#### Study plan

#### Name of study plan: Bachelor branch Knowledge Engineering, in Czech, 2018-2020

Faculty/Institute/Others:

Department:

Branch of study guaranteed by the department: Welcome page

Garantor of the study branch:

Program of study: Informatics, valid until 2024

Type of study: Bachelor full-time

Required credits: 157 Elective courses credits: 23 Sum of credits in the plan: 180

Note on the plan: Tato verze studijního plánu je ur ena pro ro ník, který byl p ijat ke studiu v akademickém

roce 2018/2019 do prezen ní formy studia bakalá ského programu.

Name of the block: Compulsory courses in the program

Minimal number of credits of the block: 116

The role of the block: PP

Code of the group: BI-PP.2015

Name of the group: Compulsory Courses of Bachelor Study Program Informatics, Presented in Czech, Version

2015

Requirement credits in the group: In this group you have to gain 116 credits

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

Credits in the group: 116

Povinný předmět BI-SI1 se studentům bez oboru nezapisuje automaticky. Zapíší si jej Note on the group:

	individuálně podle pokynů z katedry Softv	varového inž	enýrství.			
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	Algorithms and Graphs 1 Dušan Knop	Z,ZK	6	2P+2C	Z	PP
BI-AAG	Automata and Grammars  Jan Janoušek	Z,ZK	6	2P+2C	Z	PP
BI-BAP	Bachelor Thesis Zden k Muziká Zden k Muziká (Gar.)	Z	14		L,Z	PP
BI-BPR	Bachelor project  Zden k Muziká Zden k Muziká Zden k Muziká (Gar.)	Z	2		Z,L	PP
BI-BEZ	Security Ji í Dostál	Z,ZK	6	2P+2C	L	PP
BI-CAO	Digital and Analog Circuits  Martin Kohlík	Z,ZK	5	2P+2C	Z	PP
BI-DBS	Database Systems Ji í Hunka	Z,ZK	6	2P+2R+1L	Z,L	PP
BI-DPR	Document., Presentation, Rhetorics Alena Libánská, Ond ej Guth, Petra Pavlí ková, Dana Vynikarová Ond ej Guth Dana Vynikarová (Gar.)	KZ	4	2P+2C	Z,L	PP
BI-LIN	Linear Algebra Daniel Dombek Daniel Dombek Daniel Dombek (Gar.)	Z,ZK	7	4P+2C	L	PP
BI-MLO	Mathematical Logic Kate ina Trlifajová Kate ina Trlifajová (Gar.)	Z,ZK	5	2P+1C	Z	PP
BI-OSY	Operating Systems  Ladislav Vagner	Z,ZK	5	2P+1R+1L	L	PP
BI-PSI	Computer Networks Jan Fesl	Z,ZK	5	2P+1R+1C	L	PP
BI-PST	Probability and Statistics Petr Novák	Z,ZK	5	2P+1R+1C	Z	PP
BI-PA1	Programming and Algorithmics 1 Ladislav Vagner	Z,ZK	6	2P+2R+2C	Z	PP
BI-PA2	Programming and Algorithmics 2  Ladislav Vagner	Z,ZK	7	2P+1R+2C	, L	PP

