic principles are explained in details. Logic programming is introduced as another way of declarative programming. The principles are demonstrated on lambda calculus and on Lisp (Racket) and Prolog programming languages, Moreover, usage of these principles is demonstrated on modern mainstream programming languages such as C++ and Java. BLPGA.21 Programming of Graphic Applications The course will present the possibilities of current professional open-source tools for image editing, video editing, 3D animation (GIMP, Blender) and their use for visualization of specific data (3D scenes, mathematical data), Emphasis will be placed on the possibilities of further enhancement of the presented software tools, both using bulli-in scripting languages and by implementation of plugins. BLPS2.1 JavaScript Programming The course is mithoduction to Javascript programming. Students will also learn best practices and get acquain text with tools that make code development in Javascript reaser. BLPT2.1 Python Programming The aim of the course is to get acquainted with basic efficient control and data structures of the Python programming language fo			
BI-PJ2:1 Programming Languages and Compilers Studens learn basic compiling methods of programming imaguages. They are introduced to intermediate representations used in current complets GNU and LLVM. They learn to create a specification of a translation of plugins. BI-PGA.21 Programming of Graphic Applications The course will present the possibilities of current professional open-source tools for image editing, video editing, 30 animation (GIMP, Blender) and their use for visualization of specific data (30 sense, mathematical data). Emphasis will be placed on the possibilities of further enhancement of the presented software tools, both using built-in scripting languages and by implementation of plugins. BI-PJX.11 JavaScript Programming KZ 5 The course is an introduction to Javascript Programming KZ 5 The course is an introduction to Javascript Programming Students will also learn best practices and get acquain ted with tools that make code devel		_	
Students learn basic compiling methods of programming languages. They are introduced to intermediate representations used in current compilers GNU and LLVM. They learn to reate a specification 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. The compiler can translate not only a programming language but any text in a language generated by a given LL input grammar. BI-PPA.21 Programming Paradigms The course deals with basic paradigms of high-level programming languages, including their basic execution models, benefits, and disadvantages of particular approaches. Functional programming paradigm and its basic principles are explained in details. Logic programming is introduced as another way of declarative programming. The principles are demonstrated on landbad calculus and on Lips (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstream programming languages such as C++ and Java. BI-PGA.21 Programming of Graphic Applications The course will present the possibilities of current professional open-source tools for image editing, video editing, 3D animation (GIMP, Blender) and their use for visualization of specific data (3D scenes, mathematical data). Emphasis will be placed on the possibilities of further enhancement of the presented software tools, both using built-in scripting languages and by implementation of plugins. BI-PJS.21 JavaScript Programming The course is an introduction to Javascript programming. Students will also learn best practices and get acquainted with tools that make code development in Javascript easier. BI-PYT.21 Python Programming The aim of the course is to get acquainted with basic efficient control and data structures of the Python programming language for text and binary data processing. The differences between philosophy of programming in Python and in other programming languages will be explained. Each topic is prepared for stude	BI-PJP.21 Programming Languages and Compilers	Z.ZK	5
only a programming language but any text in a language generated by a given LL input grammar. BI-PPA.21 Programming Paradigms	, , ,		hey learn to
BI-PPA.21 Programming Paradigms The course deals with basic paradigms of high-level programming languages, including their basic execution models, benefits, and disadvantages of particular approaches. Functional programming paradigm and its basic principles are explained in details. Logic programming is introduced as another way of declarative programming. The principles are demonstrated on lambda calculus and on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstream programming languages such as C++ and Java. BI-PGA.21 Programming of Graphic Applications The course will present the possibilities of ournert professional open-source tools for image editing, video editing, 3D animation (GIMP. Blender) and their use for visualization of specific data (3D scenes, mathematical data). Emphasis will be placed on the possibilities of further enhancement of the presented software tools, both using built-in scripting languages and by implementation of plugins. BI-PJS.21 JavaScript Programming The principles are serviced as a programming soft of the course is an introduction to Javascript programming. Students will also learn best practices and get acquaint ed with tools that make code development in Javascript reasier. BI-PYT.21 Python Programming. The aim of the course is to get acquainted with basic efficient control and data structures of the Python programming language for text and binary data processing. The differences between philosophy of programming in Python and in other programming languages will be explained. Each topic is prepared for students in the format of a Jupyter notebook, which enables greater accent 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 assigned during the semester. Project management BI-PRR.21 Project management Project management in a project, communication, argumentation on a meeting management students will practice project	create a specification 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	ı. The compiler ca	n translate not
The course deals with basic paradigms of high-level programming languages, including their basic execution models, benefits, and disadvantages of particular approaches. Functional programming anadigm and its basic principles are explained in details. Logic programming is included as another way of declarative programming from principles are demonstrated on lambda calculus and on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstream programming languages such as C++ and Java. BLPGA.21 Programming of Graphic Applications The course will present the possibilities of current professional open-source tools for image editing, video editing, 3D animation (GIMP, Blender) and their use for visualization of specific data (3D scenes, mathematical data). Emphasis will be placed on the possibilities of further enhancement of the presented software tools, both using built-in scripting languages and by implementation of plugins. BLPJS.21 JavaScript Programming BLPDS.21 JavaScript Programming BLPDS.21 JavaScript Programming. Students will also learn best practices and get acquain ted with tools that make code development in Javascript easier. BLPYT21 Python Programming. Students will also learn best practices and get acquain ted with tools that make code development in Javascript easier. BLPSR21 Python Programming in Python and in other programming languages will be explained. Each topic is prepared for students in the format of a Jupyter notebook, which enables greater accent 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 assigned during the semester. BLPRR21 Project management BLPRR21 Project management BLPRR21 Project management BLPRR21 Project management in a project, communication, argumentation and meeting management. Students will practice project management techniques (e.g. SWOT analysis, crisis management in a project, communication,	only a programming language but any text in a language generated by a given LL input grammar.		
programming paradigm and its basic principles are explained in details. Logic programming is introduced as another way of declarative programming. The principles are demonstrated lambda calculus and on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstream programming languages such as C++ and Java. BI-PGA.21 Programming of Graphic Applications The course will present the possibilities of current professional open-source tools for image editing, video editing, 3D animation (GIMP, Blender) and their use for visualization of specific data (3D scenes, mathematical data). Emphasis will be placed on the possibilities of further enhancement of the presented software tools, both using built-in scripting languages and by implementation of plugins. BI-PJS.21 JavaScript Programming The course is an introduction to Javascript programming. Students will also learn best practices and get acquainted with tools that make code development in Javascript easier. BI-PYT.21 Python Programming BI-PYT.21 Python Programming. Students will also learn best practices and get acquainted with tools that make code development in Javascript easier. BI-PYT.21 Python Programming in Python and in other programming languages will be explained. Each topic is prepared for students in the format of a Jupyter notebook, which reables greater accent 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 assigned during the semester. BI-PRR.21 Project management BI-PRR.21 Project management Canthology and the course is to introduce students into the basic concepts and principles of project management techniques (e.g. SWOT analysis, risk assessment and management, laber almost project to management techniques (e.g. SWOT analysis, risk assessment and management in a project, communication, argumentation and meeting management. The project management techniques (e.g. SWOT analysis, isk assessment an		, ,	-
on lambda calculus and on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstream programming languages such as C++ and Java. BI-PGA.21 Programming of Graphic Applications The course will present the possibilities of current professional open-source tools for image editing, video editing, 3D animation (GIMP, Blender) and their use for visualization of specific data (3D scenes, mathematical data). Emphasis will be placed on the possibilities of further enhancement of the presented software tools, both using built-in scripting languages and by implementation of plugins. BI-PJS.21 JavaScript Programming BI-PJS.21 Python Programming. Students will also learn best practices and get acquain inted with tools that make code development in Javascript easier. BI-PYT.21 Python Programming The aim of the course is to get acquainted with basic efficient control and data structures of the Python programming language for text and binary data processing. The differences between philoscophy of programming in Python and in other programming languages will be explained. Each topic is prepared for students in the format of a Jupyter notebook, which enables greater accent 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 assigned during the semester. BI-PRR.21 Project management BI-PRR.21 Project management SI-PRISE Project management in a project, communication, 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 deepening their knowledge outside IT, consider starting their own company, or have ambitions to work in middle or senior management positions in large companies. The course is also sui			
such as C++ and Java. BI-PGA.21 Programming of Graphic Applications The course will present the possibilities of current professional open-source tools for image editing, video editing, 3D animation (GIMP, Blender) and their use for visualization of specific data (3D scenes, mathematical data). Emphasis will be placed on the possibilities of further enhancement of the presented software tools, both using built-in scripting languages and by implementation of plugins. BI-PJS.21 JavaScript Programming The course is an introduction to Javascript programming. Students will also learn best practices and get acquainted with tools that make code development in Javascript easier. BI-PJS.21 Python Programming KZ 5 The aim of the course is to get acquainted with basic efficient control and data structures of the Python programming language for text and binary data processing. The differences between philosophy of programming in Python and in other programming languages will be explained. Each topic is prepared for students in the format of a Jupyter notebook, which enables greater accent 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 assigned during the semester. BI-PRR.21 Project management The aim of the course is to introduce students into the basic concepts and principles of project management, i.e. methods of planning, tearmwork, analysis, crisis management in a project, communication, argumentation and meeting management. Students will practice project management techniques (e.g. SWOT analysis, risk assessment and management, Gant charts, resource schedule, resource balanding, network graphs) and creation of project documentation. The course is designed especially for students who are interested in deepening their knowledge outside IT, consider starting their own company, or have ambitions to work in middle or senior management positions in large companies. The course is also suitable for all those who will develop soft			
The course will present the possibilities of current professional open-source tools for image editing, video editing, 3D animation (GIMP, Blender) and their use for visualization of specific data (3D scenes, mathematical data). Emphasis will be placed on the possibilities of further enhancement of the presented software tools, both using built-in scripting languages and by implementation of plugins. BI-PJS.21 JavaScript Programming KZ 5 The course is an introduction to Javascript programming. Students will also learn best practices and get acquainted with tools that make code development in Javascript easier. BI-PYT.21 Python Programming KZ 5 The aim of the course is to get acquainted with basic efficient control and data structures of the Python programming language for text and binary data processing. The differences between philosophy of programming in Python and in other programming languages will be explained. Each topic is prepared for students in the format of a Jupyter notebook, which enables greater accent 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 assigned during the semester. BI-PR.21 Project management The aim of the course is to introduce students into the basic concepts and principles of project management, i.e. methods of planning, teamwork, analysis, crisis management in a project, communication, argumentation and meeting management. Students will practice project management techniques (e.g. SWOT analysis, risk assessment and management, Gantt charts, resource schedule, resource belancing, network graphs) and creation of project documentation. The course is designed especially for students who are interested in deepening their knowledge outside IT, consider starting their own company, or have ambitions to work in middle or senior management positions in large companies. The course covers fundamental topics of programming network applications. It consists of 4 parts. The introducers part is de	such as C++ and Java.		
data (3D scenes, mathematical data). Emphasis will be placed on the possibilities of further enhancement of the presented software tools, both using built-in scripting languages and by implementation of plugins. BI-PJS.21 JavaScript Programming The course is an introduction to Javascript programming. Students will also learn best practices and get acquainted with tools that make code development in Javascript easier. BI-PYT.21 Python Programming The aim of the course is to get acquainted with basic efficient control and data structures of the Python programming language for text and binary data processing. The differences between philosophy of programming in Python and in other programming languages will be explained. Each topic is prepared for students in the format of a Jupyter notebook, which enables greater accent 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 assigned during the semester. BI-PRR.21 Project management The aim of the course is to introduce students into the basic concepts and principles of project management, i.e. methods of planning, teamwork, analysis, crisis management in a project, communication, 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 depening their knowledge outside IT, consisted a from company, or have ambilitions to work in middle or senior management positions in large companies. The course is also suitable for all those who will develop software or hardware in the form of team projects. BI-SIP.21 Network Programming The course covers fundamental topics of programming network applications. It consists of 4 parts. The introductory part is focused on low-level programming using BSD sockst. The second part is dev	BI-PGA.21 Programming of Graphic Applications	Z,ZK	5
by implementation of plugins. BI-PJS.21 JavaScript Programming The course is an introduction to Javascript programming. Students will also learn best practices and get acquainted with tools that make code development in Javascript easier. BI-PYT.21 Python Programming The aim of the course is to get acquainted with basic efficient control and data structures of the Python programming language for text and binary data processing. The differences between philosophy of programming in Python and in other programming languages will be explained. Each topic is prepared for students in the format of a Jupyter notebook, which enables greater accent 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 assigned during the semester. BI-PRR.21 Project management The aim of the course is to introduce students into the basic concepts and principles of project management, i.e. methods of planning, teamwork, analysis, crisis management in a project, communication, argumentation and meeting management. Students will practice project management techniques (e.g. SWOT analysis, risk assessment and management, and the course is to introduce students into the basic concepts and principles of project documentation. The course is designed especially for students who are interested in deepening their knowledge outside IT, consider starting their own company, or have ambitions to work in middle or senior management positions in large companies. The course is also suitable for all those who will develop software or hardware in the form of team projects. BI-SIP.21 Network Programming The course covers fundamental topics of programming network applications. It consists of 4 parts. The introductory part is focused on low-level programming using BSD sockets. The second part is devoted to designing communication protocols and their verification. The third part introduces the principles and applications of middleware technologies. The final part introduce			
BI-PJS.21 JavaScript Programming The course is an introduction to Javascript programming. Students will also learn best practices and get acquainted with tools that make code development in Javascript easier. BI-PYT.21 Python Programming The aim of the course is to get acquainted with basic efficient control and data structures of the Python programming language for text and binary data processing. The differences between philosophy of programming in Python and in other programming languages will be explained. Each topic is prepared for students in the format of a Jupyter notebook, which enables greater accent 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 assigned during the semester. BI-PRR.21 Project management The aim of the course is to introduce students into the basic concepts and principles of project management, i.e. methods of planning, teamwork, analysis, crisis management in a project, communication, 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 deepening their knowledge outside If, consider starting their own company, or have ambitions to work in middle or senior management positions in large companies. The course is also suitable for all those who will develop software or hardware in the form of team projects. BI-SIP.21 Network Programming The course covers fundamental topics of programming network applications. It consists of 4 parts. The introductory part is focused on low-level programming using a BSD sockets. The second part is devoted to designing communication protocols and their verification. The third part introduces the principles and applications of middleware technologies. The final part introduces basic modern models of d		g built-in scripting	languages and
The course is an introduction to Javascript programming. Students will also learn best practices and get acquain ted with tools that make code development in Javascript easier. BI-PYT.21 Python Programming KZ 5 The aim of the course is to get acquainted with basic efficient control and data structures of the Python programming language for text and binary data processing. The differences between philosophy of programming in Python and in other programming languages will be explained. Each topic is prepared for students in the format of a Jupyter notebook, which enables greater accent 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 assigned during the semester. BI-PRR.21 Project management The aim of the course is to introduce students into the basic concepts and principles of project management, i.e. methods of planning, teamwork, analysis, crisis management in a project, communication, 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 deepening their knowledge outside IT, consider starting their own company, or have ambitions to work in middle or senior management positions in large companies. The course is also suitable for all those who will develop software or hardware in the form of team projects. BI-SIP.21 Network Programming The course covers fundamental topics of programming network applications. It consists of 4 parts. The introducery part is focused on low-level programming using BSD sockets. The second part is devoted to designing communication protocols and their verification. The third part introduces the principles and applications of middleware technologies. The final part introduces basic modern models of distributed computing - P2P		1/7	
BI-PYT.21 Python Programming The aim of the course is to get acquainted with basic efficient control and data structures of the Python programming language for text and binary data processing. The differences between philosophy of programming in Python and in other programming languages will be explained. Each topic is prepared for students in the format of a Jupyter notebook, which enables greater accent 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 assigned during the semester. BI-PRR.21 Project management The aim of the course is to introduce students into the basic concepts and principles of project management, i.e. methods of planning, teamwork, analysis, crisis management in a project, communication, 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 deepening their knowledge outside IT, consider starting their own company, or have ambitions to work in middle or senior management positions in large companies. The course is also suitable for all those who will develop software or hardware in the form of team projects. BI-SIP.21 Network Programming			
The aim of the course is to get acquainted with basic efficient control and data structures of the Python programming language for text and binary data processing. The differences between philosophy of programming in Python and in other programming languages will be explained. Each topic is prepared for students in the format of a Jupyter notebook, which enables greater accent 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 assigned during the semester. BI-PR.21 Project management Z,ZK 5 The aim of the course is to introduce students into the basic concepts and principles of project management, i.e. methods of planning, teamwork, analysis, crisis management in a project, communication, 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 deepening their knowledge outside IT, consider starting their own company, or have ambitions to work in middle or senior management positions in large companies. The course is also suitable for all those who will develop software or hardware in the form of team projects. BI-SIP.21 Network Programming The course covers fundamental topics of programming network applications. It consists of 4 parts. The introducety part is focused on low-level programming using BSD sockets. The second part is devoted to designing communication protocols and their verification. The third part introduces the principles and applications of middleware technologies. The final part introduces basic modern models of distributed computing - P2P and blockchain. All topics will be first explained theoretically and then practices in computer labs using a chosen programming language environment. BI-SWI.21 Software Engineering Students get			
between philosophy of programming in Python and in other programming languages will be explained. Each topic is prepared for students in the format of a Jupyter notebook, which enables greater accent 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 assigned during the semester. BI-PRR.21 Project management Z,ZK 5 The aim of the course is to introduce students into the basic concepts and principles of project management, i.e. methods of planning, teamwork, analysis, crisis management in a project, communication, argumentation and meeting management. Students will practice project management techniques (e.g. SWOT analysis, risk assessment and management, Gant charts, resource schedule, resource balancing, network graphs) and creation of project documentation. The course is designed especially for students who are interested in deepening their knowledge outside IT, consider starting their own company, or have ambitions to work in middle or senior management positions in large companies. The course is also suitable for all those who will develop software or hardware in the form of team projects. BI-SIP.21 Network Programming The course covers fundamental topics of programming network applications. It consists of 4 parts. The introductory part is focused on low-level programming using BSD sockets. The second part is devoted to designing communication protocols and their verification. The third part introduces the principles and applications of middleware technologies. The final part introduces basic modern models of distributed computing - P2P and blockchain. All topics will be first explained theoretically and then practices in computer labs using a chosen programming language environment. BI-SWI.21 Software Engineering Software Engineering Sudents get acquainted with methods of analysis and design of larger software systems that will be developed in the concurrent course BIE-SP1. Students get hands-on exper			- 1
The aim of the course is to introduce students into the basic concepts and principles of project management, i.e. methods of planning, teamwork, analysis, crisis management in a project, communication, 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 deepening their knowledge outside IT, consider starting their own company, or have ambitions to work in middle or senior management positions in large companies. The course is also suitable for all those who will develop software or hardware in the form of team projects. BI-SIP.21 Network Programming Z 5 The course covers fundamental topics of programming network applications. It consists of 4 parts. The introductory part is focused on low-level programming using BSD sockets. The second part is devoted to designing communication protocols and their verification. The third part introduces the principles and applications of middleware technologies. The final part introduces basic modern models of distributed computing - P2P and blockchain. All topics will be first explained theoretically and then practices in computer labs using a chosen programming language environment. 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 hands-on experience with CASE tools using the visual language UML for modeling and solving software problems. Students learn the basics of object-oriented analysis, architecture design and testing. Within the course, students also gain a theoretical basis in the field			
BI-PRR.21 Project management The aim of the course is to introduce students into the basic concepts and principles of project management, i.e. methods of planning, teamwork, analysis, crisis management in a project, communication, 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 deepening their knowledge outside IT, consider starting their own company, or have ambitions to work in middle or senior management positions in large companies. The course is also suitable for all those who will develop software or hardware in the form of team projects. BI-SIP.21 Network Programming The course covers fundamental topics of programming network applications. It consists of 4 parts. The introductory part is focused on low-level programming using BSD sockets. The second part is devoted to designing communication protocols and their verification. The third part introduces the principles and applications of middleware technologies. The final part introduces basic modern models of distributed computing - P2P and blockchain. All topics will be first explained theoretically and then practices in computer labs using a chosen programming language environment. 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 hands-on experience with CASE tools using the visual language UML for modeling and solving software problems. Students learn the basics of object-oriented analysis, architecture design and testing. Within the course, students also gain a theoretical	enables greater accent to individual student work. Before each lab, students pass a short test on the last week topic. Four homeworks plus a semest	er work will be as	signed during
The aim of the course is to introduce students into the basic concepts and principles of project management, i.e. methods of planning, teamwork, analysis, crisis management in a project, communication, 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 deepening their knowledge outside IT, consider starting their own company, or have ambitions to work in middle or senior management positions in large companies. The course is also suitable for all those who will develop software or hardware in the form of team projects. BI-SIP.21 Network Programming Z 5 The course covers fundamental topics of programming network applications. It consists of 4 parts. The introductory part is focused on low-level programming using BSD sockets. The second part is devoted to designing communication protocols and their verification. The third part introduces the principles and applications of middleware technologies. The final part introduces basic modern models of distributed computing - P2P and blockchain. All topics will be first explained theoretically and then practices in computer labs using a chosen programming language environment. 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 hands-on experience with CASE tools using the visual language UML for modeling and solving software projects management, estimation of costs of software projects, and methods of their development. BI-SPI.21 Team Software Project 1 Students gain hands-on e	the semester.		
project, communication, 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 deepening their knowledge outside IT, consider starting their own company, or have ambitions to work in middle or senior management positions in large companies. The course is also suitable for all those who will develop software or hardware in the form of team projects. BI-SIP.21 Network Programming Z 5 The course covers fundamental topics of programming network applications. It consists of 4 parts. The introductory part is focused on low-level programming using BSD sockets. The second part is devoted to designing communication protocols and their verification. The third part introduces the principles and applications of middleware technologies. The final part introduces basic modern models of distributed computing - P2P and blockchain. All topics will be first explained theoretically and then practices in computer labs using a chosen programming language environment. 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 hands-on experience with CASE tools using the visual language UML for modeling and solving software problems. Students learn the basics of object-oriented analysis, architecture design and testing. Within 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 KZ 5 Students gain hands-o	BI-PRR.21 Project management	Z,ZK	5
Gantt charts, resource schedule, resource balancing, network graphs) and creation of project documentation. The course is designed especially for students who are interested in deepening their knowledge outside IT, consider starting their own company, or have ambitions to work in middle or senior management positions in large companies. The course is also suitable for all those who will develop software or hardware in the form of team projects. BI-SIP.21 Network Programming Z 5 The course covers fundamental topics of programming network applications. It consists of 4 parts. The introductory part is focused on low-level programming using BSD sockets. The second part is devoted to designing communication protocols and their verification. The third part introduces the principles and applications of middleware technologies. The final part introduces basic modern models of distributed computing - P2P and blockchain. All topics will be first explained theoretically and then practices in computer labs using a chosen programming language environment. BI-SWI.21 Software Engineering Suddents 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 hands-on experience with CASE tools using the visual language UML for modeling and solving software problems. Students learn the basics of object-oriented analysis, architecture design and testing. Within 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 BIE-SWI course that runs concurrently and that teaches students necessa		-	-
deepening their knowledge outside IT, consider starting their own company, or have ambitions to work in middle or senior management positions in large companies. The course is also suitable for all those who will develop software or hardware in the form of team projects. BI-SIP.21 Network Programming Z 5 The course covers fundamental topics of programming network applications. It consists of 4 parts. The introductory part is focused on low-level programming using BSD sockets. The second part is devoted to designing communication protocols and their verification. The third part introduces the principles and applications of middleware technologies. The final part introduces basic modern models of distributed computing - P2P and blockchain. All topics will be first explained theoretically and then practices in computer labs using a chosen programming language environment. 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 hands-on experience with CASE tools using the visual language UML for modeling and solving software problems. Students learn the basics of object-oriented analysis, architecture design and testing. Within the course, students also gain at 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 KZ 5 Students gain hands-on experience with the analysis, design, and prototyping of a large-scale software system. Theoretical support is provided in the BIE-SWI course that runs concurrently and that teaches students necessary techniques and principles. Teams consisting of 4-6 students will work on a specific project. The teacher, in the role of the team and project			- 1
BI-SIP.21 Network Programming The course covers fundamental topics of programming network applications. It consists of 4 parts. The introductory part is focused on low-level programming using BSD sockets. The second part is devoted to designing communication protocols and their verification. The third part introduces the principles and applications of middleware technologies. The final part introduces basic modern models of distributed computing - P2P and blockchain. All topics will be first explained theoretically and then practices in computer labs using a chosen programming language environment. BI-SWI.21 Software Engineering Suddents 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 hands-on experience with CASE tools using the visual language UML for modeling and solving software problems. Students learn the basics of object-oriented analysis, architecture design and testing. Within the course, students also gain at heoretical 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 BIE-SWI course that runs concurrently and that teaches students necessary techniques and principles. Teams consisting of 4-6 students will work on a specific project. The teacher, in the role of the team and project leader, regularly consults with the team (at the seminars) both the formal and material aspects of the software design. The resulting software artefact will be further developed			
The course covers fundamental topics of programming network applications. It consists of 4 parts. The introductory part is focused on low-level programming using BSD sockets. The second part is devoted to designing communication protocols and their verification. The third part introduces the principles and applications of middleware technologies. The final part introduces basic modern models of distributed computing - P2P and blockchain. All topics will be first explained theoretically and then practices in computer labs using a chosen programming language environment. 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 hands-on experience with CASE tools using the visual language UML for modeling and solving software problems. Students learn the basics of object-oriented analysis, architecture design and testing. Within 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 KZ 5 Students gain hands-on experience with the analysis, design, and prototyping of a large-scale software system. Theoretical support is provided in the BIE-SWI course that runs concurrently and that teaches students necessary techniques and principles. Teams consisting of 4-6 students will work on a specific project. The teacher, in the role of the team and project leader, regularly consults with the team (at the seminars) both the formal and material aspects of the software design. The resulting software artefact will be further developed	also suitable for all those who will develop software or hardware in the form of team projects.	argo companico.	1110 000100 10
The course covers fundamental topics of programming network applications. It consists of 4 parts. The introductory part is focused on low-level programming using BSD sockets. The second part is devoted to designing communication protocols and their verification. The third part introduces the principles and applications of middleware technologies. The final part introduces basic modern models of distributed computing - P2P and blockchain. All topics will be first explained theoretically and then practices in computer labs using a chosen programming language environment. 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 hands-on experience with CASE tools using the visual language UML for modeling and solving software problems. Students learn the basics of object-oriented analysis, architecture design and testing. Within 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 KZ 5 Students gain hands-on experience with the analysis, design, and prototyping of a large-scale software system. Theoretical support is provided in the BIE-SWI course that runs concurrently and that teaches students necessary techniques and principles. Teams consisting of 4-6 students will work on a specific project. The teacher, in the role of the team and project leader, regularly consults with the team (at the seminars) both the formal and material aspects of the software design. The resulting software artefact will be further developed		Z	5
introduces basic modern models of distributed computing - P2P and blockchain. All topics will be first explained theoretically and then practices in computer labs using a chosen programming language environment. 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 hands-on experience with CASE tools using the visual language UML for modeling and solving software problems. Students learn the basics of object-oriented analysis, architecture design and testing. Within 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 BIE-SWI course that runs concurrently and that teaches students necessary techniques and principles. Teams consisting of 4-6 students will work on a specific project. The teacher, in the role of the team and project leader, regularly consults with the team (at the seminars) both the formal and material aspects of the software design. The resulting software artefact will be further developed		ramming using BS	SD sockets. The
BI-SWI.21 Software Engineering 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 hands-on experience with CASE tools using the visual language UML for modeling and solving software problems. Students learn the basics of object-oriented analysis, architecture design and testing. Within 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 BIE-SWI course that runs concurrently and that teaches students necessary techniques and principles. Teams consisting of 4-6 students will work on a specific project. The teacher, in the role of the team and project leader, regularly consults with the team (at the seminars) both the formal and material aspects of the software design. The resulting software artefact will be further developed	second part is devoted to designing communication protocols and their verification. The third part introduces the principles and applications of middle	eware technologie	s. The final part
BI-SWI.21 Software Engineering 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 hands-on experience with CASE tools using the visual language UML for modeling and solving software problems. Students learn the basics of object-oriented analysis, architecture design and testing. Within 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 BIE-SWI course that runs concurrently and that teaches students necessary techniques and principles. Teams consisting of 4-6 students will work on a specific project. The teacher, in the role of the team and project leader, regularly consults with the team (at the seminars) both the formal and material aspects of the software design. The resulting software artefact will be further developed		mputer labs usinç	g a chosen
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 hands-on experience with CASE tools using the visual language UML for modeling and solving software problems. Students learn the basics of object-oriented analysis, architecture design and testing. Within 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 BIE-SWI course that runs concurrently and that teaches students necessary techniques and principles. Teams consisting of 4-6 students will work on a specific project. The teacher, in the role of the team and project leader, regularly consults with the team (at the seminars) both the formal and material aspects of the software design. The resulting software artefact will be further developed	· · · · · · · · · · · · · · · · · · ·	7 714	
their knowledge during the analysis and design of larger software systems that will be developed in the concurrent course BIE-SP1. Students get hands-on experience with CASE tools using the visual language UML for modeling and solving software problems. Students learn the basics of object-oriented analysis, architecture design and testing. Within 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 BIE-SWI course that runs concurrently and that teaches students necessary techniques and principles. Teams consisting of 4-6 students will work on a specific project. The teacher, in the role of the team and project leader, regularly consults with the team (at the seminars) both the formal and material aspects of the software design. The resulting software artefact will be further developed		· · · · · · · · · · · · · · · · · · ·	
using the visual language UML for modeling and solving software problems. Students learn the basics of object-oriented analysis, architecture design and testing. Within 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 BIE-SWI course that runs concurrently and that teaches students necessary techniques and principles. Teams consisting of 4-6 students will work on a specific project. The teacher, in the role of the team and project leader, regularly consults with the team (at the seminars) both the formal and material aspects of the software design. The resulting software artefact will be further developed			
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 BIE-SWI course that runs concurrently and that teaches students necessary techniques and principles. Teams consisting of 4-6 students will work on a specific project. The teacher, in the role of the team and project leader, regularly consults with the team (at the seminars) both the formal and material aspects of the software design. The resulting software artefact will be further developed			
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 BIE-SWI course that runs concurrently and that teaches students necessary techniques and principles. Teams consisting of 4-6 students will work on a specific project. The teacher, in the role of the team and project leader, regularly consults with the team (at the seminars) both the formal and material aspects of the software design. The resulting software artefact will be further developed		_	
Students gain hands-on experience with the analysis, design, and prototyping of a large-scale software system. Theoretical support is provided in the BIE-SWI course that runs concurrently and that teaches students necessary techniques and principles. Teams consisting of 4-6 students will work on a specific project. The teacher, in the role of the team and project leader, regularly consults with the team (at the seminars) both the formal and material aspects of the software design. The resulting software artefact will be further developed			5
project leader, regularly consults with the team (at the seminars) both the formal and material aspects of the software design. The resulting software artefact will be further developed	1		
and finished in the PIE CD2 course		artefact will be fu	rther developed
and tinisned in the Bie-SP2 course.	and finished in the BIE-SP2 course.		

BI-SP2.21	Team Software Project 2	KZ	5
Students gain hands-on	experience with the iterative development process while working on a large-scale software project. The first iteration is the re-	sult of the BIE-SP	1 course project.
	p, the functionality, testing, and documentation of the software system being developed will be emphasized. Students will wo		people. The
teacher, in the role of th	e team and project leader, regularly consults with the team (at the seminars) the formal as well as material aspects of their s	olution.	
BI-SPS.21	Administration of Computer Networks and Services	Z,ZK	5
The aim of the course is	to deepen the theoretical knowledge of network technologies and protocols in the environment of network servers administr	rated under the op	erating systems
	course syllabus requires the knowledge at the level of courses BIE-PSI, BIE-VPS, and BIE-OSY. Practical skills will be gained	by practical hand	ls-on experience
with real network infrast	ructure.		
BI-ML1.21	Machine Learning 1	Z,ZK	5
The goal of this course	s to introduce students to the basic methods of machine learning. They get theoretical understanding and practical working l	knowledge of regr	ession and
classification models in	the supervised learning scenario and clustering models in the unsupervised scenario. Students will be aware of the relations	ships between mo	del bias and
variance, and know the	fundamentals of assessing model quality. Moreover, they learn the basic techniques of data preprocessing and multidimension	onal data visualiza	ation. In practical
demonstrations, pandas	and scikit libraries in Python will be used.		
BI-ML2.21	Machine Learning 2	Z,ZK	5
The goal of this course	s to introduce students to the selected advanced methods of machine learning. In the supervised learning scenario, they, in		ernel methods
-	the unsupervised learning scenario students learn the principal component analysis and other dimensionality reduction met	-	
basic principles of reinfo	rcement learning and natural language processing.		
BI-SVZ.21	Machine vision and image processing	Z,ZK	5
	coming a common part of life by being universally available. Related to this phenomenon is the need to process and evaluat		_
-	ifferent types of camera systems and a variety of methods for image and video processing. The course is focused on practical	_	
	t the graduates may encounter.	,	g
BI-SRC.21	Real-time systems	Z,ZK	5
	ic knowledge in the real-time (RT) system theory and in the design methods for RT systems including the dependability issu-		_
	entally verified in computer labs. The course is mainly focused on embedded RT systems, therefore the design kits in the lab		•
•	entally verified in computer labs. The course is mainly locused on embedded KT systems, therefore the design kts in the lab	ale the same as	III tile bit-vt3
course.		7.71/	-
BI-TJV.21	Java Technology	Z,ZK	5
- ·	lowledge and skills for developing information systems and applications through concepts used in software development and	experience with lil	oraries and tools
	system. At the course end, the students are able to develop software systems in Java platform.		