BI-PS1 Programming in Shell 1 Zden k Muziká	KZ	5	2P+2C	Z	PP
BI-SI1.2 Software Engineering I  Ji í Mlejnek, Zden k Rybola Zden k Rybola Ji í Mlejnek (Gar.,	Z,ZK	5	2P+1C	Z,L	PP
BI-SAP  Computer Structure and Architecture  Hana Kubátová	Z,ZK	6	2P+1R+2C	L	PP
BI-ZDM  Elements of Discrete Mathematics  Ji ina Scholtzová, Jan Legerský Ji ina Scholtzová Josef Kolá	(Gar.) Z,ZK	5	2P+2C	Z	PP
BI-ZMA  Elements of Calculus  Ivo Petr Ivo Petr Tomáš Kalvoda (Gar.)	3P+2C	Z	PP		
Characteristics of the courses of this group of Study Plan: Code=BI-PP.20 Informatics, Presented in Czech, Version 2015	)15 Name=Compulsory	Courses	of Bache	elor Stud	y Progra
BI-AG1 Algorithms and Graphs 1			Z,	ZK	6
The course covers the basics of efficient algorithm design, data structures, and graph theory, belong		-	-		
develops the knowledge from the course BI-DML.21, in which students acquire the knowledge and s algorithms. The course also follows up knowledge from BI-MA1.21, the practical usage of asymptotic	•		•	and space o	omplexity of
BI-AAG Automata and Grammars	, matriematics, in particular, the	asymptotic		ZK	6
Students are introduced to basic theoretical and implementation principles of the following topics: cor	nstruction, use and mutual trans	sformations			_
and regular grammars, translation finite automata, construction and use of pushdown automata, hiera				_	-
Knowledge acquired through the module is applicable in designs of algorithms for searching in text, or	data compression, simple parsir	ng and trans	lation, and d	esign of dig	ital circuits.
BI-BAP Bachelor Thesis				Z	14
BI-BPR Bachelor project				Z	2
BI-BEZ Security			Z,	ZK	6
Students understand the mathematical fundamentals of cryptography and have an overview of current cr		-		-	
and hash functions. They also learn the fundamentals of secure programming and IT security, the fun	• •	ing modern	cryptosysten	ns for comp	uter system
They are able to use properly and securely cryptographic primitives and systems that are based on t	inese primitives.			71/	
BI-CAO Digital and Analog Circuits	The course de moterne of the entire of the	stinal II		ZK	5
Students get the fundamental understanding of technologies underlying electronic digital systems. The ransistors, gates, circuits, and conductors. They are able to design simple circuits and evaluate circu	•				-
disistors, gates, circuits, and conductors. They are able to design simple circuits and evaluate circuit felectronic devices.	ni parameters. They understand	the different	ces between	analog and	uigitai mou
BI-DBS Database Systems			7	ZK	6
tudents are introduced to the database engine architecture and typical user roles. They are briefly in			-	-	
including integrity constraints) using a conceptual model and implement them in a relational databas					
ts theoretical foundation - the relational database model. They learn the principles of normalizing a rela	•				
processing, controlling parallel user access to a single data source, as well as recovering a database		=	-	-	_
n relational databases with respect to speed of access to large quantities of data. This introductory-liptimizing database applications, distributed database systems, data stores.	evel course does not cover: Adr	ministration (	or database s	systems, ae	bugging and
BI-DPR Document., Presentation, Rhetorics				ζZ	4
his subject is aimed to the professional communication and writing of the scientific texts (bachelor's an	nd dinloma thesis). Students will le	earn to creat			•
nd presenting before an audience. Students will also learn to write technical reports and scientific te		oarr to oroat	o ana propan	o ii itoraotivo	procontation
BI-LIN Linear Algebra			Z.	ZK	7
he course is taught in Czech. Students understand the theoretical foundation of algebra and mather	matical principles of linear mode	els of system			dependencie
mong components are only linear. They know the basic methods for operating with matrices and line	ear spaces. They are able to per	form matrix	operations a	nd solve sys	tems of line
quations. They can apply these mathematical principles to solving problems in 2D or 3D analytic ge	ometry. They understand the er	ror-detecting	g and error-c	orrecting co	des.
BI-MLO   Mathematical Logic The course seminary is taught in Czech.			Z,	ZK	5
BI-OSY Operating Systems			7.	ZK	5
Students understand the classical theory of operating systems (OS) in addition to the knowledge gai	ined in the module "Programmir	ng in Shell 1'	1 '	1	
ernels, processes and threads implementations. They understand the problems of race conditions, to	thread scheduling, resource allo	cation and	deadlocks, th	e technique	s of the
nanagement of virtual memory, principles and architectures of disks, RAID and file systems. They are	re able to design and implement	t simple mul	tithreaded ap	plications.	
BI-PSI Computer Networks			1 '	ZK	5
Students understand the basic common techniques, protocols, technologies, and algorithms necessary	•				
2nd to 4th layer of the ISO OSI model. They also get a basic understanding of communication media	, security, and network administ	tration. Stud	ents will be a	ible to write	a simple
network application and configure a simple network.			7	7K	
BI-PST   Probability and Statistics  The students will learn the basics of probabilistic thinking, the ability to synthesize prior and posterior	r information and learn to work	with random		ZK	5 ble to to ann
pasic models of random variable distributions and solve applied probabilistic problems in informatics				-	
estimations of unknown distributional parameters from random sample characteristics. They will also	·			-	-
			Z,	ZK	6
nore random variables.				nointoro)	-
nore random variables.  BI-PA1 Programming and Algorithmics 1	anguage. They understand data	types (simp	ie, structured	i, pointers),	_
nore random variables.  BI-PA1 Programming and Algorithmics 1  Students gain the ability to formulate algorithms for solving basic problems and write them in the C la					expression
nore random variables.  BI-PA1 Programming and Algorithmics 1  Students gain the ability to formulate algorithms for solving basic problems and write them in the C la statements, functions, concept of recursion. They learn to analyse simple cases of algorithm complex vith linked lists.			searching, so	orting, and r	expressions nanipulating
BI-PA1 Programming and Algorithmics 1 Students gain the ability to formulate algorithms for solving basic problems and write them in the C la statements, functions, concept of recursion. They learn to analyse simple cases of algorithm complex with linked lists.  BI-PA2 Programming and Algorithmics 2	xity. They know fundamental alg	orithms for s	searching, so	orting, and r	expressions nanipulating
BI-PA1 Programming and Algorithmics 1 Students gain the ability to formulate algorithms for solving basic problems and write them in the C last attements, functions, concept of recursion. They learn to analyse simple cases of algorithm complex with linked lists.  BI-PA2 Programming and Algorithmics 2 Students know the instruments of object-oriented programming and are able to use them for specifying the solution of the control of the con	xity. They know fundamental alg	orithms for s	z, tack, queue,	ZK enlargeable	expressions nanipulating 7 e array, set,
BI-PA1   Programming and Algorithmics 1 Students gain the ability to formulate algorithms for solving basic problems and write them in the C last attements, functions, concept of recursion. They learn to analyse simple cases of algorithm complexity with linked lists.  BI-PA2   Programming and Algorithmics 2 Students know the instruments of object-oriented programming and are able to use them for specifying able). They can implement linked structures. They learn these skills using the programming language of the structures.	xity. They know fundamental alg	orithms for s	z, tack, queue,	ZK enlargeable	expressions nanipulating 7 e array, set,
Programming and Algorithmics 1 Students gain the ability to formulate algorithms for solving basic problems and write them in the C latatements, functions, concept of recursion. They learn to analyse simple cases of algorithm complexith linked lists.  BI-PA2 Programming and Algorithmics 2 Students know the instruments of object-oriented programming and are able to use them for specifying able). They can implement linked structures. They learn these skills using the programming language with all C++ features needed to achieve the main objective (operator overloading, templates).	xity. They know fundamental alg	orithms for s	Z, tack, queue, mming in C+-	ZK enlargeable	expressions nanipulating 7 e array, set, are introduce
BI-PA1 Programming and Algorithmics 1 tudents gain the ability to formulate algorithms for solving basic problems and write them in the C la tatements, functions, concept of recursion. They learn to analyse simple cases of algorithm complex ith linked lists.  BI-PA2 Programming and Algorithmics 2 tudents know the instruments of object-oriented programming and are able to use them for specifyi able). They can implement linked structures. They learn these skills using the programming language of	ing and implementing abstract d	orithms for s	Z, tack, queue, mming in C+-	ZK enlargeable  students	expression: nanipulating 7 e array, set, are introduc

threads, access rights, memory management, network interfaces). They gain the knowledge of advanced users, with hands-on experience of the shell, basic commands, and filters to

process various text data.

BI-SI1.2 Software Engineering I
Students learn the methods of analysis and design of large software systems, which are typically designed and implemented in teams. They get practical skill thanks to applying hands-on analysis and design of a large-scale software project that is to be developed within the concurrent BI-SP1 module. They get skill to use CASE tools and UML for modelling and solving software-related problems. They get overview of object-oriented analysis, design, architecture, validation, verification, and testing processes.

BI-SAP Computer Structure and Architecture

Cyzk 6
Students understand basic digital computer units and their structures, functions, and hardware implementation: ALU, control unit, memory system, inputs, outputs, data storage and transfer. In the labs, students gain practical experience with the design and implementation of the logic of a simple processor using modern digital design tools. The subject teaches

Students understand basic digital computer units and their structures, functions, and hardware implementation: ALU, control unit, memory system, inputs, outputs, data storage and transfer. In the labs, students gain practical experience with the design and implementation of the logic of a simple processor using modern digital design tools. The subject teaches basic knowledge of digital computer construction principles, how a computer performs its operations, what is machine code, and what are its connections to higher programming languages.

BI-ZDM Elements of Discrete Mathematics Z,ZK

Students get both a mathematical sound background, but also practical calculation skills in the area of combinatorics, value estimation and formula approximation, tools for solving recurrent equations, and basics of graph theory.

BI-ZMA Elements of Calculus Z,ZK 6

Students acquire knowledge and understanding of the fundamentals of classical calculus so that they are able to apply mathematical way of thinking and reasoning and are able to use basic proof techniques. They get skills to practically handle functions of one variable in solving the problems in informatics. They understand the links between the integrals and sums of sequences. They are able to estimate lower or upper bounds of values of real functions and to handle simple asymptotic expressions.

Name of the block: Compulsory courses of the specialization

Minimal number of credits of the block: 29

The role of the block: PO

Code of the group: BI-PO-ZI.2018

Name of the group: Compulsory Courses of Bachelor Branch Knowledge Engineering, in Czech, Version

2018

Requirement credits in the group: In this group you have to gain 29 credits

Requirement courses in the group: In this group you have to complete 7 courses

Credits in the group: 29 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-BIG	DB Technologies for Big Data Josef Gattermayer, Jan Matoušek, Monika Borkovcová Jan Matoušek Monika Borkovcová (Gar.)	KZ	4	2P+2C	Z	РО
BI-PAI	Law and Informatics  Zden k Ku era	ZK	3	2P	Z	РО
BI-PJV	Programming in Java Miroslav Balík, Jan Blizni enko, Ji í Borský, Jan Zimolka <b>Miroslav Balík</b> Miroslav Balík (Gar.)	Z,ZK	4	2P+2C	Z,L	РО
BI-VWM	Searching the Web and Multimedia Databases Tomáš Skopal	Z,ZK	5	2P+1C	L	РО
BI-VZD	Data Mining Alexander Kovalenko, Karel Klouda, Ond ej Tichý, Daniel Vašata Daniel Vašata Pavel Kordík (Gar.)	Z,ZK	4	2P+2C	L,Z	РО
BI-ZUM	Artificial Intelligence Fundamentals Pavel Surynek Pavel Surynek Pavel Surynek (Gar.)	Z,ZK	4	2P+2C	L	РО
BI-ZNS	Knowledge-based Systems Marcel Ji ina Marcel Ji ina Marcel Ji ina (Gar.)	Z,ZK	5	2P+2C	Z	РО

## Characteristics of the courses of this group of Study Plan: Code=BI-PO-ZI.2018 Name=Compulsory Courses of Bachelor Branch Knowledge Engineering, in Czech, Version 2018

Kilowieuge Ling	neering, in Ozech, version zoro		
BI-BIG	DB Technologies for Big Data	KZ	4
This course is preser	ted in Czech.		
BI-PAI	Law and Informatics	ZK	3
This course is preser	ted in Czech. However, there is an English variant in the program Informatics (B1801 / 4753).		
BI-PJV	Programming in Java	Z,ZK	4
This course is preser	ted in Czech. However, there is an English variant in the program Informatics (B1801 / 4753).		
BI-VWM	Searching the Web and Multimedia Databases	Z,ZK	5
Students get basic or	erview about search techniques in the web environment that is interpreted as a very large distributed and heterogeneous	us storage of documents. In	particular,
atudanta agguira info		dan fara and a series There a	

Students get basic overview about search techniques in the web environment that is interpreted as a very large distributed and heterogeneous storage of documents. In particular, students acquire information about search techniques in text and hypertext documents (the web pages themselves) and about feature extraction from web pages. They get detailed knowledge of similarity search in multimedia databases (generally in collections of unstructured data). They also learn techniques for programming web search engines for the mentioned data types (documents).

BI-VZD Data Mining Z.ZK 4

Students are introduced to the basic methods of discovering knowledge in data. In particular, they learn the basic techniques of data preprocessing, multidimensional data visualization, statistical techniques of data transformation, and fundamental principles of knowledge discovery methods. Students will be aware of the relationships between model bias and variance, and know the fundamentals of assessing model quality. Data mining software is extensively used in the module. Students will be able to apply basic data mining tools to common problems (classification, regression, clustering).

BI-ZUM Artificial Intelligence Fundamentals

Z.ZK

4

Students are introduced to the fundamental problems in the Artificial Intelligence, and the basic methods for their solving. It focuses mainly on the classical tasks from the areas of state space search, multi-agent systems, game theory, planning, and machine learning. Modern soft-computing methods, including the evolutionary algorithms and the neural networks, will be presented as well.

BI-ZNS Knowledge-based Systems

Z,ZK

5

Students will become familiar with the systems based on knowledge (knowledge-based systems), which are systems that usetechniques of artificial intelligence to solve problems that require human judgment, learning and reasoning from findingsand actions. The course introduces students to the philosophy and architecture of knowledge-based systems to support decision-makingand planning. The course assumes knowledge of set theory, probability theory, artificial neural networks, and evolutionary algorithms.

Name of the block: Povinné ekonomické Minimal number of credits of the block: 4

The role of the block: PE

Code of the group: BI-PP-EM.2015

Name of the group: Compulsory Economics and Management Bachelor Courses, in Czech, Version 2015

Requirement credits in the group: In this group you have to gain 4 credits

Requirement courses in the group: In this group you have to complete 1 course

Credits in the group: 4

Note on the group:

Povinný předmět BI-EMP se studentům bez oboru nezapisuje automaticky. Zapíší si jej

individuálně podle pokynů z katedry Softwarového inženýrství.

	Name of the course / Name of the group of courses					
Codo	(in case of groups of courses the list of codes of their	0	0		Dala	
Code	members)	Completion	Credits	Scope	Semester	Role
	Tutors, authors and guarantors (gar.)					
BI-EMP	Economics and Management Principles	KZ	4	2P+2C	Z.L	PE
Bi Livii	David Buchtela, Petra Pavlí ková <b>David Buchtela</b> David Buchtela (Gar.)	112	7	21 120	_,_	' -

# Characteristics of the courses of this group of Study Plan: Code=BI-PP-EM.2015 Name=Compulsory Economics and Management Bachelor Courses, in Czech, Version 2015

BI-EMP | Economics and Management Principles | KZ | 4 |
This course is aimed to fundamental problems of business economy. The course makes students familiar with a life cycle of business, specifically with fields: enterprise foundation, enterprise putting into state economic environment (CR), management of property and capital structure, business transaction records keeping during an accounting period, a relation between business production and costs, evaluation of enterprise financial health and business rehabilitation or termination.