BI-TPS.21	Computer Networks Technologies	Z,ZK	5
The course introduces s	tudents 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	rovide theoretical foundations of these technologies and explain relevant physical principles. In the labs, the respective techn	nologies will be de	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	ernet, modern wii	reless networks,
always with focus on hig	h-speed networks.		
BI-TIS.21	Information Systems	Z,ZK	5
The goal of this course	s to familiarise students with the information systems topic and information systems implementation principles. During the or	ourse, students ar	e 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 informa	ation systems.
The fundamental part of			
The fundamental part of	the course is the introduction to key ideas of an information system selection, evaluation of information system benefits, wa	ys of information s	systems
•	rmation system implementation based on the project management principles. The emphasis is on the initial customer analys	=	=
implementation and info		sis, customer insig	ht and ability to
implementation and info	rmation system implementation based on the project management principles. The emphasis is on the initial customer analyst	sis, customer insig n system impleme	tht and ability to ntation success.
implementation and info decide whether it is bette At the end of the course	rmation system implementation based on the project management principles. The emphasis is on the initial customer analyser to implement any existing information system or to develop a new one from scratch. These factors determine the information information systems security, operation, support, maintenance, legislation impacts, and government information systems to	sis, customer insig n system impleme pics are discusse	tht and ability to ntation success.
implementation and info decide whether it is bette At the end of the course BI-TUR.21	rmation system implementation based on the project management principles. The emphasis is on the initial customer analyser to implement any existing information system or to develop a new one from scratch. These factors determine the information information systems security, operation, support, maintenance, legislation impacts, and government information systems to User Interface Design	sis, customer insign system impleme pics are discussed Z,ZK	tht and ability to ntation success.
implementation and info decide whether it is bette At the end of the course BI-TUR.21 Students gain a basic or	rmation system implementation based on the project management principles. The emphasis is on the initial customer analyser to implement any existing information system or to develop a new one from scratch. These factors determine the information information systems security, operation, support, maintenance, legislation impacts, and government information systems to User Interface Design verview of methods for designing and testing common user interfaces. They get experience to solve the problems where soft	sis, customer insign system impleme pics are discussed Z,ZK ware and other pr	tht and ability to ntation success. d. 5 oducts do not
implementation and info decide whether it is bette At the end of the course BI-TUR.21 Students gain a basic or communicate with the u	rmation system implementation based on the project management principles. The emphasis is on the initial customer analyser to implement any existing information system or to develop a new one from scratch. These factors determine the information information systems security, operation, support, maintenance, legislation impacts, and government information systems to User Interface Design	sis, customer insign system impleme pics are discussed Z,ZK ware and other pr	tht and ability to ntation success. d. 5 oducts do not
implementation and info decide whether it is bette At the end of the course BI-TUR.21 Students gain a basic of communicate with the u bring users into the deve	rmation system implementation based on the project management principles. The emphasis is on the initial customer analyser to implement any existing information system or to develop a new one from scratch. These factors determine the information information systems security, operation, support, maintenance, legislation impacts, and government information systems to User Interface Design verview of methods for designing and testing common user interfaces. They get experience to solve the problems where soft ser optimally, since the needs and characteristics of users are not taken into account during product development. Students elopment process to ensure optimal interface for them.	sis, customer insign system implement pics are discussed Z,ZK ware and other progain an overview	tht and ability to nation success. d. 5 oducts do not of methods that
implementation and info decide whether it is bette At the end of the course BI-TUR.21 Students gain a basic of communicate with the u bring users into the deve BI-TWA.21	rmation system implementation based on the project management principles. The emphasis is on the initial customer analyser to implement any existing information system or to develop a new one from scratch. These factors determine the information information systems security, operation, support, maintenance, legislation impacts, and government information systems to User Interface Design verview of methods for designing and testing common user interfaces. They get experience to solve the problems where soft ser optimally, since the needs and characteristics of users are not taken into account during product development. Students elopment process to ensure optimal interface for them. Design of Web Applications	sis, customer insign system implements are discussed Z,ZK ware and other progain an overview Z,ZK	that and ability to nation success. d. 5 roducts do not of methods that
implementation and info decide whether it is bette At the end of the course BI-TUR.21 Students gain a basic or communicate with the u bring users into the deve BI-TWA.21 The basic course of wet	rmation system implementation based on the project management principles. The emphasis is on the initial customer analyser to implement any existing information system or to develop a new one from scratch. These factors determine the information information systems security, operation, support, maintenance, legislation impacts, and government information systems to User Interface Design verview of methods for designing and testing common user interfaces. They get experience to solve the problems where soft ser optimally, since the needs and characteristics of users are not taken into account during product development. Students elopment process to ensure optimal interface for them. Design of Web Applications application development. Initially, the students become familiar with HTTP and its possibilities and partly with some property	sis, customer insign system implements are discussed Z,ZK ware and other progain an overview Z,ZK ies of language definition.	that and ability to nation success. d. 5 roducts do not of methods that 5 escribing the
implementation and info decide whether it is bette At the end of the course BI-TUR.21 Students gain a basic or communicate with the u bring users into the deve BI-TWA.21 The basic course of wet structure (HTML) and po	rmation system implementation based on the project management principles. The emphasis is on the initial customer analyser to implement any existing information system or to develop a new one from scratch. These factors determine the information information systems security, operation, support, maintenance, legislation impacts, and government information systems to User Interface Design verview of methods for designing and testing common user interfaces. They get experience to solve the problems where soft ser optimally, since the needs and characteristics of users are not taken into account during product development. Students elopment process to ensure optimal interface for them. Design of Web Applications of application development. Initially, the students become familiar with HTTP and its possibilities and partly with some propert resentation of document on the Web (CSS). These skills provide the necessary basis for the development of Web application	sis, customer insign system implements are discussed Z,ZK ware and other progain an overview Z,ZK ies of language dos, which will be do	that and ability to nation success. d. 5 roducts do not of methods that 5 escribing the emonstrated in
implementation and info decide whether it is bette At the end of the course BI-TUR.21 Students gain a basic or communicate with the u bring users into the deve BI-TWA.21 The basic course of wel structure (HTML) and pu modern libraries facilitat	rmation system implementation based on the project management principles. The emphasis is on the initial customer analyser to implement any existing information system or to develop a new one from scratch. These factors determine the information information systems security, operation, support, maintenance, legislation impacts, and government information systems to User Interface Design verview of methods for designing and testing common user interfaces. They get experience to solve the problems where soft ser optimally, since the needs and characteristics of users are not taken into account during product development. Students elopment process to ensure optimal interface for them. Design of Web Applications of application development. Initially, the students become familiar with HTTP and its possibilities and partly with some propertic resentation of document on the Web (CSS). These skills provide the necessary basis for the development of Web applications the development of Web pages applications. Server side will be demonstrated on PHP technology using frameworks Symforms.	sis, customer insign system implements are discussed Z,ZK ware and other progain an overview Z,ZK ies of language dos, which will be do	that and ability to nation success. d. 5 roducts do not of methods that 5 escribing the emonstrated in
implementation and info decide whether it is bette At the end of the course BI-TUR.21 Students gain a basic or communicate with the u bring users into the deve BI-TWA.21 The basic course of wel structure (HTML) and p modern libraries facilitat on the client side will be	rmation system implementation based on the project management principles. The emphasis is on the initial customer analyser to implement any existing information system or to develop a new one from scratch. These factors determine the information information systems security, operation, support, maintenance, legislation impacts, and government information systems to User Interface Design verview of methods for designing and testing common user interfaces. They get experience to solve the problems where soft ser optimally, since the needs and characteristics of users are not taken into account during product development. Students elopment process to ensure optimal interface for them. Design of Web Applications of application development. Initially, the students become familiar with HTTP and its possibilities and partly with some propert resentation of document on the Web (CSS). These skills provide the necessary basis for the development of Web application et the development of Web pages applications. Server side will be demonstrated on PHP technology using frameworks Symf demonstrated using a JavaScript language with library jQuery and possibly MV* framework React.	isis, customer insign system impleme pics are discussed Z,ZK ware and other prigain an overview Z,ZK ies of language drist, which will be drony 2, Doctrine 2.	th and ability to nation success. d. 5 oducts do not of methods that 5 escribing the emonstrated in Developments
implementation and info decide whether it is bette At the end of the course BI-TUR.21 Students gain a basic or communicate with the ubring users into the deve BI-TWA.21 The basic course of well structure (HTML) and predefine the client side will be BI-IDO.21	rmation system implementation based on the project management principles. The emphasis is on the initial customer analyser to implement any existing information system or to develop a new one from scratch. These factors determine the information information systems security, operation, support, maintenance, legislation impacts, and government information systems to User Interface Design verview of methods for designing and testing common user interfaces. They get experience to solve the problems where soft ser optimally, since the needs and characteristics of users are not taken into account during product development. Students elopment process to ensure optimal interface for them. Design of Web Applications of application development. Initially, the students become familiar with HTTP and its possibilities and partly with some propert resentation of document on the Web (CSS). These skills provide the necessary basis for the development of Web application et the development of Web pages applications. Server side will be demonstrated on PHP technology using frameworks Symf demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to DevOps	isis, customer insign system impleme pics are discussed Z,ZK ware and other prigain an overview Z,ZK ies of language drong 2, Doctrine 2.	tht and ability to nation success. d. 5 oducts do not of methods that 5 escribing the emonstrated in Developments 5
implementation and info decide whether it is bette At the end of the course BI-TUR.21 Students gain a basic or communicate with the ubring users into the deve BI-TWA.21 The basic course of well structure (HTML) and predefine the client side will be BI-IDO.21 The course deals with the	rmation system implementation based on the project management principles. The emphasis is on the initial customer analyser to implement any existing information system or to develop a new one from scratch. These factors determine the information information systems security, operation, support, maintenance, legislation impacts, and government information systems to User Interface Design verview of methods for designing and testing common user interfaces. They get experience to solve the problems where soft ser optimally, since the needs and characteristics of users are not taken into account during product development. Students elopment process to ensure optimal interface for them. Design of Web Applications of application development. Initially, the students become familiar with HTTP and its possibilities and partly with some propert resentation of document on the Web (CSS). These skills provide the necessary basis for the development of Web application et the development of Web pages applications. Server side will be demonstrated on PHP technology using frameworks Symfodemonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to DevOps the topic of DevOps and prepares future developers and administrators for a modern culture of development and operation of the propert of the propertical development of the propertical development and operation of the propertical development and operation of the propertical development of the propertical devel	isis, customer insign system impleme pics are discussed Z,ZK ware and other prigain an overview Z,ZK ies of language drong 2, Doctrine 2. Z,ZK systems and serviews	th and ability to nation success. d. 5 oducts do not of methods that 5 escribing the emonstrated in Developments 5 ices. The course
implementation and info decide whether it is bette At the end of the course BI-TUR.21 Students gain a basic or communicate with the ubring users into the deve BI-TWA.21 The basic course of well structure (HTML) and predefine the client side will be BI-IDO.21 The course deals with the covers the tools to supp	rmation system implementation based on the project management principles. The emphasis is on the initial customer analyser to implement any existing information system or to develop a new one from scratch. These factors determine the information information systems security, operation, support, maintenance, legislation impacts, and government information systems to User Interface Design verview of methods for designing and testing common user interfaces. They get experience to solve the problems where soft ser optimally, since the needs and characteristics of users are not taken into account during product development. Students elopment process to ensure optimal interface for them. Design of Web Applications of application development. Initially, the students become familiar with HTTP and its possibilities and partly with some propert resentation of document on the Web (CSS). These skills provide the necessary basis for the development of Web application are the development of Web pages applications. Server side will be demonstrated on PHP technology using frameworks Symfodemonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to DevOps the topic of DevOps and prepares future developers and administrators for a modern culture of development and operation of cort software development, testing and compilation. It also focuses on tools for automating infrastructure management and be	isis, customer insign system impleme pics are discussed Z,ZK ware and other prigain an overview Z,ZK ies of language drong 2, Doctrine 2. Z,ZK systems and servuilding and deploy	that and ability to nation success. d. 5 oducts do not of methods that 5 escribing the emonstrated in Developments 5 ices. The course ing software to
implementation and info decide whether it is bette. At the end of the course BI-TUR.21 Students gain a basic or communicate with the ubring users into the development of the development of the course of well structure (HTML) and produce the client side will be BI-IDO.21 The course deals with the covers the tools to support the Cloud. It is an introduce of the course decided in the course deals with the course the cloud. It is an introduce the course decided in the course deals with the course the cloud. It is an introduce the course decided in the course deals with the course deals with the course decided in the course deals with	rmation system implementation based on the project management principles. The emphasis is on the initial customer analyser to implement any existing information system or to develop a new one from scratch. These factors determine the information information systems security, operation, support, maintenance, legislation impacts, and government information systems to User Interface Design verview of methods for designing and testing common user interfaces. They get experience to solve the problems where soft ser optimally, since the needs and characteristics of users are not taken into account during product development. Students elopment process to ensure optimal interface for them. Design of Web Applications of application development. Initially, the students become familiar with HTTP and its possibilities and partly with some propert resentation of document on the Web (CSS). These skills provide the necessary basis for the development of Web application et the development of Web pages applications. Server side will be demonstrated on PHP technology using frameworks Symfodemonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to DevOps the topic of DevOps and prepares future developers and administrators for a modern culture of development and operation of the propert of the propertical development of the propertical development and operation of the propertical development and operation of the propertical development of the propertical devel	isis, customer insign system impleme pics are discussed Z,ZK ware and other prigain an overview Z,ZK ies of language drong 2, Doctrine 2. Z,ZK systems and servuilding and deploy	that and ability to nation success. d. 5 oducts do not of methods that 5 escribing the emonstrated in Developments 5 ices. The course ing software to
implementation and info decide whether it is bette. At the end of the course BI-TUR.21 Students gain a basic or communicate with the ubring users into the development of the basic course of well structure (HTML) and produce in libraries facilitate on the client side will be BI-IDO.21 The course deals with the covers the tools to support the Cloud. It is an introdused in practice.	rmation system implementation based on the project management principles. The emphasis is on the initial customer analyser to implement any existing information system or to develop a new one from scratch. These factors determine the information information systems security, operation, support, maintenance, legislation impacts, and government information systems to User Interface Design verview of methods for designing and testing common user interfaces. They get experience to solve the problems where soft ser optimally, since the needs and characteristics of users are not taken into account during product development. Students elopment process to ensure optimal interface for them. Design of Web Applications of application development. Initially, the students become familiar with HTTP and its possibilities and partly with some propert resentation of document on the Web (CSS). These skills provide the necessary basis for the development of Web application at the development of Web pages applications. Server side will be demonstrated on PHP technology using frameworks Symfodemonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to DevOps the topic of DevOps and prepares future developers and administrators for a modern culture of development and operation of cort software development, testing and compilation. It also focuses on tools for automating infrastructure management and but out to technologies that will then be discussed in more detail in related follow-up courses. The student will also get acquait	isis, customer insign system impleme pics are discussed Z,ZK ware and other prigain an overview Z,ZK ies of language drong 2, Doctrine 2. Z,ZK systems and servuilding and deployinted with modern	that and ability to nation success. d. 5 oducts do not of methods that 5 escribing the emonstrated in Developments 5 ices. The course ing software to technologies
implementation and info decide whether it is bette At the end of the course BI-TUR.21 Students gain a basic or communicate with the ubring users into the development of the basic course of well structure (HTML) and promodern libraries facilitate on the client side will be BI-IDO.21 The course deals with the covers the tools to support the Cloud. It is an introdused in practice. BI-VDC.21	rmation system implementation based on the project management principles. The emphasis is on the initial customer analyser to implement any existing information system or to develop a new one from scratch. These factors determine the information information systems security, operation, support, maintenance, legislation impacts, and government information systems to User Interface Design verview of methods for designing and testing common user interfaces. They get experience to solve the problems where soft ser optimally, since the needs and characteristics of users are not taken into account during product development. Students belopment process to ensure optimal interface for them. Design of Web Applications application development. Initially, the students become familiar with HTTP and its possibilities and partly with some propert resentation of document on the Web (CSS). These skills provide the necessary basis for the development of Web application to the development of Web pages applications. Server side will be demonstrated on PHP technology using frameworks Symf demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to DevOps the topic of DevOps and prepares future developers and administrators for a modern culture of development and operation of our software development, testing and compilation. It also focuses on tools for automating infrastructure management and but out to technologies that will then be discussed in more detail in related follow-up courses. The student will also get acquain. Virtualization and Data Centers	isis, customer insign system impleme pics are discussed Z,ZK ware and other progain an overview Z,ZK ies of language drong 2, Doctrine 2. Z,ZK systems and servuilding and deployinted with modern Z,ZK	tht and ability to nation success. d. 5 oducts do not of methods that 5 escribing the emonstrated in Developments 5 ices. The course ing software to technologies
implementation and info decide whether it is bette At the end of the course BI-TUR.21 Students gain a basic or communicate with the ubring users into the development of the basic course of wet structure (HTML) and promodern libraries facilitate on the client side will be BI-IDO.21 The course deals with the covers the tools to support the Cloud. It is an introdused in practice. BI-VDC.21 The aim of the course is	rmation system implementation based on the project management principles. The emphasis is on the initial customer analyser to implement any existing information system or to develop a new one from scratch. These factors determine the information information systems security, operation, support, maintenance, legislation impacts, and government information systems to User Interface Design verview of methods for designing and testing common user interfaces. They get experience to solve the problems where soft ser optimally, since the needs and characteristics of users are not taken into account during product development. Students elopment process to ensure optimal interface for them. Design of Web Applications of application development. Initially, the students become familiar with HTTP and its possibilities and partly with some propert resentation of document on the Web (CSS). These skills provide the necessary basis for the development of Web application are the development of Web pages applications. Server side will be demonstrated on PHP technology using frameworks Symfodemonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to DevOps the topic of DevOps and prepares future developers and administrators for a modern culture of development and operation of cort software development, testing and compilation. It also focuses on tools for automating infrastructure management and buction to technologies that will then be discussed in more detail in related follow-up courses. The student will also get acquait Virtualization and Data Centers to familiarize students with technology basis of cloud computer systems. It shows principles and techniques used in design and familiarize students with technology basis of cloud computer systems. It shows principles and techniques used in design and familiarize students with technology basis of cloud computer systems.	isis, customer insign system impleme pics are discussed Z,ZK ware and other progain an overview Z,ZK ies of language doing 2, Doctrine 2. Z,ZK systems and servilled in an deploying and deploying and implementation and implementations.	tht and ability to nation success. d. 5 oducts do not of methods that 5 escribing the emonstrated in Developments 5 ices. The course ing software to technologies 5 on of data center
implementation and info decide whether it is bette At the end of the course BI-TUR.21 Students gain a basic or communicate with the ubring users into the development of the course of well structure (HTML) and produce the client side will be BI-IDO.21 The course deals with the covers the tools to supp the Cloud. It is an introdused in practice. BI-VDC.21 The aim of the course is infrastructure, such as well as the course is infrastructure.	rmation system implementation based on the project management principles. The emphasis is on the initial customer analyser to implement any existing information system or to develop a new one from scratch. These factors determine the information information systems security, operation, support, maintenance, legislation impacts, and government information systems to User Interface Design verview of methods for designing and testing common user interfaces. They get experience to solve the problems where soft ser optimally, since the needs and characteristics of users are not taken into account during product development. Students elopment process to ensure optimal interface for them. Design of Web Applications of application development. Initially, the students become familiar with HTTP and its possibilities and partly with some propert resentation of document on the Web (CSS). These skills provide the necessary basis for the development of Web applications the development of Web pages applications. Server side will be demonstrated on PHP technology using frameworks Symfomonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to DevOps the topic of DevOps and prepares future developers and administrators for a modern culture of development and operation of our software development, testing and compilation. It also focuses on tools for automating infrastructure management and but on to technologies that will then be discussed in more detail in related follow-up courses. The student will also get acquait Virtualization and Data Centers to familiarize students with technology basis of cloud computer systems. It shows principles and techniques used in design arrives kinds of virtualization and high availability of servers, storages, and software layers. The course guides through data or arrives with the project of the properties of the project of t	isis, customer insign system implementation is system implementation is system implementation is system implementation is system in an overview in a system is and service in the system	thit and ability to notation success. d. 5 oducts do not of methods that 5 escribing the emonstrated in Developments 5 ices. The course ing software to technologies 5 on of data center as from private
implementation and info decide whether it is bette At the end of the course BI-TUR.21 Students gain a basic or communicate with the ubring users into the development of the basic course of wet structure (HTML) and produce the client side will be BI-IDO.21 The course deals with the covers the tools to supp the Cloud. It is an introdused in practice. BI-VDC.21 The aim of the course is infrastructure, such as we to public and hybrid cloud.	rmation system implementation based on the project management principles. The emphasis is on the initial customer analyser to implement any existing information system or to develop a new one from scratch. These factors determine the information information systems security, operation, support, maintenance, legislation impacts, and government information systems to User Interface Design verview of methods for designing and testing common user interfaces. They get experience to solve the problems where soft ser optimally, since the needs and characteristics of users are not taken into account during product development. Students elopment process to ensure optimal interface for them. Design of Web Applications application development. Initially, the students become familiar with HTTP and its possibilities and partly with some propert resentation of document on the Web (CSS). These skills provide the necessary basis for the development of Web application et the development of Web pages applications. Server side will be demonstrated on PHP technology using frameworks Symf demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to DevOps the topic of DevOps and prepares future developers and administrators for a modern culture of development and operation of cort software development, testing and compilation. It also focuses on tools for automating infrastructure management and but outcom to technologies that will then be discussed in more detail in related follow-up courses. The student will also get acquait Virtualization and Data Centers to familiarize students with technology basis of cloud computer systems. It shows principles and techniques used in design arious kinds of virtualization and high availability of servers, storages, and software layers. The course guides through data odds. Student learn current trends in the architecture of IT infrastructure and its configuration for classic and cloud applications.	isis, customer insign system implementation is system implementation is system implementation is system and other program an overview is system and service interest in the system in th	tht and ability to notation success. d. 5 oducts do not of methods that 5 escribing the emonstrated in Developments 5 ices. The course ing software to technologies 5 on of data center as from private derstand the
implementation and info decide whether it is bette At the end of the course BI-TUR.21 Students gain a basic or communicate with the ubring users into the development of the basic course of wet structure (HTML) and produce the client side will be BI-IDO.21 The course deals with the covers the tools to supp the Cloud. It is an introdused in practice. BI-VDC.21 The aim of the course is infrastructure, such as we to public and hybrid cloud.	rmation system implementation based on the project management principles. The emphasis is on the initial customer analyser to implement any existing information system or to develop a new one from scratch. These factors determine the information information systems security, operation, support, maintenance, legislation impacts, and government information systems to User Interface Design verview of methods for designing and testing common user interfaces. They get experience to solve the problems where soft ser optimally, since the needs and characteristics of users are not taken into account during product development. Students elopment process to ensure optimal interface for them. Design of Web Applications of application development. Initially, the students become familiar with HTTP and its possibilities and partly with some propert resentation of document on the Web (CSS). These skills provide the necessary basis for the development of Web applications the development of Web pages applications. Server side will be demonstrated on PHP technology using frameworks Symfomonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to DevOps the topic of DevOps and prepares future developers and administrators for a modern culture of development and operation of our software development, testing and compilation. It also focuses on tools for automating infrastructure management and but on to technologies that will then be discussed in more detail in related follow-up courses. The student will also get acquait Virtualization and Data Centers to familiarize students with technology basis of cloud computer systems. It shows principles and techniques used in design arrives kinds of virtualization and high availability of servers, storages, and software layers. The course guides through data or arrives with the project of the properties of the project of t	isis, customer insign system implementation is system implementation is system implementation is system and other program an overview is system and service interest in the system in th	tht and ability to notation success. d. 5 oducts do not of methods that 5 escribing the emonstrated in Developments 5 ices. The course ing software to technologies 5 on of data center as from private derstand the
implementation and info decide whether it is bette At the end of the course BI-TUR.21 Students gain a basic or communicate with the ubring users into the development of the basic course of wet structure (HTML) and produce the client side will be BI-IDO.21 The course deals with the covers the tools to supp the Cloud. It is an introdused in practice. BI-VDC.21 The aim of the course is infrastructure, such as we to public and hybrid cloud.	rmation system implementation based on the project management principles. The emphasis is on the initial customer analyser to implement any existing information system or to develop a new one from scratch. These factors determine the information information systems security, operation, support, maintenance, legislation impacts, and government information systems to User Interface Design verview of methods for designing and testing common user interfaces. They get experience to solve the problems where soft ser optimally, since the needs and characteristics of users are not taken into account during product development. Students elopment process to ensure optimal interface for them. Design of Web Applications application development. Initially, the students become familiar with HTTP and its possibilities and partly with some propert resentation of document on the Web (CSS). These skills provide the necessary basis for the development of Web application et the development of Web pages applications. Server side will be demonstrated on PHP technology using frameworks Symf demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to DevOps the topic of DevOps and prepares future developers and administrators for a modern culture of development and operation of cort software development, testing and compilation. It also focuses on tools for automating infrastructure management and but outcom to technologies that will then be discussed in more detail in related follow-up courses. The student will also get acquait Virtualization and Data Centers to familiarize students with technology basis of cloud computer systems. It shows principles and techniques used in design arious kinds of virtualization and high availability of servers, storages, and software layers. The course guides through data odds. Student learn current trends in the architecture of IT infrastructure and its configuration for classic and cloud applications.	isis, customer insign system implementation is system implementation is system implementation is system and other program an overview is system and service interest in the system in th	tht and ability to notation success. d. 5 oducts do not of methods that 5 escribing the emonstrated in Developments 5 ices. The course ing software to technologies 5 on of data center as from private derstand the
implementation and info decide whether it is bette At the end of the course BI-TUR.21 Students gain a basic or communicate with the ubring users into the development of the developmen	rmation system implementation based on the project management principles. The emphasis is on the initial customer analyser to implement any existing information system or to develop a new one from scratch. These factors determine the information information systems security, operation, support, maintenance, legislation impacts, and government information systems to User Interface Design verview of methods for designing and testing common user interfaces. They get experience to solve the problems where soft ser optimally, since the needs and characteristics of users are not taken into account during product development. Students elopment process to ensure optimal interface for them. Design of Web Applications application development. Initially, the students become familiar with HTTP and its possibilities and partly with some propert resentation of document on the Web (CSS). These skills provide the necessary basis for the development of Web application development of Web pages applications. Server side will be demonstrated on PHP technology using frameworks Symf demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to DevOps are to prepares future developers and administrators for a modern culture of development and operation of our software development, testing and compilation. It also focuses on tools for automating infrastructure management and but outcom to technologies that will then be discussed in more detail in related follow-up courses. The student will also get acquain Virtualization and Data Centers to familiarize students with technology basis of cloud computer systems. It shows principles and techniques used in design arious kinds of virtualization and high availability of servers, storages, and software layers. The course guides through data of discussion of complex infrastructures for modern applications with respect to scalability and protection against overloads, outcomposed to the problem in the architecture of IT infrastructure and its co	isis, customer insign system impleme pics are discussed Z,ZK ware and other progain an overview Z,ZK ies of language doing 2, Doctrine 2. Z,ZK systems and servuilding and deployinted with modern Z,ZK and implementation center technologies. Students will unages, and data los KZ	tht and ability to nation success. d. 5 coducts do not of methods that 5 escribing the emonstrated in Developments 5 ices. The course ing software to technologies 5 on of data center as from private derstand the ses. 5
implementation and info decide whether it is bette At the end of the course BI-TUR.21 Students gain a basic or communicate with the ubring users into the development of the basic course of well structure (HTML) and produced in libraries facilitated on the client side will be BI-IDO.21 The course deals with the covers the tools to support the Cloud. It is an introdused in practice. BI-VDC.21 The aim of the course is infrastructure, such as we to public and hybrid cloudesign, validation, and of BI-VIZ.21 The course offers an oversity is to public and hybrid cloudesign, validation, and of BI-VIZ.21 The course offers an oversity is to public and hybrid cloudesign, validation, and of BI-VIZ.21	rmation system implementation based on the project management principles. The emphasis is on the initial customer analyser to implement any existing information system or to develop a new one from scratch. These factors determine the information information systems security, operation, support, maintenance, legislation impacts, and government information systems to User Interface Design verview of methods for designing and testing common user interfaces. They get experience to solve the problems where soft ser optimally, since the needs and characteristics of users are not taken into account during product development. Students elopment process to ensure optimal interface for them. Design of Web Applications of application development. Initially, the students become familiar with HTTP and its possibilities and partly with some properties esentation of document on the Web (CSS). These skills provide the necessary basis for the development of Web application et the development of Web pages applications. Server side will be demonstrated on PHP technology using frameworks Symfodemonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to DevOps the topic of DevOps and prepares future developers and administrators for a modern culture of development and operation of out software development, testing and compilation. It also focuses on tools for automating infrastructure management and but out to technologies that will then be discussed in more detail in related follow-up courses. The student will also get acquair Virtualization and Data Centers to familiarize students with technology basis of cloud computer systems. It shows principles and techniques used in design a arious kinds of virtualization and high availability of servers, storages, and software layers. The course guides through data of the familiarize students with technology basis of cloud computer systems. It shows principles and techniques used in design arious kinds of virtualization and high availa	isis, customer insign system implementation is system implementation is system implementation is system implementation is systems and other program an overview is systems and servuilding and deploying and implementation is students will unages, and data los KZ unding data, their of systems in the systems is systems.	thit and ability to notation success. d. 5 coducts do not of methods that 5 escribing the emonstrated in Developments 5 ices. The course ing software to technologies 5 on of data center as from private derstand the ses. 5 content and their
implementation and info decide whether it is bette At the end of the course BI-TUR.21 Students gain a basic or communicate with the ubring users into the development of the basic course of well structure (HTML) and produced in libraries facilitated on the client side will be BI-IDO.21 The course deals with the covers the tools to suppose the Cloud. It is an introdused in practice. BI-VDC.21 The aim of the course is infrastructure, such as we to public and hybrid cloudesign, validation, and of BI-VIZ.21 The course offers an owapplication in areas such	rmation system implementation based on the project management principles. The emphasis is on the initial customer analyser to implement any existing information system or to develop a new one from scratch. These factors determine the information information systems security, operation, support, maintenance, legislation impacts, and government information systems to User Interface Design verview of methods for designing and testing common user interfaces. They get experience to solve the problems where soft ser optimally, since the needs and characteristics of users are not taken into account during product development. Students elopment process to ensure optimal interface for them. Design of Web Applications o application development. Initially, the students become familiar with HTTP and its possibilities and partly with some propert resentation of document on the Web (CSS). These skills provide the necessary basis for the development of Web application is the development of Web pages applications. Server side will be demonstrated on PHP technology using frameworks Symfodemonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to DevOps The topic of DevOps and prepares future developers and administrators for a modern culture of development and operation of our software development, testing and compilation. It also focuses on tools for automating infrastructure management and buction to technologies that will then be discussed in more detail in related follow-up courses. The student will also get acquait for familiarize students with technology basis of cloud computer systems. It shows principles and techniques used in design arious kinds of virtualization and high availability of servers, storages, and software layers. The course guides through data of the familiarize students with technology basis of cloud computer systems. It shows principles and techniques used in design arious kinds of virtualization and high availability of servers, storages, and soft	isis, customer insign system implementation is system implementation is system implementation is system implementation is system in a syst	thit and ability to notation success. d. 5 coducts do not of methods that 5 escribing the emonstrated in Developments 5 ices. The course ing software to technologies 5 on of data center as from private derstand the ses. 5 content and their of visualizing
implementation and info decide whether it is bette At the end of the course BI-TUR.21 Students gain a basic or communicate with the ubring users into the development of the basic course of well structure (HTML) and produced in libraries facilitated on the client side will be BI-IDO.21 The course deals with the covers the tools to suppose the Cloud. It is an introdused in practice. BI-VDC.21 The aim of the course is infrastructure, such as we to public and hybrid cloudesign, validation, and of BI-VIZ.21 The course offers an owapplication in areas such	rmation system implementation based on the project management principles. The emphasis is on the initial customer analyse to implement any existing information system or to develop a new one from scratch. These factors determine the information information systems security, operation, support, maintenance, legislation impacts, and government information systems to User Interface Design verview of methods for designing and testing common user interfaces. They get experience to solve the problems where soft ser optimally, since the needs and characteristics of users are not taken into account during product development. Students elopment process to ensure optimal interface for them. Design of Web Applications application development. Initially, the students become familiar with HTTP and its possibilities and partly with some propert escentation of document on the Web (CSS). These skills provide the necessary basis for the development of Web applications et he development of Web pages applications. Server side will be demonstrated on PHP technology using frameworks Symf demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to DevOps the topic of DevOps and prepares future developers and administrators for a modern culture of development and operation of our software development, testing and compilation. It also focuses on tools for automating infrastructure management and but out to technologies that will then be discussed in more detail in related follow-up courses. The student will also get acquait virtualization and Data Centers to familiarize students with technology basis of cloud computer systems. It shows principles and techniques used in design a arious kinds of virtualization and high availability of servers, storages, and software layers. The course guides through data ones, Student learn current trends in the architecture of IT infrastructure and its configuration for classic and cloud applications operation of complex infrastructures for modern	isis, customer insign system implementation is system implementation is system implementation is system implementation is system in a syst	thit and ability to notation success. d. 5 coducts do not of methods that 5 escribing the emonstrated in Developments 5 ices. The course ing software to technologies 5 on of data center as from private derstand the ses. 5 content and their of visualizing
implementation and info decide whether it is bette At the end of the course BI-TUR.21 Students gain a basic or communicate with the ubring users into the development of the developmen	rmation system implementation based on the project management principles. The emphasis is on the initial customer analyse to implement any existing information system or to develop a new one from scratch. These factors determine the information information systems security, operation, support, maintenance, legislation impacts, and government information systems to User Interface Design verview of methods for designing and testing common user interfaces. They get experience to solve the problems where soft ser optimally, since the needs and characteristics of users are not taken into account during product development. Students elopment process to ensure optimal interface for them. Design of Web Applications application development. Initially, the students become familiar with HTTP and its possibilities and partly with some propert escentation of document on the Web (CSS). These skills provide the necessary basis for the development of Web applications et he development of Web pages applications. Server side will be demonstrated on PHP technology using frameworks Symf demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to DevOps the topic of DevOps and prepares future developers and administrators for a modern culture of development and operation of our software development, testing and compilation. It also focuses on tools for automating infrastructure management and but out to technologies that will then be discussed in more detail in related follow-up courses. The student will also get acquait virtualization and Data Centers to familiarize students with technology basis of cloud computer systems. It shows principles and techniques used in design a arious kinds of virtualization and high availability of servers, storages, and software layers. The course guides through data ones, Student learn current trends in the architecture of IT infrastructure and its configuration for classic and cloud applications operation of complex infrastructures for modern	isis, customer insign system implementation is system implementation is system implementation is system implementation is system in a syst	thit and ability to notation success. d. 5 coducts do not of methods that 5 escribing the emonstrated in Developments 5 ices. The course ing software to technologies 5 on of data center as from private derstand the ses. 5 content and their of visualizing
implementation and info decide whether it is bette At the end of the course BI-TUR.21 Students gain a basic or communicate with the ubring users into the dew BI-TWA.21 The basic course of wet structure (HTML) and produced in libraries facilitate on the client side will be BI-IDO.21 The course deals with the covers the tools to support the Cloud. It is an introdused in practice. BI-VDC.21 The aim of the course is infrastructure, such as we to public and hybrid cloudesign, validation, and of BI-VIZ.21 The course offers an owapplication in areas suc different kinds of data suexamples in the Python BI-VPS.21	rmation system implementation based on the project management principles. The emphasis is on the initial customer analyse of the implement any existing information system or to develop a new one from scratch. These factors determine the information information systems security, operation, support, maintenance, legislation impacts, and government information systems to User Interface Design verview of methods for designing and testing common user interfaces. They get experience to solve the problems where soft ser optimally, since the needs and characteristics of users are not taken into account during product development. Students elopment process to ensure optimal interface for them. Design of Web Applications opplication development. Initially, the students become familiar with HTTP and its possibilities and partly with some propert escentation of document on the Web (CSS). These skills provide the necessary basis for the development of Web application et he development of Web pages applications. Server side will be demonstrated on PHP technology using frameworks Symf demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to DevOps the topic of DevOps and prepares future developers and administrators for a modern culture of development and operation of our software development, testing and compilation. It also focuses on tools for automating infrastructure management and bucuction to technologies that will then be discussed in more detail in related follow-up courses. The student will also get acquait Virtualization and Data Centers to familiarize students with technology basis of cloud computer systems. It shows principles and techniques used in design a arious kinds of virtualization and high availability of servers, storages, and software layers. The course guides through data of some students with technology basis of cloud computer systems. It shows principles and techniques used in design a facility of servers, storages, and software layers. The cour	isis, customer insign system implementation is system implementation is system implementation. It is system implementation is system in an overview and other progain an overview are and other progain an overview as, which will be donly 2, Doctrine 2. Z,ZK systems and servuilding and deploying and deploying and implementation in a center technologies. Students will un ages, and data los the content of the center technologies and data los the content in a center technologies. Students will un ages, and data los the content in a center technologies and data los the content in a center technologies. Students will un ages, and data los the content in a center technologies and data los the center technologies. Students will un ages, and data los the center technologies and data los the center technologies. Students will un ages, and data los the center technologies and data los the center technologies. Students will un ages, and data los the center technologies. Students will un ages, and data los the center technologies. Students will un ages, and data los the center technologies. Students will un ages, and data los the center technologies. Students will un ages, and data los the center technologies. Students will un ages, and data los the center technologies. Students will un ages, and data los the center technologies. Students will un ages, and data los the center technologies.	thit and ability to notation success. d. 5 coducts do not of methods that 5 escribing the emonstrated in Developments 5 ideas. The course ing software to technologies 5 on of data center as from private derstand the ses. 5 content and their of visualizing ods to real-world 5
implementation and info decide whether it is bette At the end of the course BI-TUR.21 Students gain a basic or communicate with the ubring users into the dew BI-TWA.21 The basic course of wet structure (HTML) and produced in libraries facilitated on the client side will be BI-IDO.21 The course deals with the covers the tools to support the Cloud. It is an introdused in practice. BI-VDC.21 The aim of the course is infrastructure, such as we to public and hybrid cloudesign, validation, and of BI-VIZ.21 The course offers an owapplication in areas sucdifferent kinds of data suexamples in the Python BI-VPS.21 The course builds upon	rmation system implementation based on the project management principles. The emphasis is on the initial customer analyse to implement any existing information system or to develop a new one from scratch. These factors determine the information information systems security, operation, support, maintenance, legislation impacts, and government information systems to User Interface Design review of methods for designing and testing common user interfaces. They get experience to solve the problems where soft ser optimally, since the needs and characteristics of users are not taken into account during product development. Students elopment process to ensure optimal interface for them. Design of Web Applications a application development. Initially, the students become familiar with HTTP and its possibilities and partly with some propert esentation of document on the Web (CSS). These skills provide the necessary basis for the development of Web application et the development of Web pages applications. Server side will be demonstrated on PHP technology using frameworks Symf demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to DevOps the topic of DevOps and prepares future developers and administrators for a modern culture of development and operation of ort software development, testing and compilation. It also focuses on tools for automating infrastructure management and but out to technologies that will then be discussed in more detail in related follow-up courses. The student will also get acquair virtualization and Data Centers to familiarize students with technology basis of cloud computer systems. It shows principles and techniques used in design a arious kinds of virtualization and high availability of servers, storages, and software layers. The course guides through data of the students with technology basis of cloud computer systems. It shows principles and techniques used in design a proper to the types and characteristics of data as well as suitab	sis, customer insign system implementation is system implementation. Z,ZK ware and other progain an overview Z,ZK ites of language does, which will be does and the systems and service in items. Z,ZK systems and service in items and deploying and deploying and deploying and implementation in items. Students will un ages, and data los to so f selected methologies of selected methologies used in mologies and systems.	thit and ability to notation success. d. 5 coducts do not of methods that 5 escribing the emonstrated in Developments 5 ideas. The course ing software to technologies 5 on of data center as from private derstand the ses. 5 content and their of visualizing ods to real-world 5 nodern computer
implementation and info decide whether it is bette. At the end of the course BI-TUR.21 Students gain a basic of communicate with the ubring users into the development of the course of well structure (HTML) and producer libraries facilitate on the client side will be BI-IDO.21 The course deals with the covers the tools to suppose the Cloud. It is an introdused in practice. BI-VDC.21 The aim of the course is infrastructure, such as we to public and hybrid cloudesign, validation, and of BI-VIZ.21 The course offers an owapplication in areas such different kinds of data such as we are such to public and hybrid cloudesign, validation, and of BI-VIZ.21 The course offers an owapplication in areas such different kinds of data such as we are such as we are such the Python BI-VPS.21 The course builds upon networks from local area.	rmation system implementation based on the project management principles. The emphasis is on the initial customer analyse ro implement any existing information system or to develop a new one from scratch. These factors determine the information information systems security, operation, support, maintenance, legislation impacts, and government information systems to User Interface Design revriew of methods for designing and testing common user interfaces. They get experience to solve the problems where soft ser optimally, since the needs and characteristics of users are not taken into account during product development. Students sclopment process to ensure optimal interface for them. Design of Web Applications application development. Initially, the students become familiar with HTTP and its possibilities and partly with some propert sesentation of document on the Web (CSS). These skills provide the necessary basis for the development of Web applications. Server side will be demonstrated on PHP technology using frameworks Symf demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to DevOps the topic of DevOps and prepares future developers and administrators for a modern culture of development and operation of ort software development, testing and compilation. It also focuses on tools for automating infrastructure management and bunction to technologies that will then be discussed in more detail in related follow-up courses. The student will also get acquait virtualization and Data Centers to familiarize students with technology basis of cloud computer systems. It shows principles and techniques used in design a darious kinds of virtualization and high availability of servers, storages, and software layers. The course guides through data data will also design of complex infrastructures for modern applications with respect to scalability and protection against overloads, outer Data Visualization Proview of the types and characteristics of data as well as su	isis, customer insign system implementation is system implementation is system implementation is system and other program an overview in the systems and servuilding and deployinted with modern in the systems and servuilding and deployinted with modern in the systems and servuilding and deployinted with modern in the systems in the sys	thit and ability to notation success. d. 5 coducts do not of methods that 5 escribing the emonstrated in Developments 5 ideas. The course ing software to technologies 5 on of data center as from private derstand the ses. 5 content and their of visualizing ods to real-world 5 nodern computer
implementation and info decide whether it is bette At the end of the course BI-TUR.21 Students gain a basic or communicate with the ubring users into the dew BI-TWA.21 The basic course of wet structure (HTML) and produced in the client side will be BI-IDO.21 The course deals with the covers the tools to supp the Cloud. It is an introdused in practice. BI-VDC.21 The aim of the course is infrastructure, such as we to public and hybrid cloud design, validation, and of BI-VIZ.21 The course offers an owapplication in areas suc different kinds of data suexamples in the Python BI-VPS.21 The course builds uponnetworks from local area devices in the lab and legal and such as a contract of the such as a contract o	rmation system implementation based on the project management principles. The emphasis is on the initial customer analyse is oimplement any existing information system or to develop a new one from scratch. These factors determine the information information systems security, operation, support, maintenance, legislation impacts, and government information systems to User Interface Design verview of methods for designing and testing common user interfaces. They get experience to solve the problems where soft ser optimally, since the needs and characteristics of users are not taken into account during product development. Students elopment process to ensure optimal interface for them. Design of Web Applications Design of	sis, customer insign system implement pics are discussed Z,ZK ware and other progain an overview Z,ZK ies of language do sony 2, Doctrine 2. Z,ZK systems and servuilding and deployinted with modern Z,ZK and implementation center technologies. Students will unages, and data los KZ anding data, their of selected methologies used in model experience with.	thit and ability to notation success. d. 5 coducts do not of methods that 5 escribing the emonstrated in Developments 5 ideas. The course ing software to technologies 5 on of data center as from private derstand the ses. 5 content and their of visualizing ods to real-world 5 nodern computer
implementation and info decide whether it is bette At the end of the course BI-TUR.21 Students gain a basic or communicate with the ubring users into the dew BI-TWA.21 The basic course of wet structure (HTML) and produced in the client side will be BI-IDO.21 The course deals with the covers the tools to supper the Cloud. It is an introdused in practice. BI-VDC.21 The aim of the course is infrastructure, such as we to public and hybrid cloud design, validation, and of BI-VIZ.21 The course offers an owapplication in areas suc different kinds of data suexamples in the Python BI-VPS.21 The course builds upon networks from local area devices in the lab and le BI-VWM.21	rmation system implementation based on the project management principles. The emphasis is on the initial customer analyse of the project of the initial customer analyse of the project o	isis, customer insign system impleme pics are discussed Z,ZK ware and other progain an overview Z,ZK ies of language do so, which will be do sony 2, Doctrine 2. Z,ZK systems and servuilding and deploying and deploying and implementations. Students will unages, and data los KZ anding data, their costing, and ways of selected methodogies used in model experience with Z,ZK analogies used in model experience with Z,ZK	thit and ability to notation success. d. 5 coducts do not of methods that 5 escribing the emonstrated in Developments 5 ideas. The course ing software to technologies 5 on of data center es from private derstand the ses. 5 content and their of visualizing ods to real-world 5 modern computer the real network 5
implementation and info decide whether it is bette At the end of the course BI-TUR.21 Students gain a basic or communicate with the ubring users into the dew BI-TWA.21 The basic course of wet structure (HTML) and produced in the client side will be BI-IDO.21 The course deals with the covers the tools to supper the Cloud. It is an introdused in practice. BI-VDC.21 The aim of the course is infrastructure, such as we to public and hybrid cloud design, validation, and of BI-VIZ.21 The course offers an owapplication in areas suc different kinds of data suexamples in the Python BI-VPS.21 The course builds upon networks from local area devices in the lab and le BI-VWM.21 Students get basic over	rmation system implementation based on the project management principles. The emphasis is on the initial customer analyse in to implement any existing information system or to develop a new one from scratch. These factors determine the information information systems security, operation, support, maintenance, legislation impacts, and government information systems to User Interface Design verview of methods for designing and testing common user interfaces. They get experience to solve the problems where soft ser optimally, since the needs and characteristics of users are not taken into account during product development. Students elopment process to ensure optimal interface for them. Design of Web Applications paplication development. Initially, the students become familiar with HTTP and its possibilities and partly with some propert escentation of document on the Web (CSS). These skills provide the necessary basis for the development of Web applications. Server side will be demonstrated on PHP technology using frameworks Symf demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to DevOps the topic of DevOps and prepares future developers and administrators for a modern culture of development and operation of ort software development, testing and compilation. It also focuses on tools for automating infrastructure management and but outton to technologies that will then be discussed in more detail in related follow-up courses. The student will also get acquains from the chnology basis of cloud computer systems. It shows principles and techniques used in designations with technology basis of cloud computer systems. It shows principles and techniques used in designations with the chnology infrastructures for modern applications with respect to scalability and protection against overloads, outed as a students with technology basis of cloud computer systems. It shows principles and techniques used in designations preration of complex infrastructures for modern	isis, customer insign system impleme pics are discussed Z,ZK ware and other progain an overview Z,ZK ies of language do so, which will be do sony 2, Doctrine 2. Z,ZK systems and servuilding and deployinted with modern Z,ZK and implementations. Students will unages, and data los KZ anding data, their costing, and ways of of selected methodogies used in model experience with Z,ZK and Z,ZK a	thit and ability to nation success. d. 5 coducts do not of methods that 5 escribing the emonstrated in Developments 5 ideas. The course ing software to technologies 5 on of data center is from private derstand the ses. 5 content and their of visualizing ods to real-world 5 nodern computer the real network 5 In particular,
implementation and info decide whether it is bette. At the end of the course BI-TUR.21 Students gain a basic of communicate with the ubring users into the device BI-TWA.21 The basic course of well structure (HTML) and primodern libraries facilitate on the client side will be BI-IDO.21 The course deals with the covers the tools to suppithe Cloud. It is an introdused in practice. BI-VDC.21 The aim of the course is infrastructure, such as we to public and hybrid cloudesign, validation, and of BI-VIZ.21 The course offers an owapplication in areas such different kinds of data such as we are such as we will be suppingly and the Python BI-VPS.21 The course builds upon networks from local area devices in the lab and letevices in the lab and letevices in the lab and letevices acquire informations.	rmation system implementation based on the project management principles. The emphasis is on the initial customer analyse it to implement any existing information system or to develop a new one from scratch. These factors determine the information information systems security, operation, support, maintenance, legislation impacts, and government information systems to User Interface Design verview of methods for designing and testing common user interfaces. They get experience to solve the problems where soft ser optimally, since the needs and characteristics of users are not taken into account during product development. Students slopment process to ensure optimal interface for them. Design of Web Applications application development. Initially, the students become familiar with HTTP and its possibilities and partly with some propert seentation of document on the Web (CSS). These skills provide the necessary basis for the development of Web application to the development of Web pages applications. Server side will be demonstrated on PHP technology using frameworks Symf demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to DevOps the topic of DevOps and prepares future developers and administrators for a modern culture of development and operation of ort software development, testing and compilation. It also focuses on tools for automating infrastructure management and be uction to technologies that will then be discussed in more detail in related follow-up courses. The student will also get acquair across the students with technology basis of cloud computer systems. It shows principles and techniques used in design across kinds of virtualization and high availability of servers, storages, and software layers. The course guides through data across parations for orthesis with technology basis of cloud computer systems. It shows principles and techniques used in design across kinds of virtualization and high availability of servers, storages, and softwar	isis, customer insign system implementation is system implementation is system implementation is system and other program an overview in the content of the content is systems and servuilding and deployinted with modern in the content is systems in the content in the content is systems in the content in the content is systems in the content in t	thit and ability to natation success. d. 5 oducts do not of methods that 5 escribing the emonstrated in Developments 5 ices. The course ing software to technologies 5 on of data center as from private derstand the ses. 5 content and their of visualizing ods to real-world 5 nodern computer the real network 5 In particular, by get detailed
implementation and info decide whether it is bette. At the end of the course BI-TUR.21 Students gain a basic of communicate with the ubring users into the device BI-TWA.21 The basic course of well structure (HTML) and primodern libraries facilitate on the client side will be BI-IDO.21 The course deals with the covers the tools to suppithe Cloud. It is an introdused in practice. BI-VDC.21 The aim of the course is infrastructure, such as we to public and hybrid cloudesign, validation, and of BI-VIZ.21 The course offers an owapplication in areas such different kinds of data such as we are such as we will be suppingly and the Python BI-VPS.21 The course builds upon networks from local area devices in the lab and letevices in the lab and letevices in the lab and letevices acquire informations.	rmation system implementation based on the project management principles. The emphasis is on the initial customer analyse it to implement any existing information system or to develop a new one from scratch. These factors determine the information information systems security, operation, support, maintenance, legislation impacts, and government information systems to User Interface Design verview of methods for designing and testing common user interfaces. They get experience to solve the problems where soft ser optimally, since the needs and characteristics of users are not taken into account during product development. Students slopment process to ensure optimal interface for them. Design of Web Applications Design of Web Application of Verbid of the interfaces of the development of Web application of the development of Web application of PHP technology using frameworks Symform demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to DevOps Design of DevOps and prepares future developers and administrators for a modern culture of development and operation of or software development, testing and compilation. It also focuses on tools for automating infrastructure management and bucuction to technologies that will then be discussed in more detail in related follow-up courses. The student will also get acquait of samiliarize students with technology basis of cloud computer systems. It shows principles and techniques used in design arrives with the development of the program of the structure and the configuration for classic and cloud applications arious kinds of virtualization and high availability of servers, storages, and software layers. The course guides through	isis, customer insign system implementation is system implementation is system implementation is system and other program an overview in the content of the content is systems and servuilding and deployinted with modern in the content is systems in the content in the content is systems in the content in the content is systems in the content	thit and ability to natation success. d. 5 oducts do not of methods that 5 escribing the emonstrated in Developments 5 ices. The course ing software to technologies 5 on of data center as from private derstand the ses. 5 content and their of visualizing ods to real-world 5 nodern computer the real network 5 In particular, by get detailed
implementation and info decide whether it is bette. At the end of the course BI-TUR.21 Students gain a basic of communicate with the ubring users into the device BI-TWA.21 The basic course of well structure (HTML) and producer libraries facilitate on the client side will be BI-IDO.21 The course deals with the covers the tools to suppose the Cloud. It is an introdused in practice. BI-VDC.21 The aim of the course is infrastructure, such as we to public and hybrid cloudesign, validation, and of BI-VIZ.21 The course offers an owapplication in areas such different kinds of data such as we are to public and hybrid cloudesign, validation, and of BI-VPS.21 The course offers an owapplication in areas such different kinds of data such as we are to be supposed by the Python BI-VPS.21 The course builds upon networks from local area devices in the lab and leading by the suppose of similarity such as well as a course information and the such as the public and hybrid cloudesign, validation, and of BI-VWM.21 Students get basic over students acquire information and the such as a course in the such as a course in the such as a course in the such as	rmation system implementation based on the project management principles. The emphasis is on the initial customer analyse it to implement any existing information system or to develop a new one from scratch. These factors determine the information information systems security, operation, support, maintenance, legislation impacts, and government information systems to User Interface Design verview of methods for designing and testing common user interfaces. They get experience to solve the problems where soft ser optimally, since the needs and characteristics of users are not taken into account during product development. Students slopment process to ensure optimal interface for them. Design of Web Applications Design of Web Application of Verbid of the interfaces of the development of Web application of the development of Web application of PHP technology using frameworks Symform demonstrated using a JavaScript language with library jQuery and possibly MV* framework React. Introduction to DevOps Design of DevOps and prepares future developers and administrators for a modern culture of development and operation of or software development, testing and compilation. It also focuses on tools for automating infrastructure management and bucuction to technologies that will then be discussed in more detail in related follow-up courses. The student will also get acquait of samiliarize students with technology basis of cloud computer systems. It shows principles and techniques used in design arrives with the development of the program of the structure and the configuration for classic and cloud applications arious kinds of virtualization and high availability of servers, storages, and software layers. The course guides through	isis, customer insign system implementation is system implementation is system implementation is system and other program an overview in the content of the content is systems and servuilding and deployinted with modern in the content is systems in the content in the content is systems in the content in the content is systems in the content	thit and ability to natation success. d. 5 oducts do not of methods that 5 escribing the emonstrated in Developments 5 ices. The course ing software to technologies 5 on of data center as from private derstand the ses. 5 content and their of visualizing ods to real-world 5 nodern computer the real network 5 In particular, by get detailed

BI-FEM.21	Fundamentals of Economics he students to discover basics of economic theory, which will then be used in subsequent courses of economics and management.	Z,ZK	5 al overview
	oeconomic and macroeconomic topics.	it contains a gener	ai overview
control of engineering casic linear dynamic	Basics of System Control introduction to the field of automatic control. Students will gain knowledge in this rapidly evolving field of great future. We will focus and physical systems. We will provide basic information from the feedback control of linear dynamical SISO systems, description asystems analysis and design verification, simple PID feedback, PSD, and fuzzy controllers. Students will learn the methods of creating the control of the control o	methods of systen	n models, f the system
	ear dynamic systems analysis and design verification and simple PID feedback, PSD, and fuzzy controllers. Attention is also given t s of stability in control systems, single and continuous adjustment of the controller parameters, and certain aspects of the industrial		
· · · · · · · · · · · · · · · · · · ·	rs and PLC control.	implementation of	continuous
	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
	course corresponds to the preparation for the English exam at the B2 level. Requirements for course credit. Academic Achievement	- students are due	to: -Take an
•	anguage instructionMeet the requirements for writing assignments - Summary, Abstract, Argumentation PaperSucceed in both t ss rate set at 70%80% and over in BOTH tests means ORAL EXAM ONLY (no written part). Requirements will be specified by inc class of the term.		
BI-AAG.21	Automata and Grammars	Z,ZK	5
	aced to basic theoretical and implementation principles of the following topics: construction, use and mutual transformations of finite	_	•
	ars, context-free grammars, construction and use of pushdown automata, and translation grammars and transducers. They know the y understand the relationships between formal languages and automata. They are introduced to the Turing machine and complexity		
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	KZ	5
	This is a selective course for preparing talented student for representation in international programming contests.		
BI-ACM3	Programming Practices 3 This is a selective course for preparing talented student for representation in international programming contests.	KZ	5
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
	ne internal structure of the UNIX operating system, with the administration of its basic subsystems and with the security principles. The		
	dministrator roles. They will get theoretical and practical knowledge of user management and administration, of users access rights, ry, network services and remote access, and in the areas of system deployment and virtualization. In the labs, they will verify the kr specific examples from practice.	-	-
BI-ADW.1	Windows Administration	Z,ZK	4
DI AC4 24	This course is presented in Czech. However, there is an English variant in the program Informatics (B1801 / 4753).	7.71/	
BI-AG1.21 The course covers	Algorithms and Graphs 1 s the basics of efficient algorithm design, data structures, and graph theory, belonging to the core knowledge of every computing cu	Z,ZK	5 d partially
develops the knowl	ledge from the course BI-DML.21, in which students acquire the knowledge and skills in combinatorics necessary for evaluating the ithms. The course also follows up knowledge from BI-MA1.21, the practical usage of asymptotic mathematics, in particular, the asyl	time and space co	
BI-AG2.21	Algorithms and Graphs 2	Z,ZK	5
	ented in Czech, introduces basic algorithms and concepts of graph theory as a follow=up on the introduction given in the compulsor ses data structures and amortized complexity analysis. It also includes a very light introduction to approximation algorithms. For Eng BIE-AG2.21.	•	
BI-ALO	Algebra and Logic The course extends and deepens the study of topics touched upon in the basic course in logic.	Z,ZK	4
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-AN	ZK	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
The content of the cactive part in the la	course corresponds to the preparation for the English exam at the B2 level. Requirements for course credit. Academic Achievement anguage instructionMeet the requirements for writing assignments - Summary, Abstract, Argumentation PaperSucceed in both t ass rate set at 70%80% and over in BOTH tests means ORAL EXAM ONLY (no written part). Requirements will be specified by inc	- students are due he midterm and the	to: -Take an inal term
BI-APJ	class of the term. 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 Students will learn the construction principles of internal architecture of computers with universal processors at the level of machine instructions. Special emphasis is given on the pipelined instruction processing and on the memory hierarchy. Students will understand the basic concepts of RISC and CISC architectures and the principles of instruction processing not only in scalar processors, but also in superscalar processors that can execute multiple instructions in one cycle, while ensuring the correctness of the sequential model of the

program. The course further elaborates the principles and architectures of shared memory multiprocessor and multicore systems and the memory coherence and consistency in such systems. BI-ARD K7 4 Interactive applications on Arduino The subject is designed for students of first grade of bachelor study as introduction to embedded systems. Students will learn how to design simple applications for modern programmable kits and control varied peripherals with help of available libraries. The goal of the subject is to show varied software approaches to control embedded systems, i.e. to see the results not only on display of a PC. Thanks to possible control on higher (objective) layer, this platform is frequently used for artist performance and therefore is suitable even for Web and Software Engineering students. BI-ASB.21 Applied Network Security The aim of the course is to introduce selected topics from computer networks in terms of cybersecurity. These topics extend the basic knowledge gained in course BI-PSI with actual security applications like the public key infrastructure, encrypted network protocols, link and network layer security or wireless networks. After finishing the course student will get knowledge of security applications in computer networks. BI-AVI.21 Algorithms visually Z,ZK The course complements other algorithm courses at FIT. It brings knowledge about particular important algorithms from different fields of the computer science that extend 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.org<http://www.algovision.org>) that make understanding the principles of algorithms easy. BI-AWD.21 Web and Database Server Administration Z,ZK 5 Students will get acquainted with the administration of database and web servers and services. They will be able to install, configure, operate, test, and backup complex database and web service systems. The principles will be demonstrated on the PostgreSQL relational database engine and Apache will be used as an example of a web server. BI-BAP.21 **Bachelor Thesis** Ζ 14 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 phase of their own code and solutions. After getting familiar with the threat modeling theory, students gain practical experience with running programs with reduced privileges and methods of specifying these privileges, since not every program needs to run with administrator privileges. Dangers inherent in buffer overflows will be practically demonstrated. Students will be introduced to the principles of securing data and the relationships of security and database systems, web, remote procedure calls, and sockets in general. The module concludes with Denial of Service attacks and the defense against them. DB Technologies for Big Data Students will be introduced into the field of Big Data processing where nonrelational (NoSQL) database engines are typically used today. The course is focused practically so that after finishing the course students were able to choose suitable tools (mostly open source) and techniques, design and implement a simplest reproducible method of data processing (data collection, transformation/aggregation, presentation). Students get acquainted with various architectures for processing and storing big data. A theoretical foundation and presentation of individual technologies will be supplemented with specific examples from practice. Blender BI-BI F Z.ZK The course extends knowledge of opensource program Blender from BI-MGA (Multimedia and Graphics Applications) course. It is intended for those interested in 3D graphics and animation. It offers a complete and practically oriented introduction to Blender environment. Students may continue to BI-PGA (Programming graphics applications) course. BI-BPR.21 Bachelor project 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 partial tasks that 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-CCN** Compiler Construction This is an introductory class on compiler construction for bachelor students in computer science. The goal of the class is to introduce basic principles of compilers for students to understand the design and implementation of programming languages. Seeing and actually understanding self-compilation is the overarching theme of the class. BI-CS1 Programming in C# The goal of the course is to introduce .NET Framework as a multi-language development platform. Then, programming language C#, its fundamental construction, types of variables, operators, arrays, loops, definitions and calls of functions will be discussed. Attention is focused on the object oriented programming in C# - class definition and class instancing, constructors, methods, properties, static members, Garbage Collector, inheritance and polymorphism, collections, delegates, and generics. Debugging and exception processing, as well as work with files are emphasized. BI-CS2 C# language and data access ΚZ The C# language and data access course objective is to introduce students several data access technologies - database, XML, NoSQL - on the Microsoft platform. The students will get to know objects used to retrieve data - Connection, Command, Data Reader and DataAdapter v ADO.NET. Next, they will learn to use current technologies such as LINQ - a set of features for querying and updating data, integrated directly with the .NET platform languages, which enable LINQ use with Objects, XML and SQL (LINQ to Objects, LINQ to XML and LINQ to SQL). Another objective is the Entity Framework - an object-relational mapper that enables .NET developers to work with relational data using domain-specific objects (ORM). This part of the course introduces Code First, Database First, Model First approaches. The students will also get to know the Conceptual Model, Storage Model and Mapping (XML description). BI-CS3 Language C# - design of web applications ΚZ The students will be introduced to current technologies in web application development on the .NET platform. They will acquire a comprehensive overview of the development possibilities on thisplatform. They will learn to create WebAPI and to use it by client programs. 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 learn to design small databases (including integrity constraints) using a conceptual model and implement them in a relational database engine. They get a hands-on experience with the SQL language, as well as with its theoretical foundation - the relational database model. They learn the principles of normalizing a relational database schema. They understand the fundamental concepts of transaction processing, controlling parallel user access to a single data source, as well as recovering a database engine from a failure. They are briefly introduced to special ways of storing data in relational databases with respect to speed of access to large quantities of data. This introductory-level course does not cover: Administration of database systems, debugging and optimizing database applications, distributed database systems, data stores. BI-DML.21 Discrete Mathematics and Logic Z,ZK Students will get acquainted with the basic concepts of propositional logic and predicate logic and learn to work with their laws. Necessary concepts from set theory will be explained. Special attention is paid to relations, their general properties, and their types, especially functional relations, equivalences, and partial orders. The course also lays down the basics of combinatorics and number theory, with emphasis on modular arithmetics. BI-EHA.21 **Ethical Hacking** Z,ZK 5 The goal of the course is to introduce students to the field of penetration testing and ethical hacking. The course deals with cybersecurity threats, vulnerabilities, and their possible exploitation in computer networks, web applications, wireless networks, operating systems, and others like the Internet of Things or cloud. The focus is on hands-on experience with vulnerabilities testing and the following process of penetration test documentation.

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	
BI-EJA	Enterprise Java	Z,ZK	4	
	dvanced technologies in the Java programming language. The focus is on technologies for development of enterprise information systems a database and are accessed through the web interface.		onnected to	
BI-EJK	Enterprise Java and Kotlin	Z,ZK	4	
	dvanced technologies in the Java and Kotlin programming languages. The focus is on technologies for developing enterprise informat architecture, that can be deployed to the cloud.		1	
BI-EP1.24	Effective programming 1 The course is taught in Czech.	KZ	4	
BI-EP2	Efficient Programming 2	KZ	4	
	ficient Programming 1. Students will practice implementation of algorithms by solving typical problems. Various ways of solving individual with the aim to choose the best one and avoid implementation errors.		discussed,	
BI-EPP.21	Economic Business Processes	Z,ZK	5	
The aim of the coulin the market envir	rse is to present typical processes related to the usual life cycle of a company. The course focuses mainly on the basic economic and comment of the Czech Republic and the basics of management. In the course, students are acquainted with the typical phases of the ecompany, through the management of property and capital structure, financing of the company, determining the cost function of the	l financial aspects company's life cyc	le, from the	
	evaluating the financial health of the company and its eventual rehabilitation or termination.			
BI-FBI.21	Financial Business Intelligence	Z,ZK	5	
and other indicators for financial manage accounting period	se 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 the distance of the distance of the financial status and performance of the distance of the financial status and performance of the distance of the financial status and performance of the financial status and	agement accounti business activities d to use value info	ing as a tool over several rmation to	
BI-FEM.21	Fundamentals of Economics	Z,ZK	5	
The course allows	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.	t contains a gener	al overview	
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 par			
	unts and accounting statements including opening and closing of bookkeeping. The course provides students with a legal modificatio ations 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	
	roduced 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	
This course is aime	d 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		on manager	
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. The	_	-	
	mandatory skills to network operators (planning and development of resources and infrastructure) and security analysts alike (as a s oals 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 This course is for s	Human Aspects in Cryptography and Security students interested not only in technical scope of computer science, but also in making products usable - for users and for developers	Z,ZK s. Students of this	5 course can	
	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 This course is presented in Czech.	Z,ZK	3	
BI-HWB.21	Hardware Security	Z,ZK	5	
The course deals with hardware resources used to ensure security of computer systems including embedded ones. Students become familiar with the operating principles of cryptographic modules, security features of modern processors, and storage media protection through encryption. They will gain knowledge about vulnerabilities of HW resources, including side-channel attacks and tampering with hardware during manufacture. Students will have an overview of contact and contactless smart card technology including applications and related topics for multi-factor authentication (biometrics). Students will understand methods of efficient implementations of ciphers.				