Name of the block: Compulsory elective economic-management courses

Minimal number of credits of the block: 4

The role of the block: VE

Code of the group: BI-PV-EM.2015

Name of the group: Compulsory Elective Economical Courses of Bc. Program Informatics, Presented in

Czech, Ver. 2015

Requirement credits in the group: In this group you have to gain at least 4 credits (at most 12)

Requirement courses in the group: In this group you have to complete at least 1 course (at most 3)

Credits in the group: 4 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-DAN	Taxes for non-Economists Savina Finardi, Tereza Ji íková Tereza Ji íková Savina Finardi (Gar.)	Z,ZK	4	2P+2C	Z	VE
FI-VEZ	economic-managerial course from a study abroad  Miroslav Balík	Z	4	0+0	Z,L	VE
BI-FTR.1	Financial Markets Pavla Vozárová	Z,ZK	5	2P+2C	L	VE
BI-MEK	Macroeconomic Context of Domestic and World Economy Ivo Straka Ivo Straka (Gar.)	Z,ZK	4	2P+2C	Z	VE
BI-PRP	Law and business Zden k Ku era, Martin Samek Martin Samek Zden k Ku era (Gar.)	Z,ZK	4	2P+1R	L	VE
BI-PRR	Project management  David Pešek	KZ	4	2P+2C	Z	VE
BI-SEP	World Economy and Business Tomáš Evan Tomáš Evan Tomáš Evan (Gar.)	Z,ZK	4	2P+2C	L	VE
BI-MIK	Fundamentals of Microeconomics Tomáš Evan Tomáš Evan Tomáš Evan (Gar.)	Z,ZK	4	2P+2C	L	VE

Characteristics of the courses of this group of Study Plan: Code=BI-PV-EM.2015 Name=Compulsory Elective Economical Courses of Bc. Program Informatics, Presented in Czech, Ver. 2015

BI-DAN	formatics, Presented in Czech, Ver. 2015  Taxes for non-Economists	Z,ZK	4
	cial insurance contributions, are obligatory payments paid by people or institutions to public budgets. This is the way how a sign	1 '	-
	ns who pays which taxes or who bears the tax burden. The course introduces students to the tax theory and policy fundamenta	•	
	otion, and wealth. The course provides practical information on calculations of tax liabilities of both citizens and institutions as	•	
	uties towards public administration.	won do imorridatori do	out important
FI-VEZ	economic-managerial course from a study abroad	Z	4
A "Humanities subj	ect that has been studied abroad" is covered by the Humanities subject from a study abroad in Compulsory Humanities Modu	ule that is required in th	ne curriculum.
The substitution is	approved by the Vice-Dean for study affairs on behalf of the Dean at the request of the student.	•	
BI-FTR.1	Financial Markets	Z,ZK	5
This course is pres	ented in Czech. However, there is an English variant in the program Informatics (B1801 / 4753).		
BI-MEK	Macroeconomic Context of Domestic and World Economy	Z,ZK	4
This course is pres	ented in Czech.		
BI-PRP	Law and business	Z,ZK	4
This course is pres	ented in Czech.		
BI-PRR	Project management	KZ	4
This course is pres	ented in Czech.		
BI-SEP	World Economy and Business	Z,ZK	4
This course is pres	ented in Czech. The course introduces students of technical university to the international business. It does that predominantl	y by comparing individ	ual countries
and key regions of v	vorld economy. Students get to know about different religions and cultures, necessary for doing business in diverse societies as	well as indexes of ecor	nomic freedo
corruption and eco	nomic development, which are needed for the right investment decision. Seminars help to improve on the knowledge in the fo	rm of discussions base	ed on individu
readings. It is advis	ed to take bachelor level of this course BIE-SEP as a prerequisite.		
BI-MIK	Fundamentals of Microeconomics	Z,ZK	4
This course is nres	ented in Czech, However, there is an English variant in the program Informatics (R1801 / 4753)		

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

Name of the group: English Language, Internal Certifica

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:

Ze skupiny je nutné absolvovat jeden ze dvou předmětů, představujících interní zkoušku z angličtiny. -- Předmět BI-ANG si zapisují studenti, kteří absolvovali přípravné kurzy z angličtiny a mají zápočet z předmětu BI-ASL. -- Předmět BI--ANG1 si zapisují studenti, kteří se na zkoušku připravovali samostatně. Tito studenti musí před vlastní zkouškou absolvovat zápočtovou písemku.

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		L	PJ
BIE-EEC	English language external certificate Zden k Muziká <b>Zden k Muziká</b> Zden k Muziká (Gar.)	Z	4		L	PJ
BI-ANG	English Language, Internal Certificate Kate ina Valentová Kate ina Valentová (Gar.)	ZK	2		Z,L	PJ

Characteristics of the courses of this group of Study Plan: Code=BI-ZKA Name=English Language, Internal Certifica

BI-ANG1	English Language Examination without Preparatory Courses	Z,ZK	2
BIE-EEC	English language external certificate	Z	4
The BIE-ECC course ca	n be recognized for any active semester after the submission of a certificate certificate that demonstrates their proficiency in E	nglish 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-vvuka.cvut.cz/course/search.php?search=BI-ANG	•	

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.2015

Name of the group: Compulsory Physical Education of Bachelor Program Informatics, in Czech, Version

2015

Requirement credits in the group:

Requirement courses in the group: In this group you have to complete at least 2 courses

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
TV1	Physical Education	Z	0	0+2	Z	PT
TVV	Physical education	Z	0	0+2	Z,L	PT
TVV0	Physical education	Z	0	0+2	Z,L	PT
TV2	Physical Education	Z	0	0+2	L	PT
TVKLV	Physical Education Course	Z	0	7dní	L	PT
TVKZV	Physical Education Course	Z	0	7dní	Z	PT