BI-IDO.21	Introduction to DevOps	Z,ZK	5	
	rith the topic of DevOps and prepares future developers and administrators for a modern culture of development and operation of syst		1	
covers the tools to support software development, testing and compilation. It also focuses on tools for automating infrastructure management and building and deploying software to 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 acquainted with modern technologies				
DI IOO	used in practice.	1/7		
BI-IOS	Fundamentals of iOS Application Development for iPhone and iPad This course is presented in Czech.	KZ	4	
BI-IOT.21	Internet of Things	Z,ZK	5	
wireless communi	on an overview of technologies and development tools used in the field of the Internet of Things (IoT). Lectures are devoted to an over cation technologies designed primarily for this area, and appropriate programming methods. They include an overview of IoT architect computer labs, students will gain practical experience with developing simple IoT systems using common development environments software - Arduino, Raspberry Pi OS).	ctures for different	application	
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			
_	nputer units and processors and their interactions with the environment, including accelerating arithmetic-logic units and using approp			
· ·	e organization of main memory and other internal memories (addressable, LIFO, FIFO and CAM) will be discussed in detail, including el and serial data transmissions. They will also get acquainted with the methodology of controller design, with the principles of commo			

the environment and the architecture of the bus system. The problems will be practically evaluated in the labs and with the help of the educational microprogrammable hardware design kits (FPGA).	grammed processor	simulator	
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 understand the mathematical foundations of cryptography and gain an overview of current cryptographic algorithms. They will be able to understand the mathematical foundations of cryptography and gain an overview of current cryptographic algorithms.			
certificates in systems based on them and learn the basics of safe use of symmetric and asymmetric cryptographic systems and hash functions in applic will gain practical skills in using standard cryptographic methods with an emphasis on security and will also get acquainted with the basic proced			
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 term	, I		
categorize and specify correct relations in complex systems of social reality, mostly enterprises and institutions. Students learn basics of ontological structu	ıral 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 representation.	tion in the Internet.	They also	
learn the foundations of enterprise engineering, being a discipline for conceptual modelling of enterprises and institutes and their processes. The DEMO modelling be taught. The course is designed with the respect to continuation in software implementations. Recommended optional follow-up co		N notation	
BI-KOT Programing in Kotlin	Z,ZK	4	
Kotlin is a modern, statically-styled object-functional language that exploits the extensive Java language ecosystem while delivering a number of advances.			
The language is fully Java compliant and allows for mixed projects that preserve existing parts written in Java, and continue with the development of a m	odern, object-function	ional way	
with minimum of boiler-plate code. Last but not least, Kotlin is suitable for designing of DSLs (Domain-Specific Languages).			
BI-KSA Cultural and Social Anthropology	ZK	2	
The one-semester course aims to acquaint students with the basics of social and cultural anthropology as a scientific discipline dealing with the diversity			
anthropological research from our "exotic" cultures (topics: kinship, religion, social exclusion, migration, globalization, , material culture, language, health, shown. The course is presented in Czech.			
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 be executed by the concepts of linear algebra, such as vectors, matrices, vector spaces. We will be executed by the concepts of basic and dispersion and learn to solve a vetoms of linear equations uping the Coupsing aliminst	· · · · · · · · · · · · · · · · · · ·	I	
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 eliminat 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 eigenvalue matrix. We will also demonstrate some applications of these concepts in computer science.		I	
BI-LA2.21 Linear Algebra 2	Z.ZK	5	
Studenti si v tomto 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 prost	, ,		
Seznámíme se také s pojmem skalární sou in a lineární zobrazení, což nám dovolí ukázat souvislost s lineární algebrou, geometrií a po íta ovou grafik			
bude numerická lineární algebra, kde si ukážeme potíže s ešením soustav lineárních rovnic na po íta i a možnosti, jak se s tímto problémem vypo ádat : Ukážeme si také aplikace lineární algebry v r zných oborech.	s d razem na rozkla	ady matic.	
BI-LOG.21 Mathematical Logic	Z,ZK	5	
The course focuses on the basics of propositional and predicate logic. It starts from the semantic point of view. Based on the notion of truth, satisfiability,		e, and the	
logical consequence of formulas are defined. Methods for determining the satisfiability of formulas, some of which are used for automated proving, are ex	cplained. This relates	s to the P	
vs. NP problem and Boolean functions in propositional logic. In predicate logic, the course further deals with formal theories, such as arithmetics, and	their models. The sy	ntactic/	
approach to mathematical logic is demonstrated on the axiomatic system of propositional logic and its properties. Gödel's incompleteness the	rems is explained.		
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 numbers. The	-		
and real functions of a real variable. We gradually introduce the notions of limits of sequences and functions, continuous functions, and derivatives of function			
is then applied to root-finding problems (iterative method of bisection and Newtons method), construction of cubic interpolation (spline), and formulation and splines (i.e., the increase of finding extreme of functions). The govern is placed with the Landaux governotation and methods of methods of methods are represented to a significant control of the control of			
problems (i.e., the issue of finding extrema of functions). The course is closed with the Landaus asymptotic notation and methods of mathematical description.			
BI-MA2.21 Mathematical Analysis 2 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 learn	Z,ZK	6	
use the substitution method. The next part of the course is devoted to number series, and Taylor polynomials and series. We apply Taylors theorem to the			
functions with a prescribed accuracy. Then we study the linear recurrence equations with constant coefficients, the complexity of recursive algorithms, and			
theorem. Finally, we introduce the student to the theory of multivariate functions. After establishing basic concepts of partial derivative, gradient, and He	-		
analytical method of localization of local extrema of multivariate functions as well as the numerical descent method. We conclude the course with the integral	ation of multivariate f	functions.	
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 and 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 and the course is to give an overview of commonly used data formats for typical types of data.	ne data formats use	ed for that	
data type along with tools available to work with such data. After finishing the course, the students should know how to work with common data	a, e.g. on the Web.		
BI-MGA.21 Multimedia and Graphics Applications	Z,ZK	5	
Students get acquainted with multimedia technologies and applications for 2D/3D bitmap and vector graphics. During the course, current tools for work			
graphics and animation will be introduced. Students learn several basic techniques of creation and editing content in computer graphics, introduction to grap			
technologies. They learn to use multimedia transmission and representation systems, including real-time multimedia processing. They understand the processing cards. They gain a number of practical skills, such as vectorizing restor images, retouching photos, or creating in		and use	
of graphics processing cards. They gain a number of practical skills, such as vectorizing raster images, retouching photos, or creating 3			
BI-MIT Mikrotik technologies	KZ	3	
The main motivation of the subject stands in the introduction of the RouterOS operating system and some network Mikrotik technologies which are commiddle internet service providers (ISPs). The students learn how to use and create the architectures of the network solutions which are based on the me			
and how to administrate and practically deploy them. The successful completion of this subject requires the previous knowledge of elementary computer net			
and technologies of the data-link, network and transport layer of the OSI model.			
BI-ML1.21 Machine Learning 1	Z,ZK	5	
The goal of this course is to introduce students to the basic methods of machine learning. They get theoretical understanding and practical working kn			
classification models in the supervised learning scenario and clustering models in the unsupervised scenario. Students will be aware of the relationship variance, and know the fundamentals of assessing model quality. Moreover, they learn the basic techniques of data preprocessing and multidimensional	o permeen model p		
variance, and know the fundamentals of assessing model quality. Moreover, they learn the basic techniques of data preprocessing and multidimensional data visualization. In practical demonstrations, pandas and scikit libraries in Python will be used.			
		Practical	
demonstrations, pandas and scikit libraries in Python will be used.	data visualization. In		
demonstrations, pandas and scikit libraries in Python will be used. BI-ML2.21 Machine Learning 2	data visualization. In	5	
demonstrations, pandas and scikit libraries in Python will be used. BI-ML2.21 Machine Learning 2 The goal of this course is to introduce students to the selected advanced methods of machine learning. In the supervised learning scenario, they, in part	data visualization. In Z,ZK ticular, learn kernel r	5 methods	
demonstrations, pandas and scikit libraries in Python will be used. BI-ML2.21 Machine Learning 2	data visualization. In Z,ZK ticular, learn kernel r	5 methods	
demonstrations, pandas and scikit libraries in Python will be used. BI-ML2.21 Machine Learning 2 The goal of this course is to introduce students to the selected advanced methods of machine learning. In the supervised learning scenario, they, in part and neural networks. In the unsupervised learning scenario students learn the principal component analysis and other dimensionality reduction methods.	data visualization. In Z,ZK ticular, learn kernel r	5 methods	
demonstrations, pandas and scikit libraries in Python will be used. BI-ML2.21 Machine Learning 2 The goal of this course is to introduce students to the selected advanced methods of machine learning. In the supervised learning scenario, they, in part and neural networks. In the unsupervised learning scenario students learn the principal component analysis and other dimensionality reduction methods basic principles of reinforcement learning and natural language processing.	Z,ZK ticular, learn kernel r	5 methods ts get the	

BI-MPP.21	Methods of interfacing peripheral devices	Z,ZK	5
I	ed on methods for interfacing of peripheral devices. Interfacing of real peripheral devices is focused on techniques based on Universal		_
	ide and peripheral devices side. Labs are practically oriented. Students gain experience with implementation of relevant parts of USB		
ciddes both i o si	drivers, simple application development, and APIs of selected devices.	devices, Linux e	ina vvinaovi
BI-MVT.21	Modern Visualisation Technologies	Z,ZK	5
l l	urse is to give an overview of modern visualization technologies and their principles, namely technologies related to virtual and augme	•	I
-	lays (e.g., SAGE and video mapping) and their applications in practice. Several lectures deal with the content creation for the mentioned	-	
,a.a.	and procedural visualization, scientific data visualization, and 3D model scanning.		arriory rrac
BI-OOP.21	Object-Oriented Programming	Z,ZK	5
I I	rogramming has been used in the last 50 years to solve computational problems by using graphs of objects that collaborate together be		_
	acquainted with the main principles of object-oriented programming and design, used in modern programming languages. The empha		-
g	for developing software, which includes testing, error handing, refactoring, and application of design pattern.		
BI-OPT	Introduction to Optical Networks	Z.ZK	4
	overview of optical networking technology with the emphasis on practical utilization in Internet and in network infrastructures, on possit	,	I.
_	technology and on their solutions. The course will include the history of optical communications, an overview of passive components	· ·	
•	sators, and others), and an overview of active components (optical switches and amplifiers, high-speed coherent transmission system	• •	•
	topics presented at premium research conferences, such as ECOC or OFC. Attention will also be paid to new applications, such as t	•	
Itrastable frequer	ncy transfer, or sensor networks. The labs will focus on real work with optical components and on measurement of their parameters. S	tudents will solv	e real task
	from practice.		
BI-ORL	Operations Research and Linear Programming	KZ	5
e subject aims to	o introduce students to the issues of operational research and primarily to the practical application of linear programming as a fundam	ental optimizatio	n techniqu
Operation	nal research primarily focuses on the use of engineering methods (with a mathematical background) to solve practical problems (such	as managemer	nt).
BI-OSY.21	Operating Systems	Z,ZK	5
	a follow-up of the Unix-like operating systems course students deepen their knowledge in areas of OS kernels, process and thread impl		ce conditio
ical regions, thre	ad scheduling, shared resource allocation and deadlocks, management of virtual memory and data storages, file systems, OS monito	oring. They are a	ble to des
	and implement simple multithreaded applications. General principles are illustrated on operating systems Solaris, Linux, or MS Wir	ndows.	
BI-PA1.21	Programming and Algorithmics 1	Z,ZK	7
udents gain the a	ability to formulate algorithms for solving basic problems and write them in the C language. They understand data types (simple, struct	ured, pointers),	expressior
atements, function	ons, concept of recursion. They learn to analyse simple cases of algorithm complexity. They know fundamental algorithms for searchin	g, sorting, and r	nanipulatir
	with linked lists and trees.		
BI-PA2.21	Programming and Algorithmics 2	Z,ZK	7
udents know the i	instruments of object-oriented programming and are able to use them for specifying and implementing abstract data types (stack, que		rrav liet e
	model and the entropy of the first and the desired and the desired and an entropy and an entropy and an entropy of the entropy	ie, eniargeable a	array, not, o
	n these skills using the C++ programming language and are introduced to all C++ features needed in object-oriented programming (e.	_	-
		_	-
BI-PAI.21 The aim of the cou	n these skills using the C++ programming language and are introduced to all C++ features needed in object-oriented programming (e.	g., template pro-	gramming, 5 n the Czec
BI-PAI.21 he aim of the cou Republic and will avironment, will kn	these skills using the C++ programming language and are introduced to all C++ features needed in object-oriented programming (e. copying/moving of objects, operator overloading, inheritance, polymorphism). Law and Informatics arse is to introduce students into the basic legal instruments that they will encounter in their practice. Students will gain knowledge of all be alerted to the pitfalls that await them in business from the point of view of law. They will understand the process of concluding cornow their responsibilities in working with the Internet, will be familiar with the institutes of intellectual property law, and will be able to uccenses. Emphasis will also be put on the legal protection of data on the Internet, the registration of Internet domains and protection again.	g., template pro ZK doing business intracts in real anse commercial ligainst their misu	5 n the Czec d Internet icense typose. Studen
BI-PAI.21 The aim of the court Republic and will avironment, will know open-source licuiting will also be alert	these skills using the C++ programming language and are introduced to all C++ features needed in object-oriented programming (e. copying/moving of objects, operator overloading, inheritance, polymorphism). Law and Informatics arse is to introduce students into the basic legal instruments that they will encounter in their practice. Students will gain knowledge of all be alerted to the pitfalls that await them in business from the point of view of law. They will understand the process of concluding cornow their responsibilities in working with the Internet, will be familiar with the institutes of intellectual property law, and will be able to uccesses. Emphasis will also be put on the legal protection of data on the Internet, the registration of Internet domains and protection acted 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	ZK doing business intracts in real an see commercial ligainst their misureal cases from	5 n the Czec d Internet icense typose. Studen practice.
BI-PAI.21 he aim of the cou Republic and wil vironment, will kr nd open-source lic will also be alert BI-PGA.21	these skills using the C++ programming language and are introduced to all C++ features needed in object-oriented programming (e. copying/moving of objects, operator overloading, inheritance, polymorphism). Law and Informatics arse is to introduce students into the basic legal instruments that they will encounter in their practice. Students will gain knowledge of one of the pitfalls that await them in business from the point of view of law. They will understand the process of concluding cornow their responsibilities in working with the Internet, will be familiar with the institutes of intellectual property law, and will be able to uccenses. Emphasis will also be put on the legal protection of data on the Internet, the registration of Internet domains and protection are ted 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 Programming of Graphic Applications	g., template pro ZK doing business intracts in real an use commercial ligainst their misureal cases from Z,ZK	5 n the Czec d Internet icense typ se. Studer practice.
BI-PAI.21 he aim of the cou Republic and will vironment, will kn nd open-source lic will also be alert BI-PGA.21 e course will pres	these skills using the C++ programming language and are introduced to all C++ features needed in object-oriented programming (e. copying/moving of objects, operator overloading, inheritance, polymorphism). Law and Informatics urse is to introduce students into the basic legal instruments that they will encounter in their practice. Students will gain knowledge of our limit be alerted to the pitfalls that await them in business from the point of view of law. They will understand the process of concluding cornow their responsibilities in working with the Internet, will be familiar with the institutes of intellectual property law, and will be able to uncenses. Emphasis will also be put on the legal protection of data on the Internet, the registration of Internet domains and protection ageted 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 Programming of Graphic Applications sent the possibilities of current professional open-source tools for image editing, video editing, 3D animation (GIMP, Blender) and their under the carnow of the process of the course will also include and their under the possibilities of current professional open-source tools for image editing, video editing, 3D animation (GIMP, Blender) and their under the carnow of the process o	ZK doing business intracts in real anse commercial ligainst their misureal cases from Z,ZK se for visualizati	5 n the Czec d Internet icense typ se. Studer practice. 5 on of spec
BI-PAI.21 he aim of the cou Republic and will vironment, will kn nd open-source lic will also be alert BI-PGA.21 e course will pres	these skills using the C++ programming language and are introduced to all C++ features needed in object-oriented programming (e. copying/moving of objects, operator overloading, inheritance, polymorphism). Law and Informatics urse is to introduce students into the basic legal instruments that they will encounter in their practice. Students will gain knowledge of our like a lerted to the pitfalls that await them in business from the point of view of law. They will understand the process of concluding cornow their responsibilities in working with the Internet, will be familiar with the institutes of intellectual property law, and will be able to uncenses. Emphasis will also be put on the legal protection of data on the Internet, the registration of Internet domains and protection are ted 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 Programming of Graphic Applications sent the possibilities of current professional open-source tools for image editing, video editing, 3D animation (GIMP, Blender) and their unanthematical data). Emphasis will be placed on the possibilities of further enhancement of the presented software tools, both using but	ZK doing business intracts in real anse commercial ligainst their misureal cases from Z,ZK se for visualizati	5 n the Czec d Internet icense typ se. Studer practice. 5 on of spec
BI-PAI.21 he aim of the cou Republic and wil vironment, will kr do open-source lid will also be alert BI-PGA.21 e course will pres ta (3D scenes, m	these skills using the C++ programming language and are introduced to all C++ features needed in object-oriented programming (e. copying/moving of objects, operator overloading, inheritance, polymorphism). Law and Informatics urse is to introduce students into the basic legal instruments that they will encounter in their practice. Students will gain knowledge of all be alerted to the pitfalls that await them in business from the point of view of law. They will understand the process of concluding composition working with the Internet, will be familiar with the institutes of intellectual property law, and will be able to uncenses. Emphasis will also be put on the legal protection of data on the Internet, the registration of Internet domains and protection are ted 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 Programming of Graphic Applications sent the possibilities of current professional open-source tools for image editing, video editing, 3D animation (GIMP, Blender) and their unathematical data). Emphasis will be placed on the possibilities of further enhancement of the presented software tools, both using but by implementation of plugins.	ZK doing business i htracts in real an see commercial l gainst their misu real cases from Z,ZK se for visualizati	gramming, 5 n the Czec d Internet icense typ se. Studer practice. 5 on of spec nguages a
BI-PAI.21 he aim of the cou Republic and will invironment, will kr ind open-source lid will also be alert BI-PGA.21 e course will pres ita (3D scenes, m	these skills using the C++ programming language and are introduced to all C++ features needed in object-oriented programming (e. copying/moving of objects, operator overloading, inheritance, polymorphism). Law and Informatics urse is to introduce students into the basic legal instruments that they will encounter in their practice. Students will gain knowledge of all be alerted to the pitfalls that await them in business from the point of view of law. They will understand the process of concluding composition working with the Internet, will be familiar with the institutes of intellectual property law, and will be able to understand the process. Emphasis will also be put on the legal protection of data on the Internet, the registration of Internet domains and protection are ted 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 Programming of Graphic Applications event the possibilities of current professional open-source tools for image editing, video editing, 3D animation (GIMP, Blender) and their unathematical data). Emphasis will be placed on the possibilities of further enhancement of the presented software tools, both using but by implementation of plugins. Computer graphics programming	ZK doing business i htracts in real an ise commercial l gainst their misu real cases from Z,ZK se for visualizati ilt-in scripting lan	5 n the Czec d Internet icense typ se. Studen practice. 5 on of specinguages a
BI-PAI.21 he aim of the cou Republic and wil vironment, will kr do open-source lid will also be alert BI-PGA.21 e course will pres ta (3D scenes, m	these skills using the C++ programming language and are introduced to all C++ features needed in object-oriented programming (e. copying/moving of objects, operator overloading, inheritance, polymorphism). Law and Informatics urse is to introduce students into the basic legal instruments that they will encounter in their practice. Students will gain knowledge of all be alerted to the pitfalls that await them in business from the point of view of law. They will understand the process of concluding commow their responsibilities in working with the Internet, will be familiar with the institutes of intellectual property law, and will be able to understand the process of concluding commow their responsibilities in working with the linternet, will be familiar with the institutes of intellectual property law, and will be able to understand the process of concluding commow their responsibilities in the field of IT that can be classified as criminal under the Czech law. The course will also include analyses of the programming of Graphic Applications Programming of Graphic Applications sent the possibilities of current professional open-source tools for image editing, video editing, 3D animation (GIMP, Blender) and their unathematical data). Emphasis will be placed on the possibilities of further enhancement of the presented software tools, both using but by implementation of plugins. Computer graphics programming curse, students can program a simple interactive 3D graphical application like a computer game or scientific visualization, design the	ZK doing business i htracts in real an se commercial l gainst their misu real cases from Z,ZK se for visualizati ilt-in scripting lan Z,ZK scene, add textu	gramming, 5 n the Czec d Internet icense typ se. Studer practice. 5 on of spec nguages a
BI-PAI.21 he aim of the cou Republic and wil vironment, will kr d open-source lid will also be alert BI-PGA.21 e course will pres ta (3D scenes, m BI-PGR.21 ter attending this ometric details an	these skills using the C++ programming language and are introduced to all C++ features needed in object-oriented programming (e. copying/moving of objects, operator overloading, inheritance, polymorphism). Law and Informatics Use is to introduce students into the basic legal instruments that they will encounter in their practice. Students will gain knowledge of coll be alerted to the pitfalls that await them in business from the point of view of law. They will understand the process of concluding composition of their responsibilities in working with the Internet, will be familiar with the institutes of intellectual property law, and will be able to understand the process of concluding composition of the legal protection of data on the Internet, the registration of Internet domains and protection against the course will also be put on the legal protection of data on the Internet, the registration of Internet domains and protection against the data on the field of IT that can be classified as criminal under the Czech law. The course will also include analyses of Programming of Graphic Applications Event the possibilities of current professional open-source tools for image editing, video editing, 3D animation (GIMP, Blender) and their unathematical data). Emphasis will be placed on the possibilities of further enhancement of the presented software tools, both using but by implementation of plugins. Computer graphics programming curse, students can program a simple interactive 3D graphical application like a computer game or scientific visualization, design the admaterials (like wall surface, wood, sky), and set up the lighting. At the same time, they understand the fundamental principles and term	ZK doing business i htracts in real an se commercial l gainst their misu real cases from Z,ZK se for visualizati ilt-in scripting lan Z,ZK scene, add textus used in compo	5 n the Czec d Internet icense typ se. Studen practice. 5 on of specinguages a 5 ures imitatiuter graphi
BI-PAI.21 he aim of the cou Republic and will vironment, will kn d open-source lid will also be alert BI-PGA.21 e course will pres ta (3D scenes, m BI-PGR.21 ter attending this ometric details and ch as graphical p	these skills using the C++ programming language and are introduced to all C++ features needed in object-oriented programming (e. copying/moving of objects, operator overloading, inheritance, polymorphism). Law and Informatics urse is to introduce students into the basic legal instruments that they will encounter in their practice. Students will gain knowledge of all be alerted to the pitfalls that await them in business from the point of view of law. They will understand the process of concluding commow their responsibilities in working with the Internet, will be familiar with the institutes of intellectual property law, and will be able to understand the process of concluding commow their responsibilities in working with the linternet, will be familiar with the institutes of intellectual property law, and will be able to understand the process of concluding commow their responsibilities in the field of IT that can be classified as criminal under the Czech law. The course will also include analyses of the programming of Graphic Applications Programming of Graphic Applications sent the possibilities of current professional open-source tools for image editing, video editing, 3D animation (GIMP, Blender) and their unathematical data). Emphasis will be placed on the possibilities of further enhancement of the presented software tools, both using but by implementation of plugins. Computer graphics programming curse, students can program a simple interactive 3D graphical application like a computer game or scientific visualization, design the	ZK doing business i htracts in real an se commercial l gainst their misu real cases from Z,ZK se for visualizati ilt-in scripting lan Z,ZK scene, add textu sused in comput	5 n the Czec d Internet icense typ se. Studen practice. 5 on of specinguages a 5 ures imitati uter graphintals for your services.
BI-PAI.21 he aim of the cou Republic and wil nvironment, will kn d open-source lic will also be alert BI-PGA.21 e course will pres ata (3D scenes, m BI-PGR.21 ter attending this ometric details an ich as graphical p ofessional develor	Law and Informatics Law and Informatics urse is to introduce students into the basic legal instruments that they will encounter in their practice. Students will gain knowledge of coll be alerted to the pitfalls that await them in business from the point of view of law. They will understand the process of concluding commow their responsibilities in working with the Internet, will be familiar with the institutes of intellectual property law, and will be able to understand the process of concluding commow their responsibilities in working with the linternet, will be familiar with the institutes of intellectual property law, and will be able to understand the process of concluding commow their responsibilities in working with the linternet, will be familiar with the institutes of intellectual property law, and will be able to understand the process of concluding commow their responsibilities in working with the linternet, will be familiar with the institutes of intellectual property law, and will be able to understand the fundamina and protection are ted 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 Programming of Graphic Applications Beent the possibilities of current professional open-source tools for image editing, video editing, 3D animation (GIMP, Blender) and their understand data). Emphasis will be placed on the possibilities of further enhancement of the presented software tools, both using but by implementation of plugins. Computer graphics programming curse, students can program a simple interactive 3D graphical application like a computer game or scientific visualization, design the and materials (like wall surface, wood, sky), and set up the lighting. At the same time, they understand the fundamental principles and term of plugins. Computer graphics programming orientation in computer graphics and representing the programming and animations. They get used to techniques utilized in geometric modeling, modeling c	ZK doing business i htracts in real an se commercial I gainst their misu real cases from Z,ZK se for visualizati ilt-in scripting lan Z,ZK scene, add text ss used in compt g solid fundaments, and scientific	5 n the Czec d Internet icense typ se. Studer practice. 5 on of specinguages a 5 ures imitati uter graphintals for yo visualizatir
BI-PAI.21 he aim of the cou Republic and wil vironment, will kr d open-source lid will also be alert BI-PGA.21 e course will pres ta (3D scenes, m BI-PGR.21 ter attending this ometric details an ch as graphical p ofessional develop BI-PHP.1	Law and Informatics Law and I	ZK doing business i htracts in real an se commercial I gainst their misu real cases from Z,ZK se for visualizati ilt-in scripting lar Z,ZK scene, add text us used in compt g solid fundametes, and scientific KZ	5 n the Czec d Internet icense typ se. Studer practice. 5 on of specinguages a 5 ures imitati uter graphintals for yo visualizatic 4
BI-PAI.21 he aim of the cou Republic and wil vironment, will kr dd open-source lic will also be alert BI-PGA.21 e course will pres ta (3D scenes, m BI-PGR.21 er attending this ometric details an ch as graphical p offessional develop BI-PHP.1 The course is ta	these skills using the C++ programming language and are introduced to all C++ features needed in object-oriented programming (e. copying/moving of objects, operator overloading, inheritance, polymorphism). Law and Informatics Use is to introduce students into the basic legal instruments that they will encounter in their practice. Students will gain knowledge of all be alerted to the pitfalls that await them in business from the point of view of law. They will understand the process of concluding contown their responsibilities in working with the Internet, will be familiar with the institutes of intellectual property law, and will be able to underse. Emphasis will also be put on the legal protection of data on the Internet, the registration of Internet domains and protection are ted 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 Programming of Graphic Applications Sent the possibilities of current professional open-source tools for image editing, video editing, 3D animation (GIMP, Blender) and their unathematical data). Emphasis will be placed on the possibilities of further enhancement of the presented software tools, both using but by implementation of plugins. Computer graphics programming curse, students can program a simple interactive 3D graphical application like a computer game or scientific visualization, design the not materials (like wall surface, wood, sky), and set up the lighting. At the same time, they understand the fundamental principles and term objection, geometric transformations, or lighting model. They gain knowledge allowing orientation in computer graphics and representing of ment, e.g., GPU programming and animations. They get used to techniques utilized in geometric modeling, modeling curves and surface. Programing in PHP ught in Czech Main goal of the course is an introduction to PHP - language and technology. Students will learn also best practices at	ZK doing business intracts in real and see commercial Idea of their misureal cases from Z,ZK see for visualizati intracts in real cases from Z,ZK see for visualizati intraction in scripting land z,ZK scene, add textures used in comping solid fundaments, and scientific KZ and will use tool t	5 n the Czec d Internet icense typ se. Studer practice. 5 on of specinguages a 5 ures imitati uter graphintals for yo visualizatic 4 hat eases
BI-PAI.21 he aim of the cou Republic and wil vironment, will kr dd open-source lic will also be alert BI-PGA.21 e course will pres ta (3D scenes, m BI-PGR.21 er attending this ometric details an ch as graphical p offessional develop BI-PHP.1 The course is ta	Law and Informatics Law and I	ZK doing business intracts in real and see commercial Idea of their misureal cases from Z,ZK see for visualizati intracts in real cases from Z,ZK see for visualizati intraction in scripting land z,ZK scene, add textures used in comping solid fundaments, and scientific KZ and will use tool t	gramming, 5 n the Czec d Internet icense typ se. Studer practice. 5 on of spec nguages a 5 ures imitati uter graphi ntals for yo visualizati 4 hat eases
BI-PAI.21 he aim of the cou Republic and wil wironment, will kr d open-source lic will also be alert BI-PGA.21 e course will pres ta (3D scenes, m BI-PGR.21 ter attending this ometric details an ch as graphical p ofessional develop BI-PHP.1 The course is tal development in F	In these skills using the C++ programming language and are introduced to all C++ features needed in object-oriented programming (e. copying/moving of objects, operator overloading, inheritance, polymorphism). Law and Informatics Use is to introduce students into the basic legal instruments that they will encounter in their practice. Students will gain knowledge of of all be alerted to the pitfalls that await them in business from the point of view of law. They will understand the process of concluding cornow their responsibilities in working with the Internet, will be familiar with the institutes of intellectual property law, and will be able to underses. Emphasis will also be put on the legal protection of data on the Internet, the registration of Internet domains and protection are ted 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 Programming of Graphic Applications Sent the possibilities of current professional open-source tools for image editing, video editing, 3D animation (GIMP, Blender) and their unathematical data). Emphasis will be placed on the possibilities of further enhancement of the presented software tools, both using but by implementation of plugins. Computer graphics programming curse, students can program a simple interactive 3D graphical application like a computer game or scientific visualization, design the dependent of the programming and animations. They gain knowledge allowing orientation in computer graphics and representing poment, e.g., GPU programming and animations. They get used to techniques utilized in geometric modeling, modeling curves and surface Programing in PHP ught in Czech Main goal of the course is an introduction to PHP - language and technology. Students will learn also best practices and PHP. The course is recommended for students of BIE-WSI-WI.2015 branch of study and do not have required knowledge to register for this course in their 3rd semester of study.	ZK doing business intracts in real and see commercial Idea of their misureal cases from Z,ZK see for visualizati intracts in real cases from Z,ZK see for visualizati intraction in scripting land z,ZK scene, add texture used in comping solid fundaments, and scientific KZ and will use tool to the Idea of th	gramming, 5 n the Czec d Internet icense typ se. Studer practice. 5 on of spec nguages a 5 ures imitati uter graphi ntals for yo visualizati 4 hat eases
BI-PAI.21 The aim of the cou Republic and will nvironment, will kr nd open-source lic will also be alert BI-PGA.21 the course will pres ata (3D scenes, m BI-PGR.21 ter attending this ometric details an inch as graphical p ofessional develop BI-PHP.1 The course is tai development in F	these skills using the C++ programming language and are introduced to all C++ features needed in object-oriented programming (e. copying/moving of objects, operator overloading, inheritance, polymorphism). Law and Informatics urse is to introduce students into the basic legal instruments that they will encounter in their practice. Students will gain knowledge of coll be alerted to the pitfalls that await them in business from the point of view of law. They will understand the process of concluding cornow their responsibilities in working with the Internet, will be familiar with the institutes of intellectual property law, and will be able to uccesses. Emphasis will also be put on the legal protection of data on the Internet, the registration of Internet domains and protection at ted 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 Programming of Graphic Applications sent the possibilities of current professional open-source tools for image editing, video editing, 3D animation (GIMP, Blender) and their unathematical data). Emphasis will be placed on the possibilities of further enhancement of the presented software tools, both using but by implementation of plugins. Computer graphics programming curse, students can program a simple interactive 3D graphical application like a computer game or scientific visualization, design the did materials (like wall surface, wood, sky), and set up the lighting. At the same time, they understand the fundamental principles and term of plugins. Computer graphics programming curse, students can program a simple interactive 3D graphical application like a computer game or scientific visualization, design the did materials (like wall surface, wood, sky), and set up the lighting. At the same time, they understand the fundamental principles and term of plugins. Programing in PHP ught in Czech Main goal of the course is an introduction to PHP - language and technology. Students will learn a	ZK doing business i htracts in real an se commercial I gainst their misu real cases from Z,ZK se for visualizati ilt-in scripting lar Z,ZK scene, add textu sused in compi g solid fundamer es, and scientific KZ nd will use tool t r BIE-TWA.1. Th	gramming, 5 n the Czec d Internet icense typ se. Studer practice. 5 on of spec nguages a 5 ures imitati uter graphi ntals for yc visualizati 4 hat eases iey should
BI-PAI.21 he aim of the cou Republic and will wironment, will kr nd open-source lic will also be alert BI-PGA.21 e course will pres ta (3D scenes, m BI-PGR.21 ter attending this ometric details an och as graphical p ofessional develop BI-PHP.1 The course is ta development in F BI-PJP.21 Students learn ba	Law and Informatics Law and I	ZK doing business intracts in real an se commercial I gainst their misureal cases from Z,ZK se for visualizati ilt-in scripting lar Z,ZK scene, add textromatical incomprosolid fundamental cases in comprosolid fundamental incomprosolid fundamental incom	gramming, 5 n the Czec d Internet icense typ se. Studer practice. 5 on of spec nguages a 5 ures imitati uter graphi ntals for yc visualizati 4 hat eases iey should 5 ey learn to
BI-PAI.21 he aim of the cou Republic and will wironment, will kr nd open-source lic will also be alert BI-PGA.21 e course will pres ta (3D scenes, m BI-PGR.21 ter attending this ometric details an och as graphical p ofessional develop BI-PHP.1 The course is ta development in F BI-PJP.21 Students learn ba	In these skills using the C++ programming language and are introduced to all C++ features needed in object-oriented programming (e. copying/moving of objects, operator overloading, inheritance, polymorphism). Law and Informatics It is a set to introduce students into the basic legal instruments that they will encounter in their practice. Students will gain knowledge of of the personsibilities in working with the Internet, will be familiar with the institutes of intellectual property law, and will be able to usenses. Emphasis will also be put on the legal protection of data on the Internet, the registration of Internet domains and protection at the 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 Programming of Graphic Applications sent the possibilities of current professional open-source tools for image editing, video editing, 3D animation (GIMP, Blender) and their unathematical data). Emphasis will be placed on the possibilities of further enhancement of the presented software tools, both using but by implementation of plugins. Computer graphics programming curse, students can program a simple interactive 3D graphical application like a computer game or scientific visualization, design the admaterials (like wall surface, wood, sky), and set up the lighting. At the same time, they understand the fundamental principles and term of implefine, geometric transformations, or lighting model. They gain knowledge allowing orientation in computer graphics and representing orient, e.g., GPU programming and animations. They get used to techniques utilized in geometric modelling, modeling curves and surface Programing in PHP upth in Czech Main goal of the course is an introduction to PHP - language and technology. Students will learn also best practices at PHP. The course is recommended for students of BIE-WSI-WJ.2015 branch of study and do not have required knowledge to register for this course in their 3rd semester of study. Pr	ZK doing business intracts in real an se commercial I gainst their misureal cases from Z,ZK se for visualizati ilt-in scripting lar Z,ZK scene, add textromatical incomprosolid fundamental cases in comprosolid fundamental incomprosolid fundamental incom	gramming, 5 n the Czec d Internet icense typ se. Studer practice. 5 on of spec nguages a 5 ures imitati uter graphi ntals for yc visualizati 4 hat eases iey should 5 ey learn to
BI-PAI.21 he aim of the cou Republic and will wironment, will kr nd open-source lic will also be alert BI-PGA.21 e course will pres ta (3D scenes, m BI-PGR.21 ter attending this ometric details an och as graphical p ofessional develop BI-PHP.1 The course is ta development in F BI-PJP.21 Students learn ba	In these skills using the C++ programming language and are introduced to all C++ features needed in object-oriented programming (e. copying/moving of objects, operator overloading, inheritance, polymorphism). Law and Informatics Urse is to introduce students into the basic legal instruments that they will encounter in their practice. Students will gain knowledge of all be alerted to the pitfalls that await them in business from the point of view of law. They will understand the process of concluding cornow their responsibilities in working with the Internet, will be familiar with the institutes of intellectual property law, and will be able to uccesses. Emphasis will also be put on the legal protection of data on the Internet, the registration of Internet domains and protection against the possibilities of urrent professional open-source tools for image editing, video editing, 3D animation (GIMP, Blender) and their unathematical data). Emphasis will be placed on the possibilities of further enhancement of the presented software tools, both using but by implementation of plugins. Computer graphics programming curse, students can program a simple interactive 3D graphical application like a computer game or scientific visualization, design the admaterials (like wall surface, wood, sky), and set up the lighting. At the same time, they understand the fundamental principles and term or impletine, geometric transformations, or lighting model. They gain knowledge allowing orientation in computer graphics and representing orment, e.g., GPU programming and animations. They get used to techniques utilized in geometric modeling, modeling curves and surface. Programing in PHP ught in Czech. Main goal of the course is an introduction to PHP - language and technology. Students will learn also best practices at PHP. The course is recommended for students of BIE-WSI-WI.2015 branch of study and do not have required knowledge to register for register for this course in their 3rd semester of study. Programming Languages and	ZK doing business intracts in real an se commercial I gainst their misureal cases from Z,ZK se for visualizati ilt-in scripting lar Z,ZK scene, add textromatical incomprosolid fundamental cases in comprosolid fundamental incomprosolid fundamental incom	spramming, 5 n the Czec d Internet icense typ se. Studen practice. 5 on of spec nguages a 5 ures imitati uter graphintals for yo visualizatic 4 hat eases ney should 5 ney learn to
BI-PAI.21 he aim of the cou Republic and wil vironment, will kn d open-source lic will also be alert BI-PGA.21 e course will pres tata (3D scenes, m BI-PGR.21 ter attending this ometric details an ich as graphical p ofessional develop BI-PHP.1 The course is tai development in F BI-PJP.21 Students learn ba eate a specificati	In these skills using the C++ programming language and are introduced to all C++ features needed in object-oriented programming (e. copying/moving of objects, operator overloading, inheritance, polymorphism). Law and Informatics The series is to introduce students into the basic legal instruments that they will encounter in their practice. Students will gain knowledge of the best of the pitfalls that await them in business from the point of view of law. They will understand the process of concluding control to the pitfalls that await them in business from the point of view of law. They will understand the process of concluding control to the process of the process of concluding control to the process of the features of intellectual property law, and will be able to understand the process of the process. Emphasis will also be put on the legal protection of data on the Internet, the registration of Internet domains and protection at the 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 the programming of Graphic Applications Programming of Graphic Applications Bent the possibilities of current professional open-source tools for image editing, video editing, 3D animation (GIMP, Blender) and their unathematical data). Emphasis will be placed on the possibilities of further enhancement of the presented software tools, both using but by implementation of plugins. Computer graphics programming curse, students can program a simple interactive 3D graphical application like a computer game or scientific visualization, design the and materials (like wall surface, wood, sky), and set up the lighting. At the same time, they understand the fundamental principles and term objeline, geometric transformations, or lighting model. They gain knowledge allowing orientation in computer graphics and representing of the course is an introduction to PHP - language and technology. Students will learn also best practices an PHP. The course is recomm	ZK doing business intracts in real an se commercial ligainst their misureal cases from Z,ZK se for visualizatifit-in scripting lar Z,ZK scene, add textromatical interest in comprision of the complete in the complete in the complete in the compiler can interest in the can interest in the compiler can interest in the can interest in	gramming, 5 n the Czec d Internet icense typ se. Studen practice. 5 on of spec nguages a 5 ures imitati uter graphintals for yo visualizatio 4 hat eases ney should 5 ure in total translate n
BI-PAI.21 he aim of the cou Republic and wil vironment, will kr d open-source lic will also be alert BI-PGA.21 e course will pres ta (3D scenes, m BI-PGR.21 er attending this ometric details an ch as graphical p ofessional develop BI-PHP.1 The course is ta development in F BI-PJP.21 Students learn ba eate a specification BI-PJS.1 Main goal of the co	In these skills using the C++ programming language and are introduced to all C++ features needed in object-oriented programming (e. copying/moving of objects, operator overloading, inheritance, polymorphism). Law and Informatics It is a set is to introduce students into the basic legal instruments that they will encounter in their practice. Students will gain knowledge of of all be alerted to the pitfalls that await them in business from the point of view of law. They will understand the process of concluding cornow their responsibilities in working with the Internet, will be familiar with the institutes of intellectual property law, and will be able to understand the process of concluding cornow their responsibilities in working with the Internet, will be familiar with the institutes of intellectual property law, and will be able to understand the process of concluding cornow their responsibilities in working with the Internet, will be familiar with the institutes of intellectual property law, and will be able to understand the fundamination of Internet domains and protection are tested 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 Programming of Graphic Applications Programming of Graphic Applications Benefit the possibilities of current professional open-source tools for image editing, video editing, 3D animation (GIMP, Blender) and their understand the possibilities of current professional open-source tools for image editing, video editing, 3D animation (GIMP, Blender) and their unathematical data). Emphasis will be placed on the possibilities of further enhancement of the presented software tools, both using buy implementation of plugins. Computer graphics programming Computer graphics programming Computer graphics programming Computer graphics programming Computer graphics programming allowing orientation in computer graphics and termolophement, e.g., GPU programming and animations. They get used to techniques	ZK doing business i thracts in real an se commercial I gainst their misu real cases from Z,ZK se for visualizati ilt-in scripting lan Z,ZK scene, add textu as used in compu g solid fundamen es, and scientific KZ nd will use tool t r BIE-TWA.1. The Z,ZK u and LLVM. The compiler can	gramming, 5 n the Czec d Internet icense typ se. Studer practice. 5 on of spec nguages a 5 ures imitati uter graphi ntals for yo visualizati 4 hat eases ney should 5 tey learn to translate n 4 e course is
BI-PAI.21 he aim of the cou Republic and wil vironment, will kr d open-source lic will also be alert BI-PGA.21 e course will pres ta (3D scenes, m BI-PGR.21 er attending this ometric details an ch as graphical p offessional develop BI-PHP.1 The course is ta development in F BI-PJP.21 Students learn ba eate a specification	In these skills using the C++ programming language and are introduced to all C++ features needed in object-oriented programming (e. copying/moving of objects, operator overloading, inheritance, polymorphism). Law and Informatics Universe is to introduce students into the basic legal instruments that they will encounter in their practice. Students will gain knowledge of or libe alerted to the pitfalls that await them in business from the point of view of law. They will understand the process of concluding cornow their responsibilities in working with the Internet, will be familiar with the institutes of intellectual property law, and will be able to usenses. Emphasis will also be put on the legal protection of data on the Internet, the registration of Internet domains and protection at the tosuch behaviour in the field of IT that can be classified as criminal under the Czech law. The course will also include analyses of Programming of Graphic Applications sent the possibilities of current professional open-source tools for image editing, video editing, 3D animation (GIMP, Blender) and their unitarhematical data). Emphasis will be placed on the possibilities of further enhancement of the presented software tools, both using but by implementation of plugins. Computer graphics programming curse, students can program a simple interactive 3D graphical application like a computer game or scientific visualization, design the and materials (like wall surface, wood, sky), and set up the lighting. At the same time, they understand the fundamental principles and term objeline, geometric transformations, or lighting model. They gain knowledge allowing orientation in computer graphics and representing oment, e.g., GPU programming and animations. They get used to techniques utilized in geometric modeling, modeling curves and surface Programing in PHP ught in Czech Main goal of the course is an introduction to PHP - language and technology. Students will learn also best practices a register for this course in their 3rd	ZK doing business i thracts in real an se commercial I gainst their misu real cases from Z,ZK se for visualizati ilt-in scripting lan Z,ZK scene, add textu as used in compu g solid fundamen es, and scientific KZ nd will use tool t r BIE-TWA.1. The Z,ZK u and LLVM. The compiler can	gramming, 5 n the Czec d Internet icense typ se. Studer practice. 5 on of spec nguages a 5 ures imitati uter graphi ntals for yo visualizati 4 hat eases ney should 5 tey learn to translate n 4 e course is
BI-PAI.21 the aim of the cou- Republic and will vironment, will kn d open-source lid will also be alert BI-PGA.21 e course will pres ta (3D scenes, m BI-PGR.21 the attending this cometric details and ch as graphical p offessional develop BI-PHP.1 The course is ta development in F BI-PJP.21 Students learn ba eate a specification BI-PJS.1 Main goal of the commended for st	In these skills using the C++ programming language and are introduced to all C++ features needed in object-oriented programming (e. copying/moving of objects, operator overloading, inheritance, polymorphism). Law and Informatics United to the pitfalls that await them in business from the point of view of law. They will understand the process of concluding cornow their responsibilities in working with the Internet, will be familiar with the institutes of intellectual property law, and will be able to use censes. Emphasis will also be put on the legal protection of data on the Internet, the registration of Internet domains and protection at ted 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 Programming of Graphic Applications sent the possibilities of current professional open-source tools for image editing, video editing, 3D animation (GIMP, Blender) and their unathematical data). Emphasis will be placed on the possibilities of further enhancement of the presented software tools, both using but by implementation of plugins. Computer graphics programming curse, students can program a simple interactive 3D graphical application like a computer game or scientific visualization, design the admaterials (like wall surface, wood, sky), and set up the lighting. At the same time, they understand the fundamental principles and term propeline, geometric transformations, or lighting model. They gain knowledge allowing orientation in computer graphics and representing orment, e.g., GPU programming and animations. They get used to techniques utilized in geometric modeling, modeling curves and surface. Programing I PHP ught in Czech Main goal of the course is an introduction to PHP - language and technology. Students will learn also best practices at PHP. The course is recommended for students of BIE-WSI-WI.2015 branch of study and do not have required knowledge to register for this course in their 3rd semester of study. Programmin	ZK doing business i thracts in real an se commercial I gainst their misu real cases from Z,ZK se for visualizati ilt-in scripting lan Z,ZK scene, add textu as used in compu g solid fundamen es, and scientific KZ nd will use tool t r BIE-TWA.1. The Z,ZK u and LLVM. The compiler can	gramming, 5 n the Czec d Internet icense typ se. Studer practice. 5 on of spec nguages a 5 ures imitati uter graphi ntals for yo visualizati 4 hat eases ney should 5 tey learn to translate n 4 e course is
BI-PAI.21 he aim of the cou Republic and wil vironment, will kn d open-source lic will also be alert BI-PGA.21 e course will pres ta (3D scenes, m BI-PGR.21 rer attending this ometric details an ch as graphical p offessional develop BI-PHP.1 The course is ta development in F BI-PJP.21 Students learn ba eate a specification BI-PJS.1 Main goal of the commended for st	In these skills using the C++ programming language and are introduced to all C++ features needed in object-oriented programming (e. copying/moving of objects, operator overloading, inheritance, polymorphism). Law and Informatics United the pitfalls that await them in business from the point of view of law. They will understand the process of concluding cornow their responsibilities in working with the Internet, will be familiar with the institutes of intellectual property law, and will be able to usenses. Emphasis will also be put on the legal protection of data on the Internet, the registration of Internet domains and protection agreed 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 Programming of Graphic Applications Benefit the possibilities of current professional open-source tools for image editing, video editing, 3D animation (GIMP, Blender) and their usathematical data). Emphasis will be placed on the possibilities of further enhancement of the presented software tools, both using buy implementation of plugins. Computer graphics programming curse, students can program a simple interactive 3D graphical application like a computer game or scientific visualization, design the admaterials (like wall surface, wood, sky), and set up the lighting. At the same time, they understand the fundamental principles and term injedine, geometric transformations, or lighting model. They gain knowledge allowing orientation in computer graphics and representing ment, e.g., GPU programming and animations. They get used to techniques utilized in geometric modeling, modeling curves and surface. Programing in PHP ught in Czech Main goal of the course is an introduction to PHP - language and technology. Students will learn also best practices an PHP. The course is recommended for students of BIE-WSI-WI.2015 branch of study. Programming Languages and Compilers usic compiling methods of programming languages. They are introduced to int	ZK doing business intracts in real anse commercial ligainst their misureal cases from Z,ZK see for visualizati dit-in scripting land Z,ZK scene, add textures used in compute good fundamental sea, and scientific KZ and will use tool to refer BIE-TWA.1. The Compiler can be compiler can be course in their KZ In Javascript. The scourse in their KZ	gramming, 5 n the Czec d Internet icense typ se. Studer practice. 5 on of spec nguages a 5 ures imitati uter graphi ntals for yo visualizati 4 hat eases ney should 5 ternslate n 4 e course is 4th semes
BI-PAI.21 The aim of the coure Republic and will also be alert BI-PGA.21 The course will present a (3D scenes, must be a scenes, must be a scenes, must be a scenes at a (3D scenes, must be a scenes be a scene	n these skills using the C++ programming language and are introduced to all C++ features needed in object-oriented programming (e. copying/moving of objects, operator overloading, inheritance, polymorphism). Law and Informatics Irse is to introduce students into the basic legal instruments that they will encounter in their practice. Students will gain knowledge of of all be alerted to the pitfalls that await them in business from the point of view of law. They will understand the process of concluding conow their responsibilities in working with the Internet, will be familiar with the institutes of intellectual property law, and will be able to understand the process of concluding conow their responsibilities in working with the Internet, will be familiar with the institutes of intellectual property law, and will be able to understand the process of concluding conow their responsibilities in working with the Internet, will be a not held the process of concluding conow their responsibilities in the legal protection of data on the Internet, the registration of Internet domains and protection at the dots of the presented of the process of concluding conow their responsibilities of current professional open-source tools for image editing, video editing, 3D animation (GIMP, Blender) and their unathematical data). Emphasis will be placed on the possibilities of further enhancement of the presented software tools, both using but internet the program a simple interactive 3D graphical application like a computer game or scientific visualization, design the admaterials (like wall surface, wood, sky), and set up the lighting. At the same time, they understand the fundamental principles and term dimeliance in the programming of programming or lighting model. They gain knowledge allowing orientation in computer graphics and representing orientation in computer graphics and r	ZK doing business intracts in real anse commercial ligainst their misureal cases from Z,ZK see for visualizati litt-in scripting land Z,ZK scene, add textures used in compage solid fundameness, and scientific KZ and will use tool to r BIE-TWA.1. The compiler can KZ and Javascript. The scourse in their KZ scenes in their KZ and Javascript. The scourse in their KZ scenes in Javascript. The scourse in their KZ scenes in Javasccipt. The scourse in Javasccipt. The scourse in Javasccipt.	spramming, 5 n the Czec d Internet icense typ se. Studen practice. 5 on of spec nguages a 5 ures imitati uter graphi ntals for you visualization 4 hat eases ney should 5 tey learn to translate n 4 e course is 4th semes
BI-PAI.21 The aim of the coure Republic and will also be alert BI-PGA.21 The course will present (3D scenes, must be a scene	n these skills using the C++ programming language and are introduced to all C++ features needed in object-oriented programming (e. copying/moving of objects, operator overloading, inheritance, polymorphism). Law and Informatics urse is to introduce students into the basic legal instruments that they will encounter in their practice. Students will gain knowledge of of all be alerted to the pitfalls that await them in business from the point of view of law. They will understand the process of concluding comow their responsibilities in working with the Internet, will be familiar with the institutes of intellectual property law, and will be able to undersees. Emphasis will also be put on the legal protection of data on the Internet, the registration of Internet domains and protection at ted 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 Programming of Graphic Applications sent the possibilities of current professional open-source tools for image editing, video editing, 3D animation (GIMP, Blender) and their unathematical data). Emphasis will be placed on the possibilities of further enhancement of the presented software tools, both using but by implementation of plugins. Computer graphics programming curse, students can program a simple interactive 3D graphical application like a computer game or scientific visualization, design the did materials (like wall surface, wood, sky), and set up the lighting. At the same time, they understand the fundamental principles and termologeness, such as the same time, they understand the fundamental principles and representing of ment, e.g., GPU programming and animations. They get used to techniques utilized in geometric modeling, modeling curves and surface. Programing in PHP ught in Czech Main goal of the course is an introduction to PHP - language and technology. Students will learn also best practices an PHP. The course is recommended for students of BIE-WSI-WI-WI-2015 branch of s	ZK doing business intracts in real anse commercial ligainst their misureal cases from Z,ZK see for visualizati dit-in scripting land Z,ZK scene, add textures used in compute good fundamental sea, and scientific KZ and will use tool to refer BIE-TWA.1. The Compiler can be compiler can be course in their KZ In Javascript. The scourse in their KZ	gramming, 5 n the Czec d Internet icense typ se. Studer practice. 5 on of specinguages a 5 ures imitati uter graphintals for you visualization talls are should translate n 4 hat eases ney should translate n 4 e course is 4th semes 5 ript easier.
BI-PAI.21 The aim of the counce Republic and will also be alert BI-PGA.21 The course will present (3D scenes, must be a scenes) BI-PGR.21 The aim of the counce like will also be alert biller of the course will present at (3D scenes, must be a scenes) BI-PGR.21 The course is the counce biller b	n these skills using the C++ programming language and are introduced to all C++ features needed in object-oriented programming (e. copying/moving of objects, operator overloading, inheritance, polymorphism). Law and Informatics urse is to introduce students into the basic legal instruments that they will encounter in their practice. Students will gain knowledge of or all be alerted to the pitfalls that await them in business from the point of view of law. They will understand the process of concluding cor now their responsibilities in working with the Internet, will be familiar with the institutes of intellectual property law, and will be able to use censes. Emphasis will also be put on the legal protection of data on the Internet, the registration of Internet domains and protection as ted 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 Programming of Graphic Applications Benefit the possibilities of current professional open-source tools for image editing, video editing, 3D animation (GIMP, Blender) and their unathematical data). Emphasis will be placed on the possibilities of further enhancement of the presented software tools, both using but by implementation of plugins. Computer graphics programming curse, students can program a simple interactive 3D graphical application like a computer game or scientific visualization, design the admaterials (like wall surface, wood, sky), and set up the lighting. At the same time, they understand the fundamental principles and term dipeline, geometric transformations, or lighting model. They gain knowledge allowing orientation in computer graphics and representingment, e.g., GPU programming and animations. They get used to techniques utilized in geometric modeling, modeling curves and surface any programming and animations. They get used to techniques utilized in geometric modeling, modeling curves and surface any programming and animations. They get used to techniques utilized ing	ZK doing business intracts in real anse commercial ligainst their misureal cases from Z,ZK see for visualizati dit-in scripting land Z,ZK scene, add texture in sused in compute ground fundaments, and scientific KZ and will use tool to the compiler can be compiled to the	gramming, 5 n the Czec d Internet icense typse. Studen practice. 5 on of specinguages at the state of the s
BI-PAI.21 The aim of the coure Republic and will also be alert BI-PGA.21 The course will present at (3D scenes, must be a scenes) BI-PGR.21 The aim of the course will present at (3D scenes, must be alert be a scenes, must be a scene at	n these skills using the C++ programming language and are introduced to all C++ features needed in object-oriented programming (e. copying/moving of objects, operator overloading, inheritance, polymorphism). Law and Informatics urse is to introduce students into the basic legal instruments that they will encounter in their practice. Students will gain knowledge of or lib ealerted to the pittalls that await them in business from the point of view of law. They will understand the process of concluding cor now their responsibilities in working with the Internet, will be familiar with the institutes of intellectual property law, and will be able to uncenses. Emphasis will also be put on the legal protection of data on the Internet, the registration of Internet domains and protection at ted 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 Programming of Graphic Applications sent the possibilities of current professional open-source tools for image editing, video editing, 3D animation (GIMP, Blender) and their unathematical data). Emphasis will be placed on the possibilities of further enhancement of the presented software tools, both using buy implementation of plugins. Computer graphics programming curse, students can program a simple interactive 3D graphical application like a computer game or scientific visualization, design the data data and surface, wood, sky), and set up the lighting. At the same time, they understand the fundamental principles and term injectine, geometric transformations, or lighting model. They gain knowledge allowing orientation in computer graphics and representing ment, e.g., GPU programming and animations. They get used to techniques utilized in geometric modeling, modeling curves and surface of the course is recommended for students of BIE-WSI-WI.2015 branch of study and do not have required knowledge to register for register for this course in their 3rd semester of study. Programming Languages a	ZK doing business intracts in real anse commercial ligainst their misureal cases from Z,ZK see for visualizati litt-in scripting land Z,ZK scene, add textures used in compage solid fundameness, and scientific KZ and will use tool to r BIE-TWA.1. The compiler can KZ and Javascript. The scourse in their KZ scenes in their KZ and Javascript. The scourse in their KZ scenes in Javascript. The scourse in their KZ scenes in Javasccipt. The scourse in Javasccipt. The scourse in Javasccipt.	gramming, 5 n the Czec d Internet icense typ se. Studer practice. 5 on of specinguages a 5 ures imitati uter graphintals for you visualization talls are should translate n 4 hat eases ney should translate n 4 e course is 4th semes 5 ript easier.
BI-PAI.21 The aim of the coure Republic and will also be alert BI-PGA.21 The course will present (3D scenes, must be a straight of the course of the course of the course is the course of the course	n these skills using the C++ programming language and are introduced to all C++ features needed in object-oriented programming (e. copying/moving of objects, operator overloading, inheritance, polymorphism). Law and Informatics urse is to introduce students into the basic legal instruments that they will encounter in their practice. Students will gain knowledge of all be alerted to the pittalls that await them in business from the point of view of law. They will understand the process of concluding cor now their responsibilities in working with the Internet, will be familiar with the institutes of intellectual property law, and will be able to be cornesse. Emphasis will also be put on the legal protection of data on the Internet, the registration of Internet domains and protection at ted 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 Programming of Graphic Applications. Benefit the possibilities of current professional open-source tools for image editing, video editing, 3D animation (GIMP, Blender) and their unathematical data). Emphasis will be placed on the possibilities of further enhancement of the presented software tools, both using but by implementation of plugins. Computer graphics programming curse, students can program a simple interactive 3D graphical application like a computer game or scientific visualization, design the admaterials (like wall surface, wood, sky), and set up the lighting. At the same time, they understand the fundamental principles and term in the dimaterials (like wall surface, wood, sky), and set up the lighting. At the same time, they understand the fundamental principles and term in the geometric transformations, or lighting model. They gain knowledge allowing orientation in computer graphics and representing ormet, e.g., GPU programming and animations. They get used to techniques utilized in geometric modeling, modeling curves and surface. Programming in PHP ught in Czech Main goal	ZK doing business intracts in real and se commercial ligainst their misureal cases from Z,ZK se for visualizatifit-in scripting land Z,ZK scene, add textures used in compining solid fundaments, and scientific KZ and will use tool to the BIE-TWA.1.The compiler candown seconds of their seconds of	gramming, 5 n the Czec d Internet icense typise. Studen practice. 5 on of specinguages are simitative graphic talls for you visualizatic 4 hat eases ney should 5 ney learn to translate new translate new 4 e course is 4th semes: 4 de the course is 4 de the
BI-PAI.21 The aim of the coure Republic and will avironment, will know open-source lie will also be alert BI-PGA.21 The course will present (3D scenes, mark) BI-PGR.21 The reaction of the course of the course is the course of	n these skills using the C++ programming language and are introduced to all C++ features needed in object-oriented programming (e. copying/moving of objects, operator overloading, inheritance, polymorphism). Law and Informatics urse is to introduce students into the basic legal instruments that they will encounter in their practice. Students will gain knowledge of or lib ealerted to the pittalls that await them in business from the point of view of law. They will understand the process of concluding cor now their responsibilities in working with the Internet, will be familiar with the institutes of intellectual property law, and will be able to uncenses. Emphasis will also be put on the legal protection of data on the Internet, the registration of Internet domains and protection at ted 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 Programming of Graphic Applications sent the possibilities of current professional open-source tools for image editing, video editing, 3D animation (GIMP, Blender) and their unathematical data). Emphasis will be placed on the possibilities of further enhancement of the presented software tools, both using buy implementation of plugins. Computer graphics programming curse, students can program a simple interactive 3D graphical application like a computer game or scientific visualization, design the data data and surface, wood, sky), and set up the lighting. At the same time, they understand the fundamental principles and term injectine, geometric transformations, or lighting model. They gain knowledge allowing orientation in computer graphics and representing ment, e.g., GPU programming and animations. They get used to techniques utilized in geometric modeling, modeling curves and surface of the course is recommended for students of BIE-WSI-WI.2015 branch of study and do not have required knowledge to register for register for this course in their 3rd semester of study. Programming Languages a	ZK doing business intracts in real anse commercial ligainst their misureal cases from Z,ZK see for visualizatifit-in scripting land Z,ZK scene, add textus used in compriguence of the compiler can see the compiler can se	gramming, 5 n the Czec d Internet icense typ se. Studer practice. 5 on of specinguages a 5 sures imitativater graphintals for yovisualizativate ye should 5 see learn to translate n 4 e course is 4th semes 5 ript easier. 4

BI-PNO.21 Practical Digital Design ΚZ 5 Students get an overview of the contemporary digital design flow and learn practical skills to use synchronous design techniques. They understand the basics of the VHDL language and implementation technologies FPGA and ASIC. Students demonstrate practical use of the design techniques in the course project using modern industry-standard CAD design tools. 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 approaches. Functional programming paradigm and its basic principles are explained in details. Logic programming is introduced as another way of declarative programming. The principles are demonstrated on lambda calculus and on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstream programming languages such as C++ and Java. Project management BI-PRR.21 The aim of the course is to introduce students into the basic concepts and principles of project management, i.e. methods of planning, teamwork, analysis, crisis management in a project, communication, 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 deepening their knowledge outside IT, consider starting their own company, or have ambitions to work in middle or senior management positions in large companies. The course is also suitable for all those who will develop software or hardware in the form of team projects. BI-PRS.21 **Practical Statistics** ΚZ 5 The students will be introduced 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 will encompass regression and correlation analysis, analysis of variance and non-parametric methods. Students will learn to use the statistical software R and will apply the studied methods on data from real problems. BI-PS2 Programming in shell 2 Z,ZK 4 Students gain a general overview of available scripting languages, their syntax, semantics, programming style, data structures, pros and cons. In addition, they gain a deeper insight into shell and some other particular scripting languages and will get practical experience with shell script programming. Computer Networks The course introduces students to the principles of computer networking. It covers basic technologies, protocols, and services commonly used in local networks and in the Internet as well. The lectures will be amended by proseminars that introduce students into network programming and demonstrate the abilities of advanced network technologies. Students practically verify configurations and management of network devices in the lab within the environment of the operating systems Linux and Cisco IOS. BI-PST.21 Probability and Statistics Students will learn the basics of probabilistic thinking, the ability to synthesize prior and posterior information and learn to work with random variables. They will be able to apply basic models of random variable distributions and solve applied probabilistic problems in informatics and computer science. Using the statistical induction they will be able to perform estimations of unknown distributional parameters from random sample characteristics. They will also be introduced to the methods for testing statistical hypotheses and determining the statistical dependence of two or more random variables. Python Programming BI-PYT.21 K7 The aim of the course is to get acquainted with basic efficient control and data structures of the Python programming language for text and binary data processing. The differences between philosophy of programming in Python and in other programming languages will be explained. Each topic is prepared for students in the format of a Jupyter notebook, which enables greater accent 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 assigned during the semester. **BI-QAP** Quantum algorithms and programming Course aims at giving students hands-on experience with quantum computers and their programming. We focus on fundaments of quantum mechanics, on which quantum technologies are based, and algorithms showing advantages and limitations of quantum computing. During tutorials students work in open-source software development kit Qiskit, which is based on Python language. 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 and experience with Python might be an advantage. No previous knowledge of physics is assumed. BI-QUA **Quality Assurance K7** 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 of different types of software development and will experience hands-on application testing using both manual and automated testing. At the end of the semester, the student should be prepared to perform a test 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 in the product under test. BI-SAP.21 Computer Structure and Architecture Students will get acquainted with the basic architecture and units of a digital computer, understand the structure, function, and implementation of arithmetic-logic unit, controllers, memory, I/O communication, methods of data transfers between the units. The logic design and the implementation of a program-controlled simple processor is practically implemented in the labs using programmable circuits (FPGA), a single-chip microcomputer, and modern design (EDA) tools. BI-SCE1 Computer Engineering Seminar I Ζ The Seminar of Computer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to failures and attacks. Students are approached individually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the subject is work with scientific articles and other professional literature and/or work in K N laboratories. The capacity of the subject is limited by the possibilities of the seminar teachers. The topics are new for each semester. Computer Engineering Seminar II BI-SCE2 Ζ The Seminar of Computer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to failures and attacks. Students are approached individually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the subject is work with scientific articles and other professional literature and/or work in K N laboratories. The capacity of the subject is limited by the possibilities of the seminar teachers. The topics are new for each semester. **BI-SEP** World Economy and Business This course is presented in Czech. The course introduces students of technical university to the international business. It does that predominantly by comparing individual countries and key regions of world economy. Students get to know about different religions and cultures, necessary for doing business in diverse societies as well as indexes of economic freedom, corruption and economic development, which are needed for the right investment decision. Seminars help to improve on the knowledge in the form of discussions based on individual readings. It is advised to take bachelor level of this course BIE-SEP as a prerequisite. BI-SIP.21 Network Programming The course covers fundamental topics of programming network applications. It consists of 4 parts. The introductory part is focused on low-level programming using BSD sockets. The second part is devoted to designing communication protocols and their verification. The third part introduces the principles and applications of middleware technologies. The final part introduces basic modern models of distributed computing - P2P and blockchain. All topics will be first explained theoretically and then practices in computer labs using a chosen programming language environment. 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 addition, they gain a deeper insight into shell and some other particular scripting languages and will get practical experience with shell script programming.

BI-SOJ	Machine Oriented Languages	Z,ZK	4
	irse will gain an ability to create their own programs in the assembly language of the most common PC platform focusing on optimal us ration of software with hardware. Next, there will be discussed x86 specifics of the majority of OSes from the application point of view lir	•	
and omorom ocopo	This knowledge will be used during reverse engineering, optimization, and evaluation of code security.		.aguagee.
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		
-	nat teaches students necessary techniques and principles. Teams consisting of 4-6 students will work on a specific project. The teach Jlarly consults with the team (at the seminars) both the formal and material aspects of the software design. The resulting software art		
, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	and finished in the BIE-SP2 course.		