Characteristics of the courses of this group of Study Plan: Code=BI-PT.2015 Name=Compulsory Physical Education of Bachelor Program Informatics, in Czech, Version 2015

TV1	Physical Education	Z	0
TVV	Physical education	Z	0
TVV0	Physical education	Z	0
TV2	Physical Education	Z	0
TVKLV	Physical Education Course	Z	0
TVKZV	Physical Education Course	Z	0

Name of the block: Compulsory elective humanities courses

Minimal number of credits of the block: 2

The role of the block: VH

Code of the group: BI-PV-HU.2015

Name of the group: Compulsory Elective Humanity Courses of Bachelor Study Program Informatics, in Czech, Version 2015

Requirement credits in the group: In this group you have to gain at least 2 credits (at most 6)

Requirement courses in the group: In this group you have to complete at least 1 course

Credits in the group: 2

Note on the group:

Faculty quarantees the availability of these modules.

	group.	and binty or the	00000	au.00.		
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
FI-FIL	Philosophy Peter Zamarovský Peter Zamarovský (Gar.)	ZK	2	2P	Z,L	VH
BI-HMI	History of Mathematics and Informatics  Alena Šolcová Alena Šolcová Alena Šolcová (Gar.)	Z,ZK	3	2P+1C	L	VH
FI-HTE	History of Technology and Economics  Jan Mikeš, Marcela Efmertová Jan Mikeš Jan Mikeš (Gar.)	ZK	2	2+0	Z,L	VH
FI-HPZ	Humanities subject from a study abroad  Miroslav Balík	Z	3	0+0	Z,L	VH
FI-MPL	Managerial Psychology  Jan Fiala	ZK	2	2+0	Z,L	VH
BI-EHD	Introduction to European Economic History Tomáš Evan Tomáš Evan (Gar.)	Z,ZK	3	2P+1C	Z,L	VH
FI-KSA	Cultural and Social Anthropology  Jakub Šenovský	ZK	2	2P	L,Z	VH
BI-KSA	Cultural and Social Anthropology Alena Libánská, Tomáš Houdek, Jakub Šenovský Jakub Šenovský Alena Libánská (Gar.)	ZK	2	2P	Z,L	VH
FI-ULI	Introduction to Linguistics for Computer Václav Cvr ek	ZK	2	2P	L	VH
FI-GNO	Introduction to Gnoseology Ivo Janoušek	ZK	2	2+0	L	VH

Characteristics of the courses of this group of Study Plan: Code=BI-PV-HU.2015 Name=Compulsory Elective Humanity Courses of **Bachelor Study Program Informatics, in Czech, Version 2015** 

FI-FIL	Philosophy	ZK	2
see A0B16		•	
BI-HMI	History of Mathematics and Informatics	Z,ZK	3
This course is presente	d in Czech.		•

FI-HTE	History of Technology and Economics	ZK	2
The course introdu	ices the scientific disciplines of history and technology , economic and social history of the Czech lands and Czechoslovakia in c	comparison with the	development of
the European regi	on 19 to 21 century .		
FI-HPZ	Humanities subject from a study abroad	Z	3
A "Humanities sub	ject that has been studied abroad" is covered by the Humanities subject from a study abroad in Compulsory Humanities Module	that is required in t	he curriculum.
The substitution is	approved by the Vice-Dean for study affairs on behalf of the Dean at the request of the student.		
FI-MPL	Managerial Psychology	ZK	2
BI-EHD	Introduction to European Economic History	Z,ZK	3
This course is pre-	sented in Czech. However, there is an English variant in the program Informatics (B1801 / 4753).		
FI-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 discipline de	versity of the world -	examples from
anthropological re-	search from our "exotic" cultures (topics: kinship, religion, social exclusion, migration, globalization, , material culture, language,	health, history, deat	h, etc) will be
shown. The course	e is an interesting alternative to other humanities, taught at FIT.		
	is an interesting atternative to other numbranites, taught at 111.		
BI-KSA	Cultural and Social Anthropology	ZK	2
_			_
The one-semester	Cultural and Social Anthropology	versity of the world -	examples from
The one-semester anthropological re-	Cultural and Social Anthropology course aims to acquaint students with the basics of social and cultural anthropology as a scientific discipline dealing with the div	versity of the world -	examples from
The one-semester anthropological reshown. The course	Cultural and Social Anthropology course aims to acquaint students with the basics of social and cultural anthropology as a scientific discipline dealing with the dissearch from our "exotic" cultures (topics: kinship, religion, social exclusion, migration, globalization, , material culture, language,	versity of the world -	examples from
The one-semester anthropological reshown. The course	Cultural and Social Anthropology course aims to acquaint students with the basics of social and cultural anthropology as a scientific discipline dealing with the discearch from our "exotic" cultures (topics: kinship, religion, social exclusion, migration, globalization, , material culture, language, is presented in Czech.  Introduction to Linguistics for Computer	versity of the world - health, history, deat	examples from h, etc) will be
The one-semester anthropological reshown. The course FI-ULI This course is pres	Cultural and Social Anthropology course aims to acquaint students with the basics of social and cultural anthropology as a scientific discipline dealing with the discearch from our "exotic" cultures (topics: kinship, religion, social exclusion, migration, globalization, , material culture, language, is presented in Czech.  Introduction to Linguistics for Computer	versity of the world - health, history, deat	examples from h, etc) will be
The one-semester anthropological reshown. The course FI-ULI This course is presented.	Cultural and Social Anthropology course aims to acquaint students with the basics of social and cultural anthropology as a scientific discipline dealing with the dispersented from our "exotic" cultures (topics: kinship, religion, social exclusion, migration, globalization, , material culture, language, is presented in Czech.  Introduction to Linguistics for Computer sented in Czech.	versity of the world health, history, deat	examples from h, etc) will be
anthropological reshown. The course FI-ULI This course is presented. FI-GNO P edm t studenty	Cultural and Social Anthropology course aims to acquaint students with the basics of social and cultural anthropology as a scientific discipline dealing with the dispersion of the from our "exotic" cultures (topics: kinship, religion, social exclusion, migration, globalization, , material culture, language, is presented in Czech.  Introduction to Linguistics for Computer sented in Czech.  Introduction to Gnoseology	versity of the world health, history, deat	examples from h, etc) will be 2 2 cozborem d jin

kapitolou jsou modely spojitých p írodních soustav a systém , v záv ru p ednášek je pozornost v nována filozofii v dy a otázkám udržitelného rozvoje. P edm t p ednáší a garantuje

Name of the block: Elective courses Minimal number of credits of the block: 0

The role of the block: V

Ing. Ivo Janoušek CSc.