BI-SP2.21	Team Software Project 2	KZ	5
	ds-on experience with the iterative development process while working on a large-scale software project. The first iteration is the result		
	ollow-up, the functionality, testing, and documentation of the software system being developed will be emphasized. Students will work er, in the role of the team and project leader, regularly consults with the team (at the seminars) the formal as well as material aspects		eopie. i ne
BI-SPS.21	Administration of Computer Networks and Services	Z,ZK	5
	rse is to deepen the theoretical knowledge of network technologies and protocols in the environment of network servers administrated	•	
Linux and Windows	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 with real network infrastructure.	practical hands-on	experience
BI-SQL.1	Language SQL, advanced	KZ	4
	ן I 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	•	
	exes, clusters, index-organized tables, and materialized views. as well as from the point of view query optimization. Execution plan an	-	
will be discusse	ed. Lectures will usually discuss SQL standard, but many features will be demonstrated on Oracle DBMS. Seminars are based on Ora PostgreSQL.	icie DBMS and par	ually on
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 exp	perimentally verified in computer labs. The course is mainly focused on embedded RT systems, therefore the design kits in the lab are	e the same as in the	e BIE-VES
BI-ST1	course. Network Technology 1	Z	3
	iented to providing the students basic information and practical skills from the area of digital and IP networks. The subject is acredited	_	
	CCNA1 - R&S Introduction to Networks.		
BI-ST2	Network Technology 2	Z	3
BI-ST3	This course is presented in Czech. Network Technology 3	7	3
	renhance their knowledge acquired from previous BI-ST1 and BI-ST2 courses. Principles of routing and switching presented during B		- 1
	ded in the course. Students will be able to start fine-tune protocols' settings to gain certain advantages like increased efficiency, predi		
	simple topology, accounts, -+-		
DI OT 4	simple topology, security, etc.		
BI-ST4	Network Technology 4	Z	3 8I-ST1 and
Students will furth	· · · · · ·	presented during B	BI-ST1 and
Students will furth BI-ST2 courses g beyond a simple	Network Technology 4 er enhance their knowledge already acquired from previous BI-ST1, BI-ST2, and BI-ST3 courses. Principles of routing and switching of further extended in BI-ST3. Students were able to start fine-tune protocols' settings to gain certain advantages like increased efficit topology, security, etc. This module teaches students to configure and fine-tune Wide Area Networks and to experience a completely	presented during B ency, predictability, other type of netw	BI-ST1 and extension ork (Non
Students will furth BI-ST2 courses g beyond a simple Broadcast Multipl	Network Technology 4 er enhance their knowledge already acquired from previous BI-ST1, BI-ST2, and BI-ST3 courses. Principles of routing and switching of further extended in BI-ST3. Students were able to start fine-tune protocols' settings to gain certain advantages like increased efficit topology, security, etc. This module teaches students to configure and fine-tune Wide Area Networks and to experience a completely e Access) which radically differs from well-known Ethernet (broadcast) type of networks. Students will also manage router and switch	presented during B ency, predictability, other type of netw firmware, perform	BI-ST1 and extension ork (Non password
Students will furth BI-ST2 courses g beyond a simple Broadcast Multipl	Network Technology 4 er enhance their knowledge already acquired from previous BI-ST1, BI-ST2, and BI-ST3 courses. Principles of routing and switching of further extended in BI-ST3. Students were able to start fine-tune protocols' settings to gain certain advantages like increased efficit topology, security, etc. This module teaches students to configure and fine-tune Wide Area Networks and to experience a completely e Access) which radically differs from well-known Ethernet (broadcast) type of networks. Students will also manage router and switch nergency procedures. Also the security aspect is treated; students will learn possible intra- and inter-network attacks and the mitigation	presented during B ency, predictability, other type of netw firmware, perform	BI-ST1 and extension ork (Non password
Students will furth BI-ST2 courses g beyond a simple Broadcast Multipl	Network Technology 4 er enhance their knowledge already acquired from previous BI-ST1, BI-ST2, and BI-ST3 courses. Principles of routing and switching of further extended in BI-ST3. Students were able to start fine-tune protocols' settings to gain certain advantages like increased efficit topology, security, etc. This module teaches students to configure and fine-tune Wide Area Networks and to experience a completely e Access) which radically differs from well-known Ethernet (broadcast) type of networks. Students will also manage router and switch	presented during B ency, predictability, other type of netw firmware, perform	BI-ST1 and extension ork (Non password
Students will furth BI-ST2 courses g beyond a simple Broadcast Multipl recoveries, and er	Network Technology 4 er enhance their knowledge already acquired from previous BI-ST1, BI-ST2, and BI-ST3 courses. Principles of routing and switching of further extended in BI-ST3. Students were able to start fine-tune protocols' settings to gain certain advantages like increased efficit topology, security, etc. This module teaches students to configure and fine-tune Wide Area Networks and to experience a completely e Access) which radically differs from well-known Ethernet (broadcast) type of networks. Students will also manage router and switch nergency procedures. Also the security aspect is treated; students will learn possible intra- and inter-network attacks and the mitigation network running. Storage and Filesystems um principles and current solutions of storage systems architecture. The module explains principles of data store, protection, and architecture.	presented during Bency, predictability, other type of netw firmware, perform on ways while main	BI-ST1 and extension ork (Non password taining the
Students will furth BI-ST2 courses g beyond a simple Broadcast Multipl recoveries, and er BI-STO The student will lear	Network Technology 4 er enhance their knowledge already acquired from previous BI-ST1, BI-ST2, and BI-ST3 courses. Principles of routing and switching of further extended in BI-ST3. Students were able to start fine-tune protocols' settings to gain certain advantages like increased efficit topology, security, etc. This module teaches students to configure and fine-tune Wide Area Networks and to experience a completely e Access) which radically differs from well-known Ethernet (broadcast) type of networks. Students will also manage router and switch nergency procedures. Also the security aspect is treated; students will learn possible intra- and inter-network attacks and the mitigation network running. Storage and Filesystems In principles and current solutions of storage systems architecture. The module explains principles of data store, protection, and architecture and bight availability.	presented during Bency, predictability, other type of netw firmware, perform on ways while main Z,ZK ving, as so as stora	BI-ST1 and extension ork (Non password taining the
Students will furth BI-ST2 courses g beyond a simple Broadcast Multipl recoveries, and er BI-STO The student will lea	Network Technology 4 er enhance their knowledge already acquired from previous BI-ST1, BI-ST2, and BI-ST3 courses. Principles of routing and switching of further extended in BI-ST3. Students were able to start fine-tune protocols' settings to gain certain advantages like increased efficit topology, security, etc. This module teaches students to configure and fine-tune Wide Area Networks and to experience a completely e Access) which radically differs from well-known Ethernet (broadcast) type of networks. Students will also manage router and switch nergency procedures. Also the security aspect is treated; students will learn possible intra- and inter-network attacks and the mitigation network running. Storage and Filesystems In principles and current solutions of storage systems architecture. The module explains principles of data store, protection, and architecture and image processing.	presented during E ency, predictability, other type of netw firmware, perform on ways while main Z,ZK ving, as so as stora	BI-ST1 and extension ork (Non password taining the 4 age scaling,
Students will furth BI-ST2 courses g beyond a simple Broadcast Multipl recoveries, and er BI-STO The student will lea BI-SVZ.21 Camera systems a	Network Technology 4 er enhance their knowledge already acquired from previous BI-ST1, BI-ST2, and BI-ST3 courses. Principles of routing and switching of further extended in BI-ST3. Students were able to start fine-tune protocols' settings to gain certain advantages like increased efficit topology, security, etc. This module teaches students to configure and fine-tune Wide Area Networks and to experience a completely e Access) which radically differs from well-known Ethernet (broadcast) type of networks. Students will also manage router and switch nergency procedures. Also the security aspect is treated; students will learn possible intra- and inter-network attacks and the mitigation network running. Storage and Filesystems In principles and current solutions of storage systems architecture. The module explains principles of data store, protection, and architecture and bight availability.	presented during Bency, predictability, other type of netw firmware, perform on ways while main Z,ZK ving, as so as stora Z,ZK nage information. T	SI-ST1 and extension ork (Non password taining the 4 age scaling, 5 The course
Students will furth BI-ST2 courses g beyond a simple Broadcast Multipl recoveries, and er BI-STO The student will lea BI-SVZ.21 Camera systems a introduces students	Network Technology 4 er enhance their knowledge already acquired from previous BI-ST1, BI-ST2, and BI-ST3 courses. Principles of routing and switching of further extended in BI-ST3. Students were able to start fine-tune protocols' settings to gain certain advantages like increased efficit topology, security, etc. This module teaches students to configure and fine-tune Wide Area Networks and to experience a completely expected Access) which radically differs from well-known Ethernet (broadcast) type of networks. Students will also manage router and switch nergency procedures. Also the security aspect is treated; students will learn possible intra- and inter-network attacks and the mitigation network running. Storage and Filesystems The module explains principles of data store, protection, and archicological balancing and high availability. Machine vision and image processing The course is focused on practical use problems of practice that the graduates may encounter.	presented during E ency, predictability, other type of netw firmware, perform on ways while main Z,ZK ving, as so as stora Z,ZK nage information. T of camera systems	BI-ST1 and extension ork (Non password taining the 4 age scaling, 5 The course is for solving
Students will furth BI-ST2 courses g beyond a simple Broadcast Multipl recoveries, and er BI-STO The student will lea BI-SVZ.21 Camera systems a introduces students BI-SWI.21	Network Technology 4 er enhance their knowledge already acquired from previous BI-ST1, BI-ST2, and BI-ST3 courses. Principles of routing and switching of further extended in BI-ST3. Students were able to start fine-tune protocols' settings to gain certain advantages like increased efficit topology, security, etc. This module teaches students to configure and fine-tune Wide Area Networks and to experience a completely expected Access) which radically differs from well-known Ethernet (broadcast) type of networks. Students will also manage router and switch nergency procedures. Also the security aspect is treated; students will learn possible intra- and inter-network attacks and the mitigation network running. Storage and Filesystems In principles and current solutions of storage systems architecture. The module explains principles of data store, protection, and architecture is a balancing and high availability. Machine vision and image processing The course is focused on practical use problems of practice that the graduates may encounter. Software Engineering	presented during E ency, predictability, other type of netw firmware, perform on ways while main Z,ZK ving, as so as stora Z,ZK mage information. T of camera systems	SI-ST1 and extension ork (Non password taining the 4 age scaling, 5 The course is for solving 5
Students will furth BI-ST2 courses g beyond a simple Broadcast Multipl recoveries, and er BI-STO The student will lea BI-SVZ.21 Camera systems a introduces students BI-SWI.21 Students get acqua	Network Technology 4 er enhance their knowledge already acquired from previous BI-ST1, BI-ST2, and BI-ST3 courses. Principles of routing and switching of further extended in BI-ST3. Students were able to start fine-tune protocols' settings to gain certain advantages like increased efficit topology, security, etc. This module teaches students to configure and fine-tune Wide Area Networks and to experience a completely expected Access) which radically differs from well-known Ethernet (broadcast) type of networks. Students will also manage router and switch nergency procedures. Also the security aspect is treated; students will learn possible intra- and inter-network attacks and the mitigation network running. Storage and Filesystems The module explains principles of data store, protection, and archiload balancing and high availability. Machine vision and image processing The course is focused on practical use problems of practice that the graduates may encounter. Software Engineering Since the strain advantages of routing and switching settings to gain certain advantages like increased efficition. The protection of practical use problems of practice that the graduates may encounter. Software Engineering Since the processing and implemented in teams. They contains the process and increase of the process and evaluate and the process and evaluate and the process of an allysis and design of larger software projects that are typically designed and implemented in teams. They contains the process in the process of the process	presented during E ency, predictability, other type of netw firmware, perform on ways while main Z,ZK ving, as so as stora Z,ZK mage information. T of camera systems Z,ZK nsolidate and pract	BI-ST1 and extension ork (Non password taining the 4 age scaling, 5 he course is for solving 5 circulty verify
Students will furth BI-ST2 courses g beyond a simple Broadcast Multipl recoveries, and er BI-STO The student will lea BI-SVZ.21 Camera systems a introduces students BI-SWI.21 Students get acquatheir knowledge du	Network Technology 4 er enhance their knowledge already acquired from previous BI-ST1, BI-ST2, and BI-ST3 courses. Principles of routing and switching of further extended in BI-ST3. Students were able to start fine-tune protocols' settings to gain certain advantages like increased efficit topology, security, etc. This module teaches students to configure and fine-tune Wide Area Networks and to experience a completely expected Access) which radically differs from well-known Ethernet (broadcast) type of networks. Students will also manage router and switch nergency procedures. Also the security aspect is treated; students will learn possible intra- and inter-network attacks and the mitigation network running. Storage and Filesystems In principles and current solutions of storage systems architecture. The module explains principles of data store, protection, and architecture is a balancing and high availability. Machine vision and image processing The course is focused on practical use problems of practice that the graduates may encounter. Software Engineering	presented during Eency, predictability, other type of netwood firmware, perform on ways while main Z,ZK ving, as so as stora Z,ZK mage information. To for camera systems Z,ZK nsolidate and praction experience with the context of th	SI-ST1 and extension ork (Non password taining the 4 age scaling, 5 The course is for solving 5 cically verify CASE tools
Students will furth BI-ST2 courses g beyond a simple Broadcast Multipl recoveries, and er BI-STO The student will lea BI-SVZ.21 Camera systems a introduces students BI-SWI.21 Students get acquate their knowledge du using the visual la	Network Technology 4 er enhance their knowledge already acquired from previous BI-ST1, BI-ST2, and BI-ST3 courses. Principles of routing and switching of further extended in BI-ST3. Students were able to start fine-tune protocols' settings to gain certain advantages like increased efficit topology, security, etc. This module teaches students to configure and fine-tune Wide Area Networks and to experience a completely expected procedures. Also the security aspect is treated; students will learn possible intra- and inter-network attacks and the mitigation network running. Storage and Filesystems In principles and current solutions of storage systems architecture. The module explains principles of data store, protection, and architecture by a displaying and high availability. Machine vision and image processing are becoming a common part of life by being universally available. Related to this phenomenon is the need to process and evaluate in the storage 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. Software Engineering ainted with methods of analysis and design of larger software projects that are typically designed and implemented in teams. They corring the analysis and design of larger software systems that will be developed in the concurrent course BIE-SP1. Students get hands-onguage UML for modeling and solving software problems. Students learn the basics of object-oriented analysis, architecture design addents also gain a theoretical basis in the field of project management, estimation of costs of software projects, and methods of their	presented during E ency, predictability, other type of netw firmware, perform on ways while main Z,ZK ving, as so as stora Z,ZK mage information. T of camera systems Z,ZK nsolidate and pract on experience with 0 and testing. Within tidevelopment.	BI-ST1 and extension ork (Non password taining the 4 age scaling, 5 The course is for solving 5 cically verify CASE tools he course,
Students will furth BI-ST2 courses g beyond a simple Broadcast Multipl recoveries, and er BI-STO The student will lead BI-SVZ.21 Camera systems a introduces students BI-SWI.21 Students get acquatheir knowledge du using the visual la stu BI-TAB.21	Network Technology 4 er enhance their knowledge already acquired from previous BI-ST1, BI-ST2, and BI-ST3 courses. Principles of routing and switching of further extended in BI-ST3. Students were able to start fine-tune protocols' settings to gain certain advantages like increased efficit topology, security, etc. This module teaches students to configure and fine-tune Wide Area Networks and to experience a completely expected access) which radically differs from well-known Ethernet (broadcast) type of networks. Students will also manage router and switch nergency procedures. Also the security aspect is treated; students will learn possible intra- and inter-network attacks and the mitigation network running. Storage and Filesystems In principles and current solutions of storage systems architecture. The module explains principles of data store, protection, and architecture principles and image processing are becoming a common part of life by being universally available. Related to this phenomenon is the need to process and evaluate in a 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. Software Engineering ainted with methods of analysis and design of larger software projects that are typically designed and implemented in teams. They corring the analysis and design of larger software systems that will be developed in the concurrent course BIE-SP1. Students get hands-conguage UML for modeling and solving software problems. Students learn the basics of object-oriented analysis, architecture design audents also gain a theoretical basis in the field of project management, estimation of costs of software projects, and methods of their Applications of Security in Technology	presented during Eency, predictability, other type of netw firmware, perform on ways while main Z,ZK ving, as so as stora Z,ZK mage information. T of camera systems Z,ZK nsolidate and pract on experience with 0 and testing. Within tidevelopment. Z,ZK	SI-ST1 and extension ork (Non password taining the 4 age scaling, 5 The course is for solving 5 cically verify CASE tools he course, 5
Students will furth BI-ST2 courses g beyond a simple Broadcast Multipl recoveries, and er BI-STO The student will lead BI-SVZ.21 Camera systems a introduces students BI-SWI.21 Students get acquatheir knowledge du using the visual la stu BI-TAB.21	Network Technology 4 er enhance their knowledge already acquired from previous BI-ST1, BI-ST2, and BI-ST3 courses. Principles of routing and switching of further extended in BI-ST3. Students were able to start fine-tune protocols' settings to gain certain advantages like increased efficit topology, security, etc. This module teaches students to configure and fine-tune Wide Area Networks and to experience a completely expected procedures. Also the security aspect is treated; students will learn possible intra- and inter-network attacks and the mitigation network running. Storage and Filesystems In principles and current solutions of storage systems architecture. The module explains principles of data store, protection, and architecture by a displaying and high availability. Machine vision and image processing are becoming a common part of life by being universally available. Related to this phenomenon is the need to process and evaluate in the storage 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. Software Engineering ainted with methods of analysis and design of larger software projects that are typically designed and implemented in teams. They corring the analysis and design of larger software systems that will be developed in the concurrent course BIE-SP1. Students get hands-onguage UML for modeling and solving software problems. Students learn the basics of object-oriented analysis, architecture design addents also gain a theoretical basis in the field of project management, estimation of costs of software projects, and methods of their	presented during Enercy, predictability, other type of network firmware, perform on ways while main Z,ZK ving, as so as stora Z,ZK mage information. To famera systems Z,ZK modicate and practon experience with 0 and testing. Within tidevelopment. Z,ZK not specificate and practon experience with 0 and testing. Within tidevelopment. Z,ZK not specificate and practon experience with 0 and testing. Within tidevelopment. Z,ZK not specificate and practon experience with 0 and testing. Within tidevelopment.	SI-ST1 and extension ork (Non password taining the 4 age scaling, 5 The course is for solving 5 cically verify CASE tools he course, 5
Students will furth BI-ST2 courses g beyond a simple Broadcast Multipl recoveries, and er BI-STO The student will lead BI-SVZ.21 Camera systems a introduces students BI-SWI.21 Students get acquatheir knowledge du using the visual la stu BI-TAB.21	Network Technology 4 er enhance their knowledge already acquired from previous BI-ST1, BI-ST2, and BI-ST3 courses. Principles of routing and switching of further extended in BI-ST3. Students were able to start fine-tune protocols' settings to gain certain advantages like increased efficit topology, security, etc. This module teaches students to configure and fine-tune Wide Area Networks and to experience a completely excess) which radically differs from well-known Ethernet (broadcast) type of networks. Students will also manage router and switch nergency procedures. Also the security aspect is treated; students will learn possible intra- and inter-network attacks and the mitigation network running. Storage and Filesystems In principles and current solutions of storage systems architecture. The module explains principles of data store, protection, and architecture. The module explains principles of data store, protection, and architecture. The module availability. Machine vision and image processing are becoming a common part of life by being universally available. Related to this phenomenon is the need to process and evaluate in the odifferent 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. Software Engineering ainted with methods of analysis and design of larger software projects that are typically designed and implemented in teams. They coring the analysis and design of larger software systems that will be developed in the concurrent course BIE-SP1. Students get hands-onguage UML for modeling and solving software problems. Students learn the basics of object-oriented analysis, architecture design audents also gain a theoretical basis in the field of project management, estimation of costs of software projects, and methods of their Applications of Security in Technology urse is to introduce students to selected topics from cybersecurity technical applications that are utilized i	presented during Enercy, predictability, other type of network firmware, perform on ways while main Z,ZK ving, as so as stora Z,ZK mage information. To famera systems Z,ZK modicate and practon experience with 0 and testing. Within tidevelopment. Z,ZK not specificate and practon experience with 0 and testing. Within tidevelopment. Z,ZK not specificate and practon experience with 0 and testing. Within tidevelopment. Z,ZK not specificate and practon experience with 0 and testing. Within tidevelopment.	BI-ST1 and extension ork (Non password taining the 4 age scaling, 5 The course is for solving 5 cically verify CASE tools he course, 5
Students will furth BI-ST2 courses g beyond a simple Broadcast Multipl recoveries, and er BI-STO The student will lead BI-SVZ.21 Camera systems sintroduces students BI-SWI.21 Students get acquatheir knowledge du using the visual la str BI-TAB.21 The goal of the course is foo	Network Technology 4 er enhance their knowledge already acquired from previous BI-ST1, BI-ST2, and BI-ST3 courses. Principles of routing and switching of further extended in BI-ST3. Students were able to start fine-tune protocols' settings to gain certain advantages like increased efficit topology, security, etc. This module teaches students to configure and fine-tune Wide Area Networks and to experience a completely expected and suitch radically differs from well-known Ethernet (broadcast) type of networks. Students will also manage router and switch nergency procedures. Also the security aspect is treated; students will learn possible intra- and inter-network attacks and the mitigation network running. Storage and Filesystems In principles and current solutions of storage systems architecture. The module explains principles of data store, protection, and archicology and high availability. Machine vision and image processing The course is focused on practical use problems of practice that the graduates may encounter. Software Engineering ainted with methods of analysis and design of larger software projects that are typically designed and implemented in teams. They corring the analysis and design of larger software projects that are typically designed and implemented in teams. They corring the analysis and design of larger software projects that are typically designed and implemented in teams. They corring the analysis and design of larger software projects that are typically designed and implemented in teams. They corring the analysis and design of larger software systems that will be developed in the concurrent course BIE-SP1. Students get hands-congulated with methods of analysis and design of larger software projects that are typically designed and implemented in teams. They corring the analysis and design of larger software systems that will be developed in the concurrent course BIE-SP1. Students get hands-congulated with methods of analysis, architecture design and the projects and the projects man	presented during Enercy, predictability, other type of network firmware, perform on ways while main to the type of network firmware, perform on ways while main to the type of type of type of the type of	BI-ST1 and extension ork (Non password taining the 4 age scaling, 5 the course s for solving 5 cically verify CASE tools the course, 5 everview of 4 to DevOps
Students will furth BI-ST2 courses g beyond a simple Broadcast Multipl recoveries, and er BI-STO The student will lead BI-SVZ.21 Camera systems a introduces students BI-SWI.21 Students get acquatheir knowledge du using the visual la structure BI-TAB.21 The goal of the course is for world. This course is for world.	Network Technology 4 er enhance their knowledge already acquired from previous BI-ST1, BI-ST2, and BI-ST3 courses. Principles of routing and switching of further extended in BI-ST3. Students were able to start fine-tune protocols' settings to gain certain advantages like increased efficit topology, security, etc. This module teaches students to configure and fine-tune Wide Area Networks and to experience a completely e Access) which radically differs from well-known Ethernet (broadcast) type of networks. Students will also manage router and switch nergency procedures. Also the security aspect is treated; students will learn possible intra- and inter-network attacks and the mitigatic network running. Storage and Filesystems In principles and current solutions of storage systems architecture. The module explains principles of data store, protection, and architoad balancing and high availability. Machine vision and image processing are becoming a common part of life by being universally available. Related to this phenomenon is the need to process and evaluate in a 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. Software Engineering ainted with methods of analysis and design of larger software projects that are typically designed and implemented in teams. They corring the analysis and design of larger software systems that will be developed in the concurrent course BIE-SP1. Students get hands-conguage UML for modeling and solving software problems. Students learn the basics of object-oriented analysis, architecture design addents also gain a theoretical basis in the field of project management, estimation of costs of software projects, and methods of their Applications of Security in Technology urse is to introduce students to selected topics from cybersecurity technical applications that are utilized in different industries. Stude cybersecurity applications and extend th	presented during Bency, predictability, other type of network firmware, perform on ways while main to the type of network wing, as so as storated to the type of type of the type of the type of the type of type of the type of t	SI-ST1 and extension ork (Non password taining the 4 age scaling, 5 The course is for solving 5 cically verify CASE tools he course, 5 everview of 4 a DevOps roject.
Students will furth BI-ST2 courses g beyond a simple Broadcast Multipl recoveries, and er BI-STO The student will lead BI-SVZ.21 Camera systems a introduces students BI-SWI.21 Students get acquatheir knowledge du using the visual la structure BI-TAB.21 The goal of the course is for world. This course is for world. This co	Network Technology 4 er enhance their knowledge already acquired from previous BI-ST1, BI-ST2, and BI-ST3 courses. Principles of routing and switching of further extended in BI-ST3. Students were able to start fine-tune protocols' settings to gain certain advantages like increased efficit topology, security, etc. This module teaches students to configure and fine-tune Wide Area Networks and to experience a completely e Access) which radically differs from well-known Ethernet (broadcast) type of networks. Students will also manage router and switch nergency procedures. Also the security aspect is treated; students will learn possible intra- and inter-network attacks and the mitigatic network running. Storage and Filesystems In principles and current solutions of storage systems architecture. The module explains principles of data store, protection, and architoad balancing and high availability. Machine vision and image processing are becoming a common part of life by being universally available. Related to this phenomenon is the need to process and evaluate in a 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. Software Engineering ainted with methods of analysis and design of larger software systems that will be developed in the concurrent course BIE-SP1. Students get handsong the analysis and design of larger software systems that will be developed in the concurrent course BIE-SP1. Students get handsong and solving software problems. Students learn the basics of object-oriented analysis, architecture design a udents also gain a theoretical basis in the field of project management, estimation of costs of software projects, and methods of their Applications of Security in Technology urse is to introduce students to selected topics from cybersecurity technical applications that are utilized in different industries. Stude cybersecurity applications and extend their knowledge	presented during Enercy, predictability, other type of network firmware, perform on ways while main to the type of network firmware, perform on ways while main to the type of type of type of type of the type of typ	BI-ST1 and extension ork (Non password taining the 4 age scaling, 5 The course is for solving 5 cically verify CASE tools he course, 5 everview of 4 a DevOps roject. 3
Students will furth BI-ST2 courses g beyond a simple Broadcast Multipl recoveries, and er BI-STO The student will lead BI-SVZ.21 Camera systems a introduces students BI-SWI.21 Students get acquatheir knowledge du using the visual la strange BI-TAB.21 The goal of the course is forworld. This course is focus BI-TDP.21 The course is focus	Network Technology 4 er enhance their knowledge already acquired from previous BI-ST1, BI-ST2, and BI-ST3 courses. Principles of routing and switching of further extended in BI-ST3. Students were able to start fine-tune protocols' settings to gain certain advantages like increased efficit topology, security, etc. This module teaches students to configure and fine-tune Wide Area Networks and to experience a completely e Access) which radically differs from well-known Ethernet (broadcast) type of networks. Students will also manage router and switch nergency procedures. Also the security aspect is treated; students will learn possible intra- and inter-network attacks and the mitigatic network running. Storage and Filesystems In principles and current solutions of storage systems architecture. The module explains principles of data store, protection, and architoad balancing and high availability. Machine vision and image processing are becoming a common part of life by being universally available. Related to this phenomenon is the need to process and evaluate in a 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. Software Engineering ainted with methods of analysis and design of larger software projects that are typically designed and implemented in teams. They corring the analysis and design of larger software systems that will be developed in the concurrent course BIE-SP1. Students get hands-conguage UML for modeling and solving software problems. Students learn the basics of object-oriented analysis, architecture design addents also gain a theoretical basis in the field of project management, estimation of costs of software projects, and methods of their Applications of Security in Technology urse is to introduce students to selected topics from cybersecurity technical applications that are utilized in different industries. Stude cybersecurity applications and extend th	presented during Enercy, predictability, other type of network firmware, perform on ways while main to the type of network firmware, perform on ways while main to the type of type of the type of type of type of the type of typ	SI-ST1 and extension ork (Non password taining the 4 age scaling, 5 The course is for solving 5 cically verify CASE tools he course, 5 everview of 4 DevOps roject. 3 s. Students
Students will furth BI-ST2 courses g beyond a simple Broadcast Multipl recoveries, and er BI-STO The student will lead BI-SVZ.21 Camera systems a introduces students BI-SWI.21 Students get acquatheir knowledge du using the visual la structure BI-TAB.21 The goal of the course is forworld. This course is focus learn to create text	Network Technology 4 er enhance their knowledge already acquired from previous BI-ST1, BI-ST2, and BI-ST3 courses. Principles of routing and switching of further extended in BI-ST3. Students were able to start fine-tune protocols' settings to gain certain advantages like increased efficit topology, security, etc. This module teaches students to configure and fine-tune Wide Area Networks and to experience a completely e Access) which radically differs from well-known Ethernet (broadcast) type of networks. Students will also manage router and switch nergency procedures. Also the security aspect is treated; students will learn possible intra- and inter-network attacks and the mitigatic network running. Storage and Filesystems In principles and current solutions of storage systems architecture. The module explains principles of data store, protection, and architoload balancing and high availability. Machine vision and image processing are becoming a common part of life by being universally available. Related to this phenomenon is the need to process and evaluate in sto 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. Software Engineering ainted with methods of analysis and design of larger software projects that are typically designed and implemented in teams. They congrue URL for modeling and solving software problems. Students learn the basics of object-oriented analysis, architecture design a udents also gain a theoretical basis in the field of project management, estimation of costs of software projects, and methods of their Applications of Security in Technology urse is to introduce students to selected topics from cybersecurity technical applications that are utilized in different industries. Stude cybersecurity applications and extend their knowledge from the cryptology, the secure code, and system, network, and hardware to rest driven architecture Test driven architect	presented during Enercy, predictability, other type of network firmware, perform on ways while main and ways while many and ways while main and ways ways ways ways ways ways ways ways	SI-ST1 and extension ork (Non password taining the 4 age scaling, 5 The course is for solving 5 trically verify CASE tools he course, 5 everview of 4 a DevOps roject. 3 s. Students smates and
Students will furth BI-ST2 courses g beyond a simple Broadcast Multipl recoveries, and er BI-STO The student will lead BI-SVZ.21 Camera systems a introduces students BI-SWI.21 Students get acquatheir knowledge du using the visual la strange BI-TAB.21 The goal of the course is forworld. This course is focus learn to create text the teacher. The	Network Technology 4 er enhance their knowledge already acquired from previous BI-ST1, BI-ST2, and BI-ST3 courses. Principles of routing and switching of further extended in BI-ST3. Students were able to start fine-tune protocols' settings to gain certain advantages like increased efficit topology, security, etc. This module teaches students to configure and fine-tune Wide Area Networks and to experience a completely expects and the security aspect is treated; students will learn possible intra- and inter-network attacks and the mitigation network procedures. Also the security aspect is treated; students will learn possible intra- and inter-network attacks and the mitigation network procedures. Also the security aspect is treated; students will learn possible intra- and inter-network attacks and the mitigation network procedures. Also the security aspect is treated; students will learn possible intra- and inter-network attacks and the mitigation network procedures. Storage and Filesystems In principles and current solutions of storage systems architecture. The module explains principles of data store, protection, and architolad balancing and high availability. Machine vision and image processing are becoming a common part of life by being universally available. Related to this phenomenon is the need to process and evaluate in the 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. Software Engineering sinted with methods of analysis and design of larger software systems that will be developed in the concurrent course BIE-SP1. Students get handscapuage UML for modeling and solving software systems that will be developed in the concurrent course BIE-SP1. Students get handscapuage UML for modeling and solving software problems. Students learn the basics of object-oriented analysis, architecture design addents also gain a theoretical basis in the field of project management, est	presented during Bency, predictability, other type of network firmware, perform on ways while main and ways while main and ways while main and ways while main and ways of teaching. Within the development. Z,ZK nasolidate and pract on experience with the development. Z,ZK nts get a broader of security. KZ e well known in the rin the semester provided ways of teaching. Well ways of teaching. Well ways of teaching.	SI-ST1 and extension ork (Non password taining the 4 age scaling, 5 The course is for solving 5 trically verify CASE tools he course, 5 everview of 4 DevOps roject. 3 s. Students smates and Vithin the
Students will furth BI-ST2 courses g beyond a simple Broadcast Multipl recoveries, and er BI-STO The student will lead BI-SVZ.21 Camera systems a introduces students BI-SWI.21 Students get acquatheir knowledge du using the visual la strange BI-TAB.21 The goal of the course is forworld. This course is focus learn to create text the teacher. The BI-TEX	Network Technology 4 er enhance their knowledge already acquired from previous BI-ST1, BI-ST2, and BI-ST3 courses. Principles of routing and switching of further extended in BI-ST3. Students were able to start fine-tune protocols' settings to gain certain advantages like increased efficit topology, security, etc. This module teaches students to configure and fine-tune Wide Area Networks and to experience a completely etcaces) which radically differs from well-known Ethernet (broadcast) type of networks. Students will also manage router and switch nergency procedures. Also the security aspect is treated; students will learn possible intra- and inter-network attacks and the mitigation network running. Storage and Filesystems In principles and current solutions of storage systems architecture. The module explains principles of data store, protection, and architecture is a data part of the processing are becoming a common part of life by being universally available. Related to this phenomenon is the need to process and evaluate in 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. Software Engineering ainted with methods of analysis and design of larger software systems that will be developed in the concurrent course BIE-SP1. Students get hands-conguage UML for modelling and solving software problems. Students learn the basics of object-oriented analysis, architecture design adents also gain a theoretical basis in the field of project management, estimation of costs of software projects, and methods of their Applications and extend their knowledge from the cryptology, the secure code, and system, network, and hardware cybersecurity applications and extend their knowledge from the cryptology, the secure code, and system, network, and hardware cybersecurity applications and extend their knowledge from the cryptology, the secure code, and system, network, and hardware in the satist	presented during Enercy, predictability, other type of network firmware, perform on ways while main and ways while main and ways while main and ways while main and ways as a satoral and praction and testing. Within the development. Z,ZK Insolidate and praction of experience with the development. Z,ZK Instruction and praction and testing. Within the development. Z,ZK Intercept a broader of security. KZ In the semester properties of the semest	SI-ST1 and extension ork (Non password taining the 4 age scaling, 5 The course is for solving 5 trically verify CASE tools he course, 5 everview of 4 DevOps roject. 3 s. Students smates and Within the 4
Students will furth BI-ST2 courses g beyond a simple Broadcast Multipl recoveries, and er BI-STO The student will lead BI-SVZ.21 Camera systems a introduces students BI-SWI.21 Students get acquatheir knowledge du using the visual la strange BI-TAB.21 The goal of the course is forworld. This course is focus learn to create text the teacher. The BI-TEX	Network Technology 4 er enhance their knowledge already acquired from previous BI-ST1, BI-ST2, and BI-ST3 courses. Principles of routing and switching of further extended in BI-ST3. Students were able to start fine-tune protocols' settings to gain certain advantages like increased efficit topology, security, etc. This module teaches students to configure and fine-tune Wide Area Networks and to experience a completely expects and the security aspect is treated; students will learn possible intra- and inter-network attacks and the mitigation network procedures. Also the security aspect is treated; students will learn possible intra- and inter-network attacks and the mitigation network procedures. Also the security aspect is treated; students will learn possible intra- and inter-network attacks and the mitigation network procedures. Also the security aspect is treated; students will learn possible intra- and inter-network attacks and the mitigation network procedures. Storage and Filesystems In principles and current solutions of storage systems architecture. The module explains principles of data store, protection, and architolad balancing and high availability. Machine vision and image processing are becoming a common part of life by being universally available. Related to this phenomenon is the need to process and evaluate in the 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. Software Engineering sinted with methods of analysis and design of larger software systems that will be developed in the concurrent course BIE-SP1. Students get handscapuage UML for modeling and solving software systems that will be developed in the concurrent course BIE-SP1. Students get handscapuage UML for modeling and solving software problems. Students learn the basics of object-oriented analysis, architecture design addents also gain a theoretical basis in the field of project management, est	presented during Enercy, predictability, other type of network firmware, perform on ways while main and ways while main and ways while main and ways while main and ways as a satoral and praction and testing. Within the development. Z,ZK Insolidate and praction of experience with the development. Z,ZK Instruction and praction and testing. Within the development. Z,ZK Intercept a broader of security. KZ In the semester properties of the semest	SI-ST1 and extension ork (Non password taining the 4 age scaling, 5 The course is for solving 5 trically verify CASE tools he course, 5 everview of 4 DevOps roject. 3 s. Students smates and Within the 4
Students will furth BI-ST2 courses g beyond a simple Broadcast Multipl recoveries, and er BI-STO The student will lead and the students get acquate their knowledge during the visual last BI-TAB.21 The goal of the course is focus learn to create text the teacher. The BI-TEX This course is press BI-TIS.21	Network Technology 4 er enhance their knowledge already acquired from previous BI-ST1, BI-ST2, and BI-ST3 courses. Principles of routing and switching for further extended in BI-ST3. Students were able to start fine-tune protocols' settings to gain certain advantages like increased efficit topology, security, etc. This module teaches students to configure and fine-tune Wide Area Networks and to experience a completely e Access) which radically differs from well-known Ethernet (broadcast) type of networks. Students will also manage router and switch nergency procedures. Also the security aspect is treated; students will learn possible intra- and inter-network attacks and the mitigatic network running. Storage and Filesystems In principles and current solutions of storage systems architecture. The module explains principles of data store, protection, and architolad balancing and high availability. Machine vision and image processing are becoming a common part of life by being universally available. Related to this phenomenon is the need to process and evaluate in 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. Software Engineering ainted with methods of analysis and design of larger software projects that are typically designed and implemented in teams. They coring the analysis and design of larger software systems that will be developed in the concurrent course BIE-SP1. Students get handscrapage UML for modeling and solving software problems. Students learn the basics of object-oriented analysis, architecture design a under the students of object-oriented analysis, architecture design a dents also gain a theoretical basis in the field of project management, estimation of costs of software projects, and methods of their Applications of Security in Technology urse is to introduce students to selected topics from cybersecurity technical applications that are utilized in	presented during Bency, predictability, other type of network firmware, perform on ways while main and ways of camera systems and pract on experience with and testing. Within the development. Z,ZK Insolidate and pract on experience with a development. Z,ZK Insolidate and pract on experience with a development. Z,ZK Insolidate and pract on experience with a development. Z,ZK In the semester properties and university these and university these and tin front of class days of teaching. V Z,ZK Course focuses on to Z,ZK	SI-ST1 and extension ork (Non password taining the 4 age scaling, 5 The course is for solving 5 tically verify CASE tools he course, 5 the course of 4 DevOps roject. 3 s. Students smates and Within the 4 typographic 5
Students will furth BI-ST2 courses g beyond a simple Broadcast Multipl recoveries, and er BI-STO The student will lead and the students get acquate their knowledge during the visual last students get acquate their knowledge during the visual last BI-TAB.21 The goal of the course is focus world. This course is focus learn to create text the teacher. The BI-TEX This course is pressured and the source is pressured by the sour	Network Technology 4 er enhance their knowledge already acquired from previous BI-ST1, BI-ST2, and BI-ST3 courses. Principles of routing and switching of further extended in BI-ST3. Students were able to start fine-tune protocols' settings to gain certain advantages like increased efficit topology, security, etc. This module teaches students to configure and fine-tune Wide Area Networks and to experience a completely e Access) which radically differs from well-known Ethernet (broadcast) type of networks. Students will also manage router and switch nergency procedures. Also the security aspect is treated; students will learn possible intra- and inter-network attacks and the mitigatic network running. Storage and Filesystems rn principles and current solutions of storage systems architecture. The module explains principles of data store, protection, and architeatory of the vision and image processing are becoming a common part of life by being universally available. Related to this phenomenon is the need to process and evaluate in 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. Software Engineering ainted with methods of analysis and design of larger software projects that are typically designed and implemented in teams. They corring the analysis and design of larger software projects that are typically designed and implemented in teams. They corring the analysis and design of software problems. Students learn the basics of object-oriented analysis, architecture design addents also gain a theoretical basis in the field of project management, estimation of costs of software projects, and methods of their Applications of Security in Technology urse is to introduce students to selected topics from cybersecurity technical applications that are utilized in different industries. Stude cybersecurity applications and extend their knowledge from the cryptology, the secure code,	presented during Bency, predictability, other type of network firmware, perform on ways while main to the type of network firmware, perform on ways while main to the type of network as so as storal type of camera systems to experience with the type of type of the type of type of the type of type of the type of the type of the type of type of type of type of the type of ty	SI-ST1 and extension ork (Non password taining the 4 age scaling, 5 The course is for solving 5 trically verify CASE tools he course, 5 overview of 4 DevOps roject. 3 s. Students smates and Within the 4 typographic 5 roduced to

The fundamental part of the course is the introduction to key ideas of an information system selection, evaluation of information system benefits, ways of information systems implementation and information system implementation based on the project management principles. The emphasis is on the initial customer analysis, customer insight and ability to decide whether it is better to implement any existing information system or to develop a new one from scratch. These factors determine the information system implementation success. At the end of the course information systems security, operation, support, maintenance, legislation impacts, and government information systems topics are discussed. BI-T.IV 21 Java Technology Z.ZK 5 The goal is to provide knowledge and skills for developing information systems and applications through concepts used in software development and experience with libraries and tools from Java language ecosystem. At the course end, the students are able to develop software systems in Java platform. Computer Networks Technologies The course introduces students with basic and advanced technologies, components, and interfaces of contemporary computer networks at the physical layer with the overlap to the link layer. The lectures provide theoretical foundations of these technologies and explain relevant physical principles. In the labs, the respective technologies will be demonstrated and with the most important ones students will get hands-on experience. Thematically, the course covers both local and long-range optical networks, Ethernet, modern wireless networks, always with focus on high-speed networks. BI-TS1 Theoretical Seminar I Theoretical seminar is intended for students which want to come in deeper contact with contemporary theoretical computer science. It is mostly a classical reading group. 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 a work with scientific papers and other scholarly literature. The capacity is limited by the the potentials of the teachers of the seminar. BI-TS2 Theoretical Seminar II Theoretical seminar is intended for students which want to come in deeper contact with contemporary theoretical computer science. It is mostly a classical reading group. 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 a work with scientific papers and other scholarly literature. The capacity is limited by the the potentials of the teachers of the seminar. BI-TS3 Theoretical Seminar III Theoretical seminar is intended for students which want to come in deeper contact with contemporary theoretical computer science. It is mostly a classical reading group. 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 a work with scientific papers and other scholarly literature. The capacity is limited by the the potentials of the teachers of the seminar. Theoretical Seminar IV Theoretical seminar is intended for students which want to come in deeper contact with contemporary theoretical computer science. It is mostly a classical reading group. 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 a work with scientific papers and other scholarly literature. The capacity is limited by the the potentials of the teachers of the seminar. BI-TUR.21 User Interface Design Z,ZK Students gain a basic overview of methods for designing and testing common user interfaces. They get experience to solve the problems where software and other products do not communicate with the user optimally, since the needs and characteristics of users are not taken into account during product development. Students gain an overview of methods that bring users into the development process to ensure optimal interface for them. BI-TWA.21 Design of Web Applications Z,ZK 5 The basic course of web application development. Initially, the students become familiar with HTTP and its possibilities and partly with some properties of language describing the structure (HTML) and presentation of document on the Web (CSS). These skills provide the necessary basis for the development of Web applications, which will be demonstrated in modern libraries facilitate the development of Web pages applications. Server side will be demonstrated on PHP technology using frameworks Symfony 2, Doctrine 2. Developments 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 Students get acquainted with the fundamentals of digital and analog circuits, as well as basic methods of analyzing them. Students learn how computer structures look like at the lowest level. They are introduced to the function of a transistor. They will understand why processors generate heat, why cooling is necessary, and how to reduce the consumption; what the 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 computer power supply looks like (in principle). In the labs, students model the behavior of basic electrical circuits in SW Mathematica. BI-UKB.21 Introduction to Cybersecurity Z,ZK 5 The goal of the course is to provide students with the introduction of basic concepts in modern approach to cybersecurity. Students will get a basic overview of threats in cyberspace and attacker techniques, security mechanisms in networks, operating systems and applications, as well as of basic cyberspace regulations BI-ULI 2 Introduction to Linux 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 familiar with basic commands and techniques of a Unix-like system. Topics can be studied first theoretically and then practically verified in a virtual machine (terminal) BI-UOS.21 Unix-like Operating Systems K7 Unix-like operating systems represent a large family mostly open-source codes that kept bringing during the history of computers efficient innovative functions of multiuser operating systems for computers and their networks and clusters. The most popular OS today, Android, has a unix kernel. Students get overview of basic properties of this OS family, 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 level of advanced users 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, called shell BI-VAK.21 Selected Applications of Combinatorics The course aims to introduce students in an accessible form to various branches of theoretical computer science and combinatorics. In contrast to the basic courses, we approach the issue from applications to theory. Together, we will first refresh the basic knowledge needed to design and analyze algorithms and introduce some basic data structures. Furthermore, with the active participation of students, we will focus on solving popular and easily formulated problems from various areas of (not only theoretical) informatics. Areas from which we will select problems to be solved will include, for example, graph theory, combinatorial and algorithmic game theory, approximation algorithms, optimization and more. Students will also try to implement solutions to the studied problems with a special focus on the effective use of existing tools. BI-VDC.21 Virtualization and Data Centers The aim of the course is to familiarize students with technology basis of cloud computer systems. It shows principles and techniques used in design and implementation of data center infrastructure, such as various kinds of virtualization and high availability of servers, storages, and software layers. The course guides through data center technologies from private to public and hybrid clouds. Student learn current trends in the architecture of IT infrastructure and its configuration for classic and cloud applications. Students will understand the design, validation, and operation of complex infrastructures for modern applications with respect to scalability and protection against overloads, outages, and data losses BI-VES.21 Embedded Systems Students learn to design embedded systems and develop software for them. They get basic knowledge of the most common microcontrollers and embedded processors, their integrated peripheral circuits, programming methods, and applications. They get practical skills with development kits and tools. Virtual game worlds The course leads students to create a complex virtual world. The course is a continuation of basic graphical courses (MGA, PGR, BLE,). This current students knowledge is furthermore complemented by the theory of game design, principles of writing dialogues and characters in order to create a functional and complex virtual world. The course can 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-VIZ.21 Data Visualization	KZ	5
The course offers an overview of the types and characteristics of data as well as suitable visualization methods. This will aid the students in understanding application in areas such as data mining and machine learning. Within the course, students will be introduced to exploratory data analysis, preprocessin		
different kinds of data such as text, social networks, time series or basic image data processing. Students will get hands-on experience in applications of sel examples in the Python programming language.	•	٠ ا
BI-VMM Selected Mathematical Methods	Z,ZK	4
The lecture begins with an introduction to the analysis of complex functions of a complex variable. Next, we present the Lebesgue integral. We then address properties. Further, we introduce and study the properties of the Discrete Fourier Transform (DFT) and its fast implementation (FFT). We discuss the wave		
the linear programming problem in more detail and its solution using the Simplex algorithm. Each topic is demonstrated with interesting of		examine
BI-VPS.21 Selected Topics in Computer Networking	Z,ZK	5
The course builds upon the Computer Networks course (BI-PSI), obligatory for the program. Students will learn in detail principles, protocols, and technologic networks from local area networks up to Internet, with focus on switching, routing, security, and virtualization. The emphasis will be on gaining practical expensive from local area networks up to Internet, with focus on switching, routing, security, and virtualization. The emphasis will be on gaining practical expensive from the control of		
devices in the lab and learning important methods of local area and wide area networks from the viewpoint of functionality, performance, a	•	network
BI-VR1 Virtual reality I	KZ	4
Introduction to Virtual Reality (VR), virtual reality operating system and virtual reality creation. Another objective is to meet the rules and requirements of vir		
The course focuses on the ways of teaching using virtual reality technologies and interactive activities in educational virtual 3D worlds. It improves computed and shared social activities.	national triinking, ei	пратту
BI-VR2 Virtual reality II	KZ	3
Continuation of the course Virtual Reality I. The new course focuses on collaborative telepresence, spatial computing and social life of avatars. The objective for computer science and gamification in various social metaverse and desktop engines.	ve is to develop app	olications
BI-VWM.21 Searching the Web and Multimedia Databases	Z,ZK	5
Students get basic overview about search techniques in the web environment that is interpreted as a very large distributed and heterogeneous storage of	, i	
students acquire information about search techniques in text and hypertext documents (the web pages themselves) and about feature extraction from we		
knowledge of similarity search in multimedia databases (generally in collections of unstructured data). They also learn techniques for programming web searc data types (documents).	in engines for the me	ientionea
BI-ZIVS Intelligent Embedded System Fundamentals	KZ	4
Intelligent embedded system fundamentals course is focused on high-level technology embedded systems integrating artificial intelligence. The aim of the		
modern humanoid robot control and development of applications in a graphical development environment. Lectures provide fundamentals of motion control, interfaces, robot navigation and development tools. In labs, students program a set of basic task by using the robot simulator and real hardware to get pra		
technologies.	·	
BI-ZNF PHP Framework Nette - basics	KZ	3
Students will gain the basics of PHP framework Nette. They will learn how to practically work with MVP architecture and various libraries of this Czech popu knowledge should serve for the efficient creation of a web backend in PHP language.	lar framework. The	resulting
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 process and process of the used paterings of the used paterings of IAMI. PORMI. PORMI. The force in this subject lies in training of process of the used paterings of process.	_	-
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 busine CASE tools. The role of process engineering for information systems development is discussed as well as its importance in the overall context of informati	-	
an enterprise.		
BI-ZRS.21 Basics of System Control The course gives an introduction to the field of automatic control. Students will gain knowledge in this rapidly evolving field of great future. We will focus o	Z,ZK	5 darly on
control of engineering and physical systems. We will provide basic information from the feedback control of linear dynamical SISO systems, description in	·	-
basic linear dynamic systems analysis and design verification, simple PID feedback, PSD, and fuzzy controllers. Students will learn the methods of creating	•	
model, the basic linear dynamic systems analysis and design verification and simple PID feedback, PSD, and fuzzy controllers. Attention is also given to control loops, issues of stability in control systems, single and continuous adjustment of the controller parameters, and certain aspects of the industrial im		
and digital controllers and PLC control.	·	
BI-ZS10 Bachelor internship abroad for 10 credits	Z	10
Each student can once within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scientific and/or rese internship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of the professional		
internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Every 10 credits correspond	spond to 4 weeks of	f full-time
employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can be divided into t exceeds the academic year's dead-line.	wo subjects if the in	nternship
BI-ZS20 Bachelor internship abroad for 20 credits	Z	20
Each student can once within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scientific and/or rese		
internship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of the professional internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Every 10 credits corres		
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 into t	-	
exceeds the academic year's dead-line.		
BI-ZS30 Bachelor internship abroad for 30 credits Each student can once within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scientific and/or rese	Z arch institution. Befo	30 fore the
internship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of the professional		
internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Every 10 credits corres	-	
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 into t exceeds the academic year's dead-line.	wo subjects if the in	iterrisriip
BI-ZSB.21 Basics of System Security	Z,ZK	5
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 and practical knowledge in the area of modern of the course student will get both theoretical and practical knowledge in the area of modern of the course student will get both theoretical and practical knowledge in the area of modern of the course student will get both theoretical and practical knowledge in the area of modern of the course student will get both theoretical and practical knowledge in the area of modern of the course student will get both theoretical and practical knowledge in the area of modern of the course student will get both theoretical and practical knowledge in the area of modern of the course student will get both theoretical and practical knowledge in the area of modern of the course student will get both theoretical and practical knowledge in the area of modern of the course student will get both the course student will get be course student will get both the course student will get be the course student will get both the course student will get be the course student will get both the course student will get be the course s		
such as malware analysis or incident response. After finishing the course student will get both theoretical and practical knowledge in the area of modern of as well as skills needed for independent work in the area of operating system security incident analysis.	perating systems s	occurry,
BI-ZUM.21 Artificial Intelligence Fundamentals	Z,ZK	5
Basic course on introduction to artificial intelligence with emphasis on symbolic techniques. The design of an intelligent agent and the techniques needed to		
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 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 can be represented for example by a physical robot, but also by		ιν. suc⊓ l
as a virtual assistant of a character in a computer game: we will not only introduce the basics, but also show the current state-of-the-art during		,,
as a virtual assistant of a character in a computer game, we will not only introduce the basics, but also show the current state-of-the-art during		

BI-ZWU	Introduction to Web and User Interfaces	Z,ZK	4
5:5 66:	This course is presented in Czech.	_	
BIE-CSI	Introduction to Computer Science	Z	2
	ory class on Elementary Computer Science for broad audiences: bachelor students in computer science, students majoring in other five of students, anybody with a background in basic math and the desire to understand the absolute basics of computer science. The gr		
, 0	inciples of computer science for students to understand, early on, what computer science is, why things such as high-level programs		
· · · · · · · · · · · · · · · · · · ·	are, and even how, on a basic yet representative and practically relevant level. After taking the class, students are able to answer no		
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 interes	sted in computer se	cience more
	than expected, or even less than before.		
BIE-DIF	Differential equations	Z,ZK	5
-	s a foundational overview of differential equations, starting with basic motivation and examples of ODEs and progressing to essential so		
•	neorems on existence and uniqueness establish when solutions can be guaranteed. Linear and system-based ODEs are covered wi		
	sis, followed by examples of non-linear models such as predator-prey and epidemiological models to showcase real-world application	=	
partial dillerential	equations (PDEs) extends these concepts to multi-variable contexts. The course will also cover numerical methods for solving ODEs and explicit Euler methods, Runge-Kutta methods, and finite element methods for both ODEs and PDEs.	and PDES, includ	ing implicit
BIE-EEC	English language external certificate	Z	4
	e 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.	•	
BIE-IMA2	Introduction to Mathematics 2	Z	2
Students refresh ar	d extend knowledge of elementary functions and their properties. Students understand basic mathematical principles and they are a	ble to apply them	in particular
	examples.		
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		
	essor and memory virtualization. Seeing and actually understanding virtualization is the overarching theme of the class. After taking		
understand the d	lifference between processes and threads as well as emulation and virtualization, what virtual memory is and how it works, what con parallelism, and how processes and threads synchronize efficiently to overcome concurrency for communication.	ncurrency is, as op	posed to
BIE-ZUM	Artificial Intelligence Fundamentals	Z,ZK	4
	artificial intelligence in the fundamental problems in the Artificial Intelligence, and the basic methods for their solving. It focuses mainly on the classic	,	
	agent systems, game theory, planning, and machine learning. Modern soft-computing methods, including the evolutionary algorithm		
,	be presented as well.		
FI-TOP	Academic writing	Z	2
Publishing is an imp	ortant and required part of research activity. It is not only about obtaining research results but also about applying them in the form	of publication. Writ	ng scientific
-	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		
	cle, what parts such an article should have, and how the peer review process works. Students will also try their hand at presenting an	article and reviewi	ng someone
else's article. The o	course will be taught in blocks, with one lecture at the beginning of the semester and one practicum in the middle of the semester. Do	ates will be determ	ined based
	on the availability of enrolled students.		
FIT-ITI	on the availability of enrolled students. Modern IT infrastructure	Z,ZK	5
FIT-ITI FIT-SEP	on the availability of enrolled students. Modern IT infrastructure World Economy and Business	Z,ZK Z,ZK	5 4
FIT-ITI FIT-SEP This course is pres	on the availability of enrolled students. Modern IT infrastructure World Economy and Business sented in Czech. The course introduces students of technical university to the international business. It does that predominantly by c	Z,ZK Z,ZK omparing individua	5 4 al countries
FIT-ITI FIT-SEP This course is pres	on the availability of enrolled students. Modern IT infrastructure World Economy and Business	Z,ZK Z,ZK omparing individual indexes of econor	5 4 al countries nic freedom,
FIT-ITI FIT-SEP This course is pres	on the availability of enrolled students. Modern IT infrastructure World Economy and Business sented in Czech. The course introduces students of technical university to the international business. It does that predominantly by coord economy. Students get to know about different religions and cultures, necessary for doing business in diverse societies as well as	Z,ZK Z,ZK omparing individual indexes of econor	5 4 al countries nic freedom,
FIT-ITI FIT-SEP This course is pres	on the availability of enrolled students. Modern IT infrastructure World Economy and Business sented in Czech. The course introduces students of technical university to the international business. It does that predominantly by covorld 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 diversity to the international business.	Z,ZK Z,ZK omparing individual indexes of econor	5 4 al countries nic freedom,
FIT-ITI FIT-SEP This course is present and key regions of vocorruption and economic FITE-EHD The course introduced.	on the availability of enrolled students. Modern IT infrastructure World Economy and Business sented in Czech. The course introduces students of technical university to the international business. It does that predominantly by coord 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 direadings. It is advised to take bachelor level of this course BIE-SEP as a prerequisite. Introduction to European Economic History ces a selection of themes from the European economic history. It gives the student basic knowledge about forming of the global economic history.	Z,ZK Z,ZK comparing individual indexes of econor scussions based of the comparing through the comparing throug	5 4 al countries nic freedom, on individual 3 description
FIT-ITI FIT-SEP This course is pret and key regions of v corruption and ecor FITE-EHD The course introdu of the key periods	on the availability of enrolled students. Modern IT infrastructure World Economy and Business sented in Czech. The course introduces students of technical university to the international business. It does that predominantly by coord 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 direadings. It is advised to take bachelor level of this course BIE-SEP as a prerequisite. Introduction to European Economic History ces a selection of themes from the European economic history. It gives the student basic knowledge about forming of the global economic history. As European countries have been dominant actors in this process it focuses predominantly on their roles in the economic	Z,ZK Z,ZK comparing individual indexes of econor scussions based of the comparing through the history. From large	5 4 al countries nic freedom, on individual 3 description e economic
FIT-ITI FIT-SEP This course is pres and key regions of v corruption and ecor FITE-EHD The course introdu of the key periods area of Roman Em	on the availability of enrolled students. Modern IT infrastructure World Economy and Business sented in Czech. The course introduces students of technical university to the international business. It does that predominantly by coord 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 direadings. It is advised to take bachelor level of this course BIE-SEP as a prerequisite. Introduction to European Economic History ces a selection of themes from the European economic history. It gives the student basic knowledge about forming of the global economic history. As European countries have been dominant actors in this process it focuses predominantly on their roles in the economic for the global experience to fragmentation of the Middle Ages, from destruction of WWII to the current affairs, the development of modern financial institutions.	Z,ZK Z,ZK comparing individual indexes of econor scussions based of the comparing through the history. From large ons is deciphered	5 4 al countries nic freedom, on individual 3 description e economic The course
FIT-ITI FIT-SEP This course is pres and key regions of v corruption and ecor FITE-EHD The course introdu of the key periods area of Roman Em	on the availability of enrolled students. Modern IT infrastructure World Economy and Business sented in Czech. The course introduces students of technical university to the international business. It does that predominantly by coord 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 diversed readings. It is advised to take bachelor level of this course BIE-SEP as a prerequisite. Introduction to European Economic History ces a selection of themes from the European economic history. It gives the student basic knowledge about forming of the global economic history. As European countries have been dominant actors in this process it focuses predominantly on their roles in the economic for tragmentation of the Middle Ages, from destruction of WWII to the current affairs, the development of modern financial institutialled economic history of particular European countries but rather the impact of trade and role of particular events, institutions and contributed the conomic history of particular European countries but rather the impact of trade and role of particular events, institutions and contributed the conomic history of particular events, institutions and contributed the conomic history of particular events, institutions and contributed the conomic history of particular events, institutions and contributed the conomic history of particular events, institutions and contributed the conomic history of particular events, institutions and contributed the conomic history of particular events, institutions and contributed the conomic history of particular events, institutions and contributed the conomic history.	Z,ZK Z,ZK comparing individual indexes of econor scussions based of the comparing through the history. From large ons is deciphered	5 4 al countries nic freedom, on individual 3 description e economic The course
FIT-ITI FIT-SEP This course is pres and key regions of v corruption and ecor FITE-EHD The course introdu of the key periods area of Roman Em does not cover de	on the availability of enrolled students. Modern IT infrastructure World Economy and Business sented in Czech. The course introduces students of technical university to the international business. It does that predominantly by covered 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 diversed readings. It is advised to take bachelor level of this course BIE-SEP as a prerequisite. Introduction to European Economic History ces a selection of themes from the European economic history. It gives the student basic knowledge about forming of the global economic history. As European countries have been dominant actors in this process it focuses predominantly on their roles in the economic for to fragmentation of the Middle Ages, from destruction of WWII to the current affairs, the development of modern financial institutivaled economic history of particular European countries but rather the impact of trade and role of particular events, institutions and of meetings will consist of a mixture of lecture and discussion.	Z,ZK Z,ZK comparing individual indexes of econor escussions based of the comparing individual indexes of econor escussions based of the comparing through the history. From large ons is deciphered organizations in his	5 4 al countries nic freedom, on individual 3 description e economic The course story. Class
FIT-ITI FIT-SEP This course is pres and key regions of v corruption and ecor FITE-EHD The course introdu of the key periods area of Roman Em does not cover de	on the availability of enrolled students. Modern IT infrastructure World Economy and Business sented in Czech. The course introduces students of technical university to the international business. It does that predominantly by coord 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 diversed readings. It is advised to take bachelor level of this course BIE-SEP as a prerequisite. Introduction to European Economic History ces a selection of themes from the European economic history. It gives the student basic knowledge about forming of the global economic history. As European countries have been dominant actors in this process it focuses predominantly on their roles in the economic for tragmentation of the Middle Ages, from destruction of WWII to the current affairs, the development of modern financial institutialled economic history of particular European countries but rather the impact of trade and role of particular events, institutions and contributed the conomic history of particular European countries but rather the impact of trade and role of particular events, institutions and contributed the conomic history of particular events, institutions and contributed the conomic history of particular events, institutions and contributed the conomic history of particular events, institutions and contributed the conomic history of particular events, institutions and contributed the conomic history of particular events, institutions and contributed the conomic history of particular events, institutions and contributed the conomic history of particular events, institutions and contributed the conomic history.	Z,ZK Z,ZK comparing individual indexes of econor iscussions based of the conordividual indexes of econordividual indexes of econordividual indexes of econordividual indexes of the conordividual indexes of econordividual indexes of econordi	5 4 al countries nic freedom, on individual 3 description e economic The course story. Class