Code of the group: BI-ZI-VO.2017

Name of the group: Elective Vocational Courses for a Bachelor Branch BI-ZI, Version 2017

Requirement credits in the group: Requirement courses in the group:

Credits in the group: 0

Note on the group:

Všechny povinné předměty oborů a zaměření s výjimkou tohoto oboru

Note on the group		nu a zamere	ili S vyjii	TIKOU IOI	1010 00010	
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.1	Unix Administration Zden k Muziká	Z,ZK	5	2P+2C	L	V
BI-ADW.1	Windows Administration Ji í Kašpar, Miroslav Prágl Miroslav Prágl (Gar.)	Z,ZK	4	2P+1C	Z	V
BI-AG2	Algorithms and Graphs 2 Ond ej Suchý	Z,ZK	5	2P+2C	L	V
BI-APS.1	Architectures of Computer Systems Pavel Tvrdík	Z,ZK	5	2P+2C	Z	V
BI-BEK	Secure Code Róbert Lórencz	Z,ZK	5	2P+2C	L	V
BI-HWB	Hardware Security Ji í Bu ek, Filip Kodýtek, Róbert Lórencz <b>Ji í Bu ek</b> Róbert Lórencz (Gar.)	Z,ZK	5	2P+2C	Z	V
BI-JPO	Computer Units Alois Pluhá ek	Z,ZK	5	2P+2C	Z	V
ві-ком	Conceptual Modelling Marek Suchánek, Robert Pergl Robert Pergl (Gar.)	Z,ZK	5	2P+2C	Z	V
BI-MGA	Multimedia and Graphics Applications Ji í Chludil	Z,ZK	5	2P+2C	Z	V
BI-OOP	Object-Oriented Programming Filip K ikava Filip K ikava Filip K ikava (Gar.)	Z,ZK	4	2P+2C	Z	V
BI-PGR.1	Computer graphics programming	Z,ZK	5	2P+2C	L	V
BI-PNO	Practical Digital Design Martin Novotný Martin Novotný (Gar.)	KZ	5	2P+2C	Z	V
BI-PRP	Law and business Zden k Ku era, Martin Samek Martin Samek Zden k Ku era (Gar.)	Z,ZK	4	2P+1R	L	V
BI-PJP	Programming Languages and Compilers  Jan Janoušek	Z,ZK	5	2P+1C	L	V
BI-PPA	Programming Paradigms  Jan Janoušek	Z,ZK	5	2P+2R	Z	V

BI-PGA	Programming of graphic applications Radek Richtr, Ji i Chludil Radek Richtr Radek Richtr (Gar.)	Z,ZK	5	2P+2C	Z	V
BI-PYT	Python Programming	Z,ZK	4	2P+2C	L	V
BI-SI2.3	Software Engineering 2 Martin Hlavatý Zden k Rybola Martin Hlavatý (Gar.)	Z,ZK	3	2P	Z	V
BI-SP1.21	Team Software Project 1 Radek Richtr, Marek Suchánek, Michal Valenta, Ji í Chludil, Ji í Mlejnek, Ji í Hunka, Zden k Rybola, Ji í Borský, Jan Matoušek, Zden k Rybola Ji í Mlejnek (Gar.)	KZ	5	2C	L	V
BI-SP1	Team Software Project 1 Ji í Mlejnek	KZ	4	2C	L	V
BI-SP2	Team Software Project 2 Ji í Mlejnek	KZ	6	2C	Z	V
BI-SP2.1	Team Software Project 2  Marek Suchánek, Ji í Chludil, Robert Pergl, Marek Skotnica, Ji í Mlejnek, Ji í Hunka, Zden k Rybola, Ji í Borský <b>Ji í Mlejnek</b> Ji í Mlejnek (Gar.)	KZ	4	2C	Z	V
BI-SSB	System and Network Security Ji í Dostál Ji í Dostál Ji í Dostál (Gar.)	Z,ZK	5	2P+2C	Z	V
BI-SRC	Real-time systems  Jaroslav Borecký, Hana Kubátová <b>Jaroslav Borecký</b> Hana Kubátová (Gar.)	KZ	4	2P+2C	Z	V
BI-XML	XML Technology Jan Mokrý	Z,ZK	4	2P+2C	L,Z	V
BI-TIS	Information Systems Design Pavel Náplava Pavel Náplava Pavel Náplava (Gar.)	Z,ZK	5	2P+1C	Z	V
BI-TUR	User Interface Design Jan Schmidt	Z,ZK	4	2P+2C	L	V
BI-TWA.1	Web Application Design Filip Glazar, David Bernhauer Filip Glazar David Bernhauer (Gar.)	Z,ZK	5	2P+2C	Z	V
BI-VES	Embedded Systems Miroslav Skrbek	Z,ZK	5	2P+2C	L	V
BI-ZRS	Basics of System Control Kate ina Hyniová	Z,ZK	4	2P+2C	Z	V

# Characteristics of the courses of this group of Study Plan: Code=BI-ZI-VO.2017 Name=Elective Vocational Courses for a Bachelor Branch BI-ZI, Version 2017

**RI-PRP** 

Law and business

This course is presente	d in Czech.	,						
BI-ADU.1	Unix Administration	Z,ZK	5					
Students will learn the in	ternal structure of the UNIX operating system, with the administration of its basic subsystems and with the security principles. T	hey will understan	d the differences					
between user and admi	nistrator roles. They will get theoretical and practical knowledge of user management and administration, of users access rigl	hts, file systems, o	lisk subsystems,					
processes, memory, ne	twork services and remote access, and in the areas of system deployment and virtualization. In the labs, they will verify the	knowledge from th	e lectures on					
specific examples from	practice.							
BI-ADW.1	Windows Administration	Z,ZK	4					
This course is presente	This course is presented in Czech. However, there is an English variant in the program Informatics (B1801 / 4753).							
BI-AG2	Algorithms and Graphs 2	Z,ZK	5					
This course, presented	in Czech, introduces basic algorithms and concepts of graph theory as a follow=up on the introduction given in the compulso	ry course BI-AG1	It further delves					

Z.ZK

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 BIE-AG2.