FIT-ITI FIT-SEP This course is pres and key regions of v corruption and ecor FITE-EHD The course introdu of the key periods area of Roman Em does not cover de NI-AFP This course is pres	on the availability of enrolled students. Modern IT infrastructure World Economy and Business sented in Czech. The course introduces students of technical university to the international business. It does that predominantly by covered 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 diversed readings. It is advised to take bachelor level of this course BIE-SEP as a prerequisite. Introduction to European Economic History ces a selection of themes from the European economic history. It gives the student basic knowledge about forming of the global economic history. As European countries have been dominant actors in this process it focuses predominantly on their roles in the economic bire to fragmentation of the Middle Ages, from destruction of WWII to the current affairs, the development of modern financial institutivaled economic history of particular European countries but rather the impact of trade and role of particular events, institutions and of meetings will consist of a mixture of lecture and discussion. Applied Functional Programming	Z,ZK Z,ZK comparing individual indexes of econor iscussions based of Z,ZK comparing through the history. From large ions is deciphered organizations in his KZ cogramming langur	5 4 al countries nic freedom, on individual 3 description e economic The course story. Class 5 ages are on
FIT-ITI FIT-SEP This course is pres and key regions of v corruption and ecor FITE-EHD The course introdu of the key periods area of Roman Em does not cover de NI-AFP This course is pres	on the availability of enrolled students. Modern IT infrastructure World Economy and Business sented in Czech. The course introduces students of technical university to the international business. It does that predominantly by covered 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 diversed readings. It is advised to take bachelor level of this course BIE-SEP as a prerequisite. Introduction to European Economic History ces a selection of themes from the European economic history. It gives the student basic knowledge about forming of the global economic history. As European countries have been dominant actors in this process it focuses predominantly on their roles in the economic bire to fragmentation of the Middle Ages, from destruction of WWII to the current affairs, the development of modern financial institutional economic history of particular European countries but rather the impact of trade and role of particular events, institutions and the meetings will consist of a mixture of lecture and discussion. Applied Functional Programming ented in Czech. Functional programming represents one of the traditional programming paradigms. Traditional and novel functional programming paradigms.	Z,ZK Z,ZK comparing individual indexes of econor iscussions based of Z,ZK comparing through the history. From large ions is deciphered organizations in his KZ cogramming langur	5 4 al countries nic freedom, on individual 3 description e economic The course story. Class 5 ages are on
FIT-ITI FIT-SEP This course is pres and key regions of v corruption and ecor FITE-EHD The course introdu of the key periods area of Roman Em does not cover de NI-AFP This course is pres	on the availability of enrolled students. Modern IT infrastructure World Economy and Business sented in Czech. The course introduces students of technical university to the international business. It does that predominantly by covered 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 diversed readings. It is advised to take bachelor level of this course BIE-SEP as a prerequisite. Introduction to European Economic History ces a selection of themes from the European economic history. It gives the student basic knowledge about forming of the global economic history. As European countries have been dominant actors in this process it focuses predominantly on their roles in the economic bire to fragmentation of the Middle Ages, from destruction of WWII to the current affairs, the development of modern financial institutional economic history of particular European countries but rather the impact of trade and role of particular events, institutions and of meetings will consist of a mixture of lecture and discussion. Applied Functional Programming ented in Czech. Functional programming represents one of the traditional programming paradigms. Traditional and novel functional paradigm becomes an important construct of traditionally imperative languages (C++, C#, Java). As such, master	Z,ZK Z,ZK comparing individual indexes of econor iscussions based of Z,ZK comparing through the history. From large ions is deciphered organizations in his KZ cogramming langur	5 4 al countries nic freedom, on individual 3 description e economic The course story. Class 5 ages are on
FIT-ITI FIT-SEP This course is present and key regions of v corruption and economic filter. FITE-EHD The course introduct of the key periods area of Roman Emploses not cover de NI-AFP This course is present rise nowadays NI-DDM Course focuses on	on the availability of enrolled students. Modern IT infrastructure World Economy and Business sented in Czech. The course introduces students of technical university to the international business. It does that predominantly by coord 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 diversed readings. It is advised to take bachelor level of this course BIE-SEP as a prerequisite. Introduction to European Economic History ces a selection of themes from the European economic history. It gives the student basic knowledge about forming of the global economic history. As European countries have been dominant actors in this process it focuses predominantly on their roles in the economic for fragmentation of the Middle Ages, from destruction of WWII to the current affairs, the development of modern financial institutivation and control in the forminant in the economic history of particular European countries but rather the impact of trade and role of particular events, institutions and control in the economic history of particular European countries but rather the impact of trade and role of particular events, institutions and control in the economic history of particular events, institutions and control in the economic history of particular events, institutions and control in the economic history of particular events, institutions and control in the economic history of particular events, institutions and control in the economic history of particular events, institutions and control in the economic history of particular events, institutions and control in the economic history of particular events, institutions and control in the economic history of particular events, institutions and control in the economic history. Applied Functional Programming paradigms. Traditional and novel functional paradigm becomes an	Z,ZK Z,ZK comparing individual indexes of econor iscussions based of Z,ZK nomy through the history. From large ons is deciphered organizations in his KZ rogramming languing this paradigm KZ on experience with	5 4 al countries nic freedom, on individual 3 description e economic The course story. Class 5 ages are on becomes a 4 large scale
FIT-ITI FIT-SEP This course is present and key regions of v corruption and economic filter. FITE-EHD The course introduct of the key periods area of Roman Emploses not cover de NI-AFP This course is present rise nowadays NI-DDM Course focuses on	on the availability of enrolled students. Modern IT infrastructure World Economy and Business sented in Czech. The course introduces students of technical university to the international business. It does that predominantly by coord 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 direadings. It is advised to take bachelor level of this course BIE-SEP as a prerequisite. Introduction to European Economic History ces a selection of themes from the European economic history. It gives the student basic knowledge about forming of the global econin history. As European countries have been dominant actors in this process it focuses predominantly on their roles in the economic bire to fragmentation of the Middle Ages, from destruction of WWII to the current affairs, the development of modern financial institutialed economic history of particular European countries but rather the impact of trade and role of particular events, institutions and of meetings will consist of a mixture of lecture and discussion. Applied Functional Programming ented in Czech. Functional programming represents one of the traditional programming paradigms. Traditional and novel functional pand the functional paradigm becomes an important construct of traditionally imperative languages (C++, C#, Java). As such, master necessary competence of a software engineer: the theory and especially the practice. Distributed Data Mining state-of-the-art approaches for distributed data mining and parallelization of machine learning algorithms. Students will gain hands of mework Apache Spark and with existing distributed DM / ML algorithms. They will learn principles of their parallel implementations and mework Apache Spark and with existing distributed DM / ML algorithms. They will learn principles of their parallel implementations.	Z,ZK Z,ZK comparing individual indexes of econor iscussions based of Z,ZK nomy through the history. From large ons is deciphered organizations in his KZ rogramming languing this paradigm KZ on experience with	5 4 al countries nic freedom, on individual 3 description e economic The course story. Class 5 ages are on becomes a 4 large scale
FIT-ITI FIT-SEP This course is present and key regions of vacorruption and economic section of the key periods area of Roman Employers of the section of the key periods area of Roman Employers of Roman Employers is present to the rise nowadays NI-DDM Course focuses on data processing fractions.	Modern IT infrastructure World Economy and Business sented in Czech. The course introduces students of technical university to the international business. It does that predominantly by coord 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 direadings. It is advised to take bachelor level of this course BIE-SEP as a prerequisite. Introduction to European Economic History ces a selection of themes from the European economic history. It gives the student basic knowledge about forming of the global economic history. As European countries have been dominant actors in this process it focuses predominantly on their roles in the economic bire to fragmentation of the Middle Ages, from destruction of WWII to the current affairs, the development of modern financial institutional economic history of particular European countries but rather the impact of trade and role of particular events, institutions and cometings will consist of a mixture of lecture and discussion. Applied Functional Programming ented in Czech. Functional programming represents one of the traditional programming paradigms. Traditional and novel functional paradigm becomes an important construct of traditionally imperative languages (C++, C#, Java). As such, master necessary competence of a software engineer: the theory and especially the practice. Distributed Data Mining state-of-the-art approaches for distributed data mining and parallelization of machine learning algorithms. Students will gain hands of mework 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.	Z,ZK Z,ZK comparing individual indexes of econor iscussions based of Z,ZK comparing through the history. From large ons is deciphered organizations in his KZ cogramming languing this paradigm KZ con experience with and will be capable	5 4 al countries nic freedom, on individual 3 description e economic The course story. Class 5 ages are on becomes a 4 large scale to propose
FIT-ITI FIT-SEP This course is present and key regions of vacorruption and economic section of the key periods area of Roman Employers and cover de NI-AFP This course is present rise nowadays NI-DDM Course focuses on	on the availability of enrolled students. Modern IT infrastructure World Economy and Business sented in Czech. The course introduces students of technical university to the international business. It does that predominantly by coord 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 direadings. It is advised to take bachelor level of this course BIE-SEP as a prerequisite. Introduction to European Economic History ces a selection of themes from the European economic history. It gives the student basic knowledge about forming of the global economic history. As European countries have been dominant actors in this process it focuses predominantly on their roles in the economic bire to fragmentation of the Middle Ages, from destruction of WWII to the current affairs, the development of modern financial institutialled economic history of particular European countries but rather the impact of trade and role of particular events, institutions and of meetings will consist of a mixture of lecture and discussion. Applied Functional Programming ented in Czech. Functional programming represents one of the traditional programming paradigms. Traditional and novel functional pand the functional paradigm becomes an important construct of traditionally imperative languages (C++, C#, Java). As such, master necessary competence of a software engineer: the theory and especially the practice. Distributed Data Mining state-of-the-art approaches for distributed data mining and parallelization of machine learning algorithms. Students will gain hands of mework Apache Spark and with existing distributed DM / ML algorithms. They will learn principles of their parallel implementations approaches to parallelize other algorithms. The course is prezented in czech language.	Z,ZK Z,ZK comparing individual indexes of econor iscussions based of Z,ZK nomy through the history. From large ons is deciphered organizations in his KZ rogramming languing this paradigm KZ on experience with	5 4 al countries nic freedom, on individual 3 description e economic The course story. Class 5 ages are on becomes a 4 large scale
FIT-ITI FIT-SEP This course is present and key regions of vocorruption and economic section of the key periods area of Roman Employers are section of the key periods area of Roman Employers for the	on the availability of enrolled students. Modern IT infrastructure World Economy and Business sented in Czech. The course introduces students of technical university to the international business. It does that predominantly by coord 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 direadings. It is advised to take bachelor level of this course BIE-SEP as a prerequisite. Introduction to European Economic History ces a selection of themes from the European economic history. It gives the student basic knowledge about forming of the global economic history. As European countries have been dominant actors in this process it focuses predominantly on their roles in the economic bire to fragmentation of the Middle Ages, from destruction of WWII to the current affairs, the development of modern financial institutional economic history of particular European countries but rather the impact of trade and role of particular events, institutions and of meetings will consist of a mixture of lecture and discussion. Applied Functional Programming ented in Czech. Functional programming represents one of the traditional programming paradigms. Traditional and novel functional pand the functional paradigm becomes an important construct of traditionally imperative languages (C++, C#, Java). As such, master necessary competence of a software engineer: the theory and especially the practice. Distributed Data Mining state-of-the-art approaches for distributed data mining and parallelization of machine learning algorithms. Students will gain hands of mework Apache Spark and with existing distributed DM / ML algorithms. They will learn principles of their parallel implementations approaches to parallelize other algorithms. The course is prezented in czech language. Database Systems in Practes This course is presented in Czech	Z,ZK Z,ZK mparing individual indexes of econor scussions based of z,ZK momy through the history. From large ons is deciphered organizations in his KZ rogramming languing this paradigm KZ no experience with and will be capable	5 4 al countries nic freedom, on individual 3 description e economic . The course story. Class 5 ages are on becomes a 4 large scale to propose
FIT-ITI FIT-SEP This course is present and key regions of vocorruption and economic filter. FITE-EHD The course introduct of the key periods area of Roman Employers for the rise nowadays. NI-AFP This course is present in the rise nowadays. NI-DDM Course focuses on data processing fram NI-DSP NI-DSP	on the availability of enrolled students. Modern IT infrastructure World Economy and Business sented in Czech. The course introduces students of technical university to the international business. It does that predominantly by coord 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 diversed readings. It is advised to take bachelor level of this course BIE-SEP as a prerequisite. Introduction to European Economic History ces a selection of themes from the European economic history. It gives the student basic knowledge about forming of the global econin history. As European countries have been dominant actors in this process it focuses predominantly on their roles in the economic pire to fragmentation of the Middle Ages, from destruction of WWII to the current affairs, the development of modern financial institutional economic history of particular European countries but rather the impact of trade and role of particular events, institutions and connecting will consist of a mixture of lecture and discussion. Applied Functional Programming ented in Czech. Functional programming represents one of the traditional programming paradigms. Traditional and novel functional pand the functional paradigm becomes an important construct of traditionally imperative languages (C++, C#, Java). As such, master necessary competence of a software engineer: the theory and especially the practice. Distributed Data Mining state-of-the-art approaches for distributed data mining and parallelization of machine learning algorithms. Students will gain hands of mework Apache Spark and with existing distributed DM / ML algorithms. They will learn principles of their parallel implementations approaches to parallelize other algorithms. The course is prezented in czech language. Database Systems in Practes This course is presented in C	Z,ZK Z,ZK comparing individual indexes of econor scussions based of the conor scussions based of the conor scussions based of the conor is deciphered organizations in his the conor is deciphered organization.	5 4 al countries nic freedom, on individual 3 description e economic The course story. Class 5 ages are on becomes a 4 large scale to propose
FIT-ITI FIT-SEP This course is present and key regions of vocorruption and economic filter. FITE-EHD The course introduct of the key periods area of Roman Employers for the rise nowadays NI-AFP This course is present the rise nowadays NI-DDM Course focuses on data processing fram NI-DSP NI-DSP NI-DZO This course prese	on the availability of enrolled students. Modern IT infrastructure World Economy and Business sented in Czech. The course introduces students of technical university to the international business. It does that predominantly by coorded 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 direadings. It is advised to take bachelor level of this course BIE-SEP as a prerequisite. Introduction to European Economic History ces a selection of themes from the European economic history. It gives the student basic knowledge about forming of the global economic in history. As European countries have been dominant actors in this process it focuses predominantly on their roles in the economic price to fragmentation of the Middle Ages, from destruction of WWII to the current affairs, the development of modern financial institutial addedeconomic history of particular European countries but rather the impact of trade and role of particular events, institutions and of meetings will consist of a mixture of lecture and discussion. Applied Functional Programming ented in Czech. Functional programming paradigm becomes an important construct of traditional programming paradigms. Traditional and novel functional pand the functional paradigm becomes an important construct of traditionally imperative languages (C++, C#, Java). As such, master necessary competence of a software engineer: the theory and especially the practice. Distributed Data Mining state-of-the-art approaches for distributed data mining and parallelization of machine learning algorithms. Students will gain hands of mework Apache Spark and with existing distributed DM / ML algorithms. They will learn principles of their parallel implementations approaches to parallelize other algorithms. They will learn principles of their parallel implementations approaches to	Z,ZK Z,ZK mparing individual indexes of econor scussions based of econor scussions based of econor scussions based of economic transfer of econor is deciphered organizations in his economic transfer of economic transf	5 4 al countries nic freedom, on individual 3 description e economic The course story. Class 5 ages are on becomes a 4 large scale to propose 4 4 4 oth easy to
FIT-ITI FIT-SEP This course is present and key regions of vocorruption and economic filter. FITE-EHD The course introduct of the key periods area of Roman Emploses not cover detailed. NI-AFP This course is present the rise nowadays NI-DDM Course focuses on data processing fram the course focuses on data processing fram the course focuses on data processing fram the course present plement and have implement and have in the course focuse present plement and have in the course focuse implement and have implement and have in the course focus of the course focus	on the availability of enrolled students. Modern IT infrastructure World Economy and Business sented in Czech. The course introduces students of technical university to the international business. It does that predominantly by coord 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 diversed readings. It is advised to take bachelor level of this course BIE-SEP as a prerequisite. Introduction to European Economic History ces a selection of themes from the European economic history. It gives the student basic knowledge about forming of the global econin history. As European countries have been dominant actors in this process it focuses predominantly on their roles in the economic pire to fragmentation of the Middle Ages, from destruction of WWII to the current affairs, the development of modern financial institutional economic history of particular European countries but rather the impact of trade and role of particular events, institutions and connecting will consist of a mixture of lecture and discussion. Applied Functional Programming ented in Czech. Functional programming represents one of the traditional programming paradigms. Traditional and novel functional pand the functional paradigm becomes an important construct of traditionally imperative languages (C++, C#, Java). As such, master necessary competence of a software engineer: the theory and especially the practice. Distributed Data Mining state-of-the-art approaches for distributed data mining and parallelization of machine learning algorithms. Students will gain hands of mework Apache Spark and with existing distributed DM / ML algorithms. They will learn principles of their parallel implementations approaches to parallelize other algorithms. The course is prezented in czech language. Database Systems in Practes This course is presented in C	Z,ZK Z,ZK mparing individual indexes of econor scussions based of econor scussions based of econor scussions based of econor scussions based of economic scussions in the history. From large ons is deciphered organizations in his economic scussions in	5 4 al countries nic freedom, on individual 3 description e economic. The course story. Class 5 ages are on becomes a 4 large scale to propose 4 4 4 oth easy to e the domain
FIT-ITI FIT-SEP This course is present and key regions of vocorruption and economic filter. FITE-EHD The course introduct of the key periods area of Roman Emploses not cover detailed. NI-AFP This course is present the rise nowadays NI-DDM Course focuses on data processing fram the course focuses on data processing fram the course focuses on data processing fram the course present focus of digital image processing framplement and have of digital image processing frampleme	on the availability of enrolled students. Modern IT infrastructure World Economy and Business sented in Czech. The course introduces students of technical university to the international business. It does that predominantly by coordid economy. Students get to know about different religions and cultures, necessary for doing business in diverse societies as well as a formic development, which are needed for the right investment decision. Seminars help to improve on the knowledge in the form of direadings. It is advised to take bachelor level of this course BIE-SEP as a prerequisite. Introduction to European Economic History ces a selection of themes from the European economic history. It gives the student basic knowledge about forming of the global economic history. As European countries have been dominant actors in this process it focuses predominantly on their roles in the economic bire to fragmentation of the Middle Ages, from destruction of WWII to the current affairs, the development of modern financial institutialled economic history of particular European countries but rather the impact of trade and role of particular events, institutions and one meetings will consist of a mixture of lecture and discussion. Applied Functional Programming ented in Czech. Functional programming represents one of the traditional programming paradigms. Traditional and novel functional pand the functional pragramming represents one of the traditional programming paradigms. Traditional and novel functional pand the functional paradigm becomes an important construct of traditionally imperative languages (C++, C#, Java). As such, master necessary competence of a software engineer: the theory and especially the practice. Distributed Data Mining state-of-the-art approaches for distributed data mining and parallelization of machine learning algorithms. Students will gain hands of mework Apache Spark and with existing distributed DM / ML algorithms. They will learn principles of their parallel implementations a approaches to para	Z,ZK Z,ZK mparing individual indexes of econor scussions based of econor scussions based of econor scussions based of econor scussions based of econor in the history. From large ons is deciphered organizations in his econor experience with and will be capable econor experience with end will be capable econor experience with econor experience with end will be capable econor experience with econor econ	5 4 al countries nic freedom, on individual 3 description e economic. The course story. Class 5 ages are on becomes a 4 large scale to propose 4 4 oth easy to e the domain olurring in
FIT-ITI FIT-SEP This course is present and key regions of vocorruption and economic filter. FITE-EHD The course introduct of the key periods area of Roman Employers of the filter. NI-AFP This course is present the rise nowadays NI-DDM Course focuses on data processing fram the filter. NI-DSP NI-DZO This course present implement and have of digital image prequency domain,	on the availability of enrolled students. Modern IT infrastructure World Economy and Business sented in Czech. The course introduces students of technical university to the international business. It does that predominantly by or ordid economy. Students get to know about different religions and cultures, necessary for doing business in diverse societies as well as somic development, which are needed for the right investment decision. Seminars help to improve on the knowledge in the form of direadings. It is advised to take bachelor level of this course BIE-SEP as a prerequisite. Introduction to European Economic History ces a selection of themes from the European economic history. It gives the student basic knowledge about forming of the global economic history. As European countries have been dominant actors in this process it focuses predominantly on their roles in the economic price to fragmentation of the Middle Ages, from destruction of WWII to the current affairs, the development of modern financial institution alled economic history of particular European countries but rather the impact of trade and role of particular events, institutions and of meetings will consist of a mixture of lecture and discussion. Applied Functional Programming and the functional programming represents one of the traditional programming paradigms. Traditional and novel functional pand the functional paradigm becomes an important construct of traditionally imperative languages (C++, C#, Java). As such, master necessary competence of a software engineer: the theory and especially the practice. Distributed Data Mining state-of-the-art approaches for distributed data mining and parallelization of machine learning algorithms. Students will gain hands of mework Apache Spark and with existing distributed DM / ML algorithms. They will learn principles of their parallel implementations a approaches to parallelize other algorithms. They will learn principles of their parallel implementations approaches to parallelize other algorithms	Z,ZK Z,ZK comparing individual indexes of econor scussions based of econor scussions based of econor scussions based of econor scussions based of econor is deciphered organizations in his econor experience with and will be capable econor experience with econor experience with econor experience with econor eco	5 4 al countries nic freedom, on individual 3 description e economic. The course story. Class 5 ages are on becomes a 4 large scale to propose 4 4 oth easy to e the domain olurring in hancement,
FIT-ITI FIT-SEP This course is present and key regions of vocorruption and economic filter. FITE-EHD The course introduct of the key periods area of Roman Employers of the rise nowadays NI-AFP This course is present the rise nowadays NI-DDM Course focuses on data processing fram NI-DSP NI-DSP NI-DSP NI-DZO This course present implement and have of digital image prequency domain, interactive as-rig	on the availability of enrolled students. Modern IT infrastructure World Economy and Business sented in Czech. The course introduces students of technical university to the international business. It does that predominantly by coord deconomy. 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 done readings. It is advised to take bachelor level of this course BIE-SEP as a prerequisite. Introduction to European Economic History ces a selection of themes from the European economic history. It gives the student basic knowledge about forming of the global economic history. As European countries have been dominant actors in this process it focuses predominantly on their roles in the economic bire to fragmentation of the Middle Ages, from destruction of WWII to the current affairs, the development of modern financial institution all deconomic history of particular European countries but rather the impact of trade and role of particular events, institutions and one meetings will consist of a mixture of lecture and discussion. Applied Functional Programming enablement of the traditional programming paradigms. Traditional and novel functional parand the functional paragigm becomes an important construct of traditionally imperative languages (C++, C#, Java). As such, master necessary competence of a software engineer: the theory and especially the practice. Distributed Data Mining state-of-the-art approaches for distributed data mining and parallelization of machine learning algorithms. Students will gain hands of mework Apache Spark and with existing distributed DM / ML algorithms. They will learn principles of their parallel implementations a approaches to parallelize other algorithms. They will learn principles of their parallel implementations a paraginary to the algorithms. They will learn principles of their paral	Z,ZK Z,ZK comparing individual indexes of econor scussions based of econor scussions based of econor scussions based of econor in the end of econor in the end of econor in the econor	5 4 al countries nic freedom, on individual 3 description e economic The course story. Class 5 ages are on becomes a 4 large scale to propose 4 oth easy to e the domain olurring in hancement, matting. 4
FIT-ITI FIT-SEP This course is present and key regions of vocorruption and economic filter. FITE-EHD The course introduct of the key periods area of Roman Employers of the sey periods area of Roman Employers is present the rise nowadays. NI-DDM Course focuses on data processing fram NI-DSP NI-DSP NI-DSP NI-DZO This course present implement and have of digital image prequency domain, interactive as-rig. NI-IAM The NI-IAM course	on the availability of enrolled students. Modern IT infrastructure World Economy and Business sented in Czech. The course introduces students of technical university to the international business. It does that predominantly by coroll deconomy. Students get to know about different religions and cultures, necessary for doing business in diverse societies as well as somic development, which are needed for the right investment decision. Seminars help to improve on the knowledge in the form of direadings. It is advised to take bachelor level of this course BIE-SEP as a prerequisite. Introduction to European Economic History ces a selection of themes from the European economic history. It gives the student basic knowledge about forming of the global economic history. As European countries have been dominant actors in this process it focuses predominantly on their roles in the economic pire to fragmentation of the Middle Ages, from destruction of WWII to the current affairs, the development of modern financial institution alided economic history of particular European countries but rather the impact of trade and role of particular events, institutions and meetings will consist of a mixture of lecture and discussion. Applied Functional Programming and the functional programming represents one of the traditional programming paradigms. Traditional and novel functional pand the functional paradigm becomes an important construct of traditionally imperative languages (C++, C#, Java). As such, master necessary competence of a software engineer: the theory and especially the practice. Distributed Data Mining state-of-the-art approaches for distributed data mining and parallelization of machine learning algorithms. Students will gain hands of mework Apache Spark and with existing distributed DM / ML algorithms. The course is prezented in czech language. Database Systems in Practes This course is presented in Czech. Digital Image Processing Ints ourse will introduce algorithms solving the following practical applica	Z,ZK Z,ZK mparing individual indexes of econor scussions based of the properties o	5 4 al countries nic freedom, on individual 3 description e economic The course story. Class 5 ages are on becomes a 4 large scale to propose 4 oth easy to e the domain olurring in hancement, matting. 4 als (input),
FIT-ITI FIT-SEP This course is present and key regions of vocorruption and economic filter. FITE-EHD The course introduct of the key periods area of Roman Employers of the filter. NI-AFP This course is present the rise nowadays NI-DDM Course focuses on data processing fram the filter. NI-DSP NI-D	on the availability of enrolled students. Modern IT infrastructure World Economy and Business sented in Czech. The course introduces students of technical university to the international business. It does that predominantly by corld 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 direadings. It is advised to take bachelor level of this course BIE-SEP as prerequisite. Introduction to European Economic History ces a selection of themes from the European economic history. It gives the student basic knowledge about forming of the global econin history. As European countries have been dominant actors in this process it focuses predominantly on their roles in the economic in institution of the Middle Ages, from destruction of WWII to the current affairs, the development of modern financial institutialled economic history of particular European countries but rather the impact of trade and role of particular events, institutions and of meetings will consist of a mixture of lecture and discussion. Applied Functional Programming and the functional programming represents one of the traditionally imperative languages (C++, C#, Java). As such, master necessary competence of a software engineer: the theory and especially the practice. Distributed Data Mining state-of-the-art approaches for distributed data mining and parallelization of machine learning algorithms. Students will gain hands of mework Apache Spark and with existing distributed DM / ML algorithms. They will learn principles of their parallel implementations a approaches to parallelize other algorithms. They will learn principles of their parallel implementations are processing. Distributed Data Mining state-of-the-art approaches for distributed by M / ML algorithms. They will earn principles of their parallel implementations are processing in the c	Z,ZK Z,ZK comparing individual indexes of econor scussions based of econor scussions based of econor scussions based of econor in econor is deciphered organizations in his econor in econor is deciphered organizations in his econor in	5 4 al countries nic freedom, on individual 3 description e economic The course story. Class 5 ages are on becomes a 4 large scale to propose 4 4 oth easy to e the domain olurring in hancement, matting. 4 als (input), of real-time
FIT-ITI FIT-SEP This course is present and key regions of vocorruption and economic filter. FITE-EHD The course introduct of the key periods area of Roman Employers of the filter. NI-AFP This course is present the rise nowadays NI-DDM Course focuses on data processing frame in the filter. NI-DSP	on the availability of enrolled students. Modern IT infrastructure World Economy and Business sented in Czech. The course introduces students of technical university to the international business. It does that predominantly by corld economy. Students get to know about different religions and cultures, necessary for doing business in diverse societies as well as somic development, which are needed for the right investment decision. Seminars help to improve on the knowledge in the form of direadings. It is advised to take bachelor level of this course BIE-SEP as a prerequisite. Introduction to European Economic History ces a selection of themes from the European economic history. It gives the student basic knowledge about forming of the global eccinin history. As European countries have been dominant actors in this process it focuses predominantly on their roles in the economic in history. As European countries have been dominant actors in this process it focuses predominantly on their roles in the economic bire to fragmentation of the Middle Ages, from destruction of WWII to the current affairs, the development of modern financial institutial deconomic history of particular European countries but rather the impact of trade and role of particular events, institutions and or meetings will consist of a mixture of lecture and discussion. Applied Functional Programming ented in Czech. Functional programming represents one of the traditional programming paradigms. Traditional and novel functional pand the functional paradigm becomes an important construct of traditionally imperative languages (C++, C#, Java). As such, master necessary competence of a software engineer: the theory and especially the practice. Distributed Data Mining state-of-the-art approaches for distributed data mining and parallelization of machine learning algorithms. Students will gain hands of mework Apache Spark and with existing distributed DM / ML algorithms. They will learn principles of their parallel implementations a approaches to pa	Z,ZK Z,ZK comparing individual indexes of econor scussions based of econor scussions based of econor scussions based of econor scussions based of econor in econor is deciphered organizations in his econor econor is deciphered organizations in his econor econo	5 4 al countries nic freedom, on individual 3 description e economic The course story. Class 5 ages are on becomes a 4 large scale to propose 4 4 oth easy to e the domain olurring in hancement, matting. 4 als (input), of real-time ponents on
FIT-ITI FIT-SEP This course is presented by regions of vacorruption and economic process. The course introduced by the key periods area of Roman Emplaces of Roman Emplaces on the course is presented by the rise nowadays. NI-DDM Course focuses on data processing fractive aspects of digital image processing fractive aspects of digital image processing fractive aspects of the rise nowadays. NI-DSP Audiovisual transmit and have a figure of the course presented image processing fractive aspects and the course presentation of AV saudiovisual transmit and have a figure of the course presentation of AV saudiovisual transmit and the course presentation of AV saudiovis	Modern IT infrastructure World Economy and Business sented in Czech. The course introduces students of technical university to the international business. It does that predominantly by corld 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 direadings. It is advised to take bachelor level of this course BIE-SEP as a prerequisite. Introduction to European Economic History ces a selection of themes from the European economic history. It gives the student basic knowledge about forming of the global economic history. As European countries have been dominant actors in this process it focuses predominantly on their roles in the economic price to fragmentation of the Middle Ages, from destruction of WINI to the current affairs, the development of modern financial institutial deconomic history of particular European countries but rather the impact of trade and role of particular events, institutions and oneetings will consist of a mixture of lecture and discussion. Applied Functional Programming and the functional paradigm becomes an important construct of traditional programming paradigms. Traditional and novel functional pand the functional paradigm becomes an important construct of traditionally imperative languages (C++, C#, Java). As such, master necessary competence of a software engineer: the theory and especially the practice. Distributed Data Mining state-of-the-art approaches for distributed data mining and parallelization of machine learning algorithms. Students will gain hands of mework Apache Spark and with existing distributed DM / ML algorithms. The 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 are an inter	Z,ZK Z,ZK comparing individual indexes of econor scussions based of econor scussions based of econor scussions based of econor scussions based of econor in econor is deciphered organizations in his econor econor is deciphered organizations in his econor econo	5 4 al countries nic freedom, on individual 3 description e economic The course story. Class 5 ages are on becomes a 4 large scale to propose 4 4 oth easy to e the domain olurring in hancement, matting. 4 als (input), of real-time ponents on
FIT-ITI FIT-SEP This course is present and key regions of vocorruption and economic filter. FITE-EHD The course introduct of the key periods area of Roman Employers of the filter. NI-AFP This course is present the rise nowadays NI-DDM Course focuses on data processing frame in the filter. NI-DSP	on the availability of enrolled students. Modern IT infrastructure World Economy and Business sented in Czech. The course introduces students of technical university to the international business. It does that predominantly by corld economy. Students get to know about different religions and cultures, necessary for doing business in diverse societies as well as somic development, which are needed for the right investment decision. Seminars help to improve on the knowledge in the form of direadings. It is advised to take bachelor level of this course BIE-SEP as a prerequisite. Introduction to European Economic History ces a selection of themes from the European economic history. It gives the student basic knowledge about forming of the global eccinin history. As European countries have been dominant actors in this process it focuses predominantly on their roles in the economic in history. As European countries have been dominant actors in this process it focuses predominantly on their roles in the economic bire to fragmentation of the Middle Ages, from destruction of WWII to the current affairs, the development of modern financial institutial deconomic history of particular European countries but rather the impact of trade and role of particular events, institutions and or meetings will consist of a mixture of lecture and discussion. Applied Functional Programming ented in Czech. Functional programming represents one of the traditional programming paradigms. Traditional and novel functional pand the functional paradigm becomes an important construct of traditionally imperative languages (C++, C#, Java). As such, master necessary competence of a software engineer: the theory and especially the practice. Distributed Data Mining state-of-the-art approaches for distributed data mining and parallelization of machine learning algorithms. Students will gain hands of mework Apache Spark and with existing distributed DM / ML algorithms. They will learn principles of their parallel implementations a approaches to pa	Z,ZK Z,ZK comparing individual indexes of econor scussions based of econor scussions based of econor scussions based of econor scussions based of econor in econor is deciphered organizations in his econor econor is deciphered organizations in his econor econo	5 4 al countries nic freedom, on individual 3 description e economic The course story. Class 5 ages are on becomes a 4 large scale to propose 4 4 oth easy to e the domain olurring in hancement, matting. 4 als (input), of real-time ponents on

NI-LSM	Statistical Modelling Lab	KZ	5
	ented on a single and multi-target tracking. The student both learns the existing methods and tries to implement them. The stress is p		
available information and its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms, and analyses of their properties.			
NI-MOP	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 Modern Object-Oriented Programming in Pharo	KZ	4
	gramming is currently one of the most widespread paradigms of software creation, especially enterprise information systems, where i		1
	plex modern applications. In this course, we build on the knowledge acquired in the course BI-OOP and aim to further deepen the skills	•	
of object systems	in modern pure object system Pharo (https://pharo.org). The course focuses on individual approach to students, their development ne	eds and areas of i	interest. In
-	ing object programming skills, which are generally applicable in other OO languages, students will also gain the opportunity to work of		II.
	ms of semestral work with the possibility of cooperation with practice and related bachelor, diploma, postgraduate our direct involvem		
NI-MPL	Managerial Psychology	ZK Z,ZK	4
NI-MSI Mathematical se	Mathematical Structures in Computer Science mantics of programming languages. Data types as continuous lattices, Scott topology. Procedures as continuous mappings. The Scott		- 1
Wattiernation 30	Introduction to category theory.	model of lambda (Jaioulus.
NI-OLI	Linux Drivers	Z,ZK	4
	g system is an important operating system for personal computer and also for embedded systems. Systems on chip and combining po		and FPGAs
	ability of peripheral subsystems requiring specific software drivers. This course is an advanced course in the Linux driver development		ents. The
	urse provides knowledge of Linux operating system architecture, principles of development of various types drivers, including practical		
NI-PDD	Data Preprocessing	Z,ZK	5
· · · · · · · · · · · · · · · · · · ·	repare raw data for further processing and analysis. They learn what algorithms can be used to extract information from various data s and learn the skills to apply these theoretical concepts to solve specific problems in individual projects - e.g., extraction of characterist		-
ume senes, etc., a	pages.	ics irom images or	IIOIII Web
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 pr	ocess from the pe	rspective of
suppliers (devs a	nd designesr) as well as clients. In small teams students will work on projects from partner organizations and will try out collaboration	with client represe	entatives.
	Course is aimed at students-designers as well as clients.		
NI-PSL	Programming in Scala	Z,ZK	4
	uces the modern programming language Scala which exploits object-functional paradigm. Scala comprises advance language feature brary. Scala enables to use of applications functional patterns e.g. H-List, Monads, etc. Scala is used by many powerful frameworks and		- 1
advance standard ii	Scalaz, etc.	libraries e.g. r lay,	Cassariura,
NI-REV	Reverse Engineering	Z,ZK	5
Students will get ac	equainted with the essentials of reverse engineering of computer software. They will learn how processes start and what happens before	ore and after the m	ain function
	will understand how executable files are organized and how they interact with 3rd party libraries. Another part of the course is dedicated	_	- 1
	ten in C++. Students will also understand principles of disassemblers and obfuscation techniques. A part of the course will also be de		II.
debuggers and de	bugging work and which methods can be used to detect it. One of the lectures will be dedicated to the latest trends on the computer the course is on the seminars, where students will solve practically oriented tasks from the real world.	maiware scene. In	ie focus of
NI-SYP	Parsing and Compilers	Z,ZK	5
_	upon the knowledge of fundamentals of automata theory, formal language and formal translation theories. Students gain knowledge of va		-
	of LR parsing and are introduced to special applications of parsers, such as incremental and parallel parsing.		
NI-TSP	Testing and Reliability	Z,ZK	5
	knowledge about circuit testing and about methods for increasing reliability and security. They will get practical skills to be able to prepare the security of the security o		
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 bui will be able to compute, analyze, and control the reliability and availability of the designed circuits.	It-in-self-test equip	ment. They
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			
performance parameters of modern computer systems. Theoretically and practically, they will get acquainted with containerization as the most effective technology today for the			
management of complex computer systems and with specific technologies of cloud systems. Finally, they will learn the principles and gain practical skills in the use of modern integration			
NILVIVO	and development tools (Continuous integration and development).	7 71/	4
NI-VYC	Computability Classical theory of recursive functions and effective computability.	Z,ZK	4
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
TVKZV	Physical Education Course	Z	0
TVV	Physical education	Z	0
TVV0	Physical education	Z	0

For updated information see http://bilakniha.cvut.cz/en/FF.html Generated: day 2025-07-12, time 06:27.