BI-APS.1 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 programs. 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 | 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.

BI-HWB Hardware Security Z,ZK 5

The course deals with hardware resources used to ensure security of computer systems including embedded ones. The students become familiar with the operating principles of cryptographic modules, the 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 the problems of effective implementation of ciphers.

BI-JPO 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 and 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 simulator and programmable hardware design kits (FPGA).

BI-KOM 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 OntoUML 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 learn 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.

BI-MGA	Multimedia and Graphics Applications	Z,ZK	5
<del>-</del> -	d with multimedia technologies and applications for 2D/3D bitmap and vector graphics. During the course, current tools for w		
• .	will be introduced. Students learn several basic techniques of creation and editing content in computer graphics, introduction to	•	•
	nto use multimedia transmission and representation systems, including real-time multimedia processing. They understand th	e principle of ope	ration and use
of graphics processing	ards. They gain a number of practical skills, such as vectorizing raster images, retouching photos, or creating 3D models.		
BI-OOP	Object-Oriented Programming	Z,ZK	4
Object-oriented program	nming has been used in the last 50 years to solve computational problems by using graphs of objects that collaborate togeth	er by message pa	ssing. In this
course we look at some	of the main principles of object-oriented programming and design. The emphasis is on practical techniques for software dev	elopment includin	g testing, error
handing, refactoring and	d design patterns.		
BI-PGR.1	Computer graphics programming	Z,ZK	5
Students are able to pro	gram a simple interactive 3D graphical application like a computer game or scientific visualisation, to design the scene, add t	extures imitating g	eometric details
and materials (like wall	surface, wood, sky), and set up the lighting. At the same time, they understand the fundamental principles and terms used in	computer graphic	s, such as
graphical pipeline, geom	etric transformations, or lighting model. They gain knowledge allowing orientation in computer graphics, and representing solid	fundamentals for y	our professional
development, e.g. for G	PU programming and animations. They get used to techniques utilised in geometric modelling, modelling of curves and surfa	ces, and scientific	visualisation.
BI-PNO	Practical Digital Design	KZ	5
	w of the contemporary digital design flow and learn practical skills to use synchronous design techniques. They understand t		-
	nnologies FPGA and ASIC. Students demonstrate practical use of the design techniques in the module project sing modern,		
tools.	,		g
BI-PJP	Programming Languages and Compilers	Z,ZK	5
	nethods of implementation of common high-level programming languages. They get experience with the design and implement		-
· · · -	ng language: data types, subroutines, and data abstractions. Students are able to formally specify a translation of a text that I	-	_
	er based on such a specification. The notion of compiler in this context is not limited to compilers of programming languages,	but exterios to all	other programs
	ing text in a language defined by a LL(1) grammar.		
BI-PPA	Programming Paradigms	Z,ZK	5
	asic paradigms of high-level programming languages, including their basic execution models, benefits, and limitations of par	* * *	
	and its basic principles are explained in details. Logic programming is introduced as another way of declarative programming		
on lambda calculus and	on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mair	stream programm	ning languages
such as C++ and Java.			
BI-PGA	Programming of graphic applications	Z,ZK	5
This course is presente	d in Czech only.	'	
BI-PYT	Python Programming	Z,ZK	4
The course is taught in		_,	·
BI-SI2.3		Z,ZK	3
	Software Engineering 2	۷,۷۲	3
	d in Czech. However, there is an English variant in the program Informatics (B1801 / 4753).	177	
BI-SP1.21	Team Software Project 1	KZ	5
	experience with the analysis, design, and prototyping of a large-scale software system. Theoretical support is provided in the		
-	aches students necessary techniques and principles. Teams consisting of 4-6 students will work on a specific project. The te		
	consults with the team (at the seminars) both the formal and material aspects of the software design. The resulting software	artefact will be fu	rther developed
and finished in the BIE-	SP2 course.		
BI-SP1	Team Software Project 1	KZ	4
Students gain hands-or	experience with the analysis, design, and prototyping of a large-scale software system. Theoretical support is provided by the	ne BEI-SWI cours	e that runs
concurrently and that te	aches the necessary techniques and theory. Teams consisting of 4-6 students will work on a specific project. The teacher, in	the role of the tea	m and project
leader, regularly consul-	s with the team (at the seminars) with respect to both the formal and material aspects of the design. The resulting work will b	e further develop	ed and finished
in the BEI-SP2 course.			
BI-SP2	Team Software Project 2	KZ	6
	experience with the iterative development process while working on a large-scale software project. The first iteration is the re-		_
_	unctionality, testing and documenting of the system being developed will be emphasized. Students will work in teams of 4-6		
	der, regularly consults with the team (at the seminars) with regard to the formal as well as material aspects of their solution.		
	the students with supporting knowledge, especially in the area of teamwork, testing and quality assurance of the software p		oc triat rurio
			4
BI-SP2.1	Team Software Project 2	KZ	4
· · · · · · · · · · · · · · · · · · ·	d in Czech. However, there is an English variant in the program Informatics (B1801 / 4753).		
BI-SSB	System and Network Security	Z,ZK	5
This course is focused of	on selected areas of computer networks and computer systems in terms of cyber security		
BI-SRC	Real-time systems	KZ	4
Students obtain the bas	ic knowledge in the Real-time theory and in the design methods for RT systems including the dependability issues. Thereticla	knowledges from	lectures will be
experimentally verified	on the practical labs of the Department of Digital Design. This subject is mainly based on embedded R-T systems, therefore	he used design k	ts are the same
as in BI-VES subject an	d FPGA.		
BI-XML	XML Technology	Z,ZK	4
	and validate XML documents (XML Schema, Relax, Schematron) and learn standard methods of their processing (SAX, DC		
	enables addressing of parts of XML documents and its usage in different XML technologies. Students will also learn basics o		•
	be based on version 2.0. Students will gain a broad overview of XML technologies.	- 1 -5	9
BI-TIS	Information Systems Design	Z,ZK	5
	· · · · · · · · · · · · · · · · · · ·	' '	_
	ypes of ISs and their practical implementation aspects and are able to match the needs of different market segments (custors programming languages. CLII etc.)	ners) with applica	LIUIIS UI EXISIIIIG
	s, programming languages, GUI etc.).	7 71/	4
BI-TUR	User Interface Design	Z,ZK	4
	verview of the methods for designing and testing common user interfaces. They have experience to solve the problems when		-
	e user optimally, since the needs and characteristics of users are not taken into account during product development. Student	s gain an overviev	v of the methods
	development process to ensure optimal communication with a user.		
BI-TWA.1	Web Application Design	Z,ZK	5
The basic course of well	o application development. Initially, the students become familiar with HTTP and its possibilities and partly with some propert	ies of language de	escribing the
started to the state of the sta	application development. Initially, the students become familial with 111 11 and its possibilities and partly with some propert	ioo oi larigaago a	
	resentation of document on the Web (CSS). These skills provide the necessary basis for the development of Web application	s, which will be de	emonstrated in
		s, which will be de	emonstrated in
modern libraries facilita	resentation of document on the Web (CSS). These skills provide the necessary basis for the development of Web application	s, which will be de	emonstrated in

BI-VES Embedded Systems Z,ZK 5
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

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-ZRS Basics of System Control

Z,ZK

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 our attention particularly on control of engineering and physical systems. We will provide basic information from the feedback control of linear dynamical SISO systems, description methods of system models, basic linear dynamic systems analysis and design verification, simple PID feedback, PSD, and fuzzy controllers. Students will learn the methods of creating a description of the system model, the basic linear dynamic systems analysis and design verification and simple PID feedback, PSD, and fuzzy controllers. Attention is also given to sensors and actuators in control loops, issues of stability in control systems, single and continuous adjustment of the controller parameters, and certain aspects of the industrial implementation of continuous and digital controllers and PLC control.

Code of the group: BI-V-PRO\_MG

Name of the group: Elective Courses, Suitable for those who intend to apply for Master's program at FIT

Requirement credits in the group: Requirement courses in the group:

Credits in the group: 0

Note on the group:

Courses in this group are recommended for students who intend to enroll to master

program at FIT.

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-AG2	Algorithms and Graphs 2 Ond ej Suchý	Z,ZK	5	2P+2C	L	V

Characteristics of the courses of this group of Study Plan: Code=BI-V-PRO\_MG Name=Elective Courses, Suitable for those who intend to apply for Master's program at FIT

BI-AG2 Algorithms and Graphs 2

Z.ZK

5

This course, presented in Czech, introduces basic algorithms and concepts of graph theory as a follow=up on the introduction given in the compulsory course BI-AG1. It further delves 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 BIE-AG2.

Code of the group: BI-V.2017

Name of the group: Purely Elective Courses of Bachelor Programme BI, Version 2017

Requirement credits in the group: Requirement courses in the group:

Credits in the group: 0

Note on the group:

Volitelné předměty, které nejsou povinnými v programu ani žádného oboru či

zaměření

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-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	V
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 Marek Suchánek, Robert Pergl, Daniel N mec Robert Pergl Robert Pergl (Gar.)	KZ	5	2P+1C	L	V
BIE-ZUM	Artificial Intelligence Fundamentals Pavel Surynek Pavel Surynek Pavel Surynek (Gar.)	Z,ZK	4	2P+2C	L	V
BI-BLE	Blender Lukáš Ba inka <b>Lukáš Ba inka</b> Lukáš Ba inka (Gar.)	Z,ZK	4	2P+2C	L	V
NI-DSP	Database Systems in Practes 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-DZO	Digital Image Processing	Z,ZK	4	2P+1C	L	V
NI-DDM	Distributed Data Mining Tomáš Borovi ka	KZ	4	3C	L	V
BI-EP1	Effective programming 1 Martin Ka er Martin Ka er (Gar.)	Z	4	2P+2C	Z	V
BI-EP2	Efficient Programming 2  Martin Ka er Martin Ka er Martin Ka er (Gar.)	KZ	4	2P+2C	L	V

BI-EJA	Enterprise Java Jií Dan ek <b>Jií Dan ek</b> Jií Dan ek (Gar.)	Z,ZK	4	2P+2C	L	V
BI-FMU	Financial and Management Accounting David Buchtela David Buchtela (Gar.)	Z,ZK	5	2P+2C	Z	V
BI-HAM	HW accelerated network traffic monitoring  Karel Hynek, Tomáš ejka Tomáš ejka (Gar.)	KZ	4	2P+1C	L	V
BI-ARD	Interactive applications on Arduino Ji í Cvr ek, Robert Hülle, Vojt ch Miškovský, Jan ezní ek Robert Hülle Robert Hülle (Gar.)	KZ	4	3C	L	V
NI-IAM	Internet and Multimedia Ji i Melnikov	Z,ZK	4	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
NI-MPL	Managerial Psychology Jan Fiala Jan Fiala (Gar.)	ZK	2	2P	Z,L	V
NI-MSI	Mathematical Structures in Computer Science  Jan Starý Jan Starý Jan Starý (Gar.)	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  Marek Skotnica, Jan Blizni enko Robert Pergl Robert Pergl (Gar.)	KZ	4	3C	Z	V
BI-MVT.21	Modern Visualisation Technologies  Ji í Chludil, Petr Pauš Petr Pauš (Gar.)	Z,ZK	5	2P+2C	Z	V
BI-MMP	Multimedia team project  Zde ka echová Zde ka echová Zde ka echová (Gar.)	KZ	4	3C	Z,L	V
NI-OLI	Linux Drivers  Jaroslav Borecký, Miroslav Skrbek Jaroslav Borecký Miroslav Skrbek (Gar.)	Z,ZK	4	2P+2C	L	V
BI-ACM	Programming Practices 1 Tomáš Valla, Ond ej Suchý Tomáš Valla Tomáš Valla (Gar.)	KZ	5	4C	L	V
BI-ACM2	Programming Practices 2 Tomáš Valla, Ond ej Suchý Tomáš Valla Tomáš Valla (Gar.)	KZ	5	4C	Z	V
BI-ACM3	Programming Practices 3 Tomáš Valla, Ond ej Suchý Tomáš Valla Tomáš Valla (Gar.)	KZ	5	4C	L	V
BI-ACM4	Programming Practices 4 Tomáš Valla, Ond ej Suchý 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 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 <b>Ji í Dan ek</b> Ji í Dan ek (Gar.)	Z,ZK	4	2P+2C	L	V
NI-PSL	Programming in Scala Ji í Dan ek <b>Ji í Dan ek</b> Ji í 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	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 (Gar.)	Z,ZK	5	2P+1C	Z	V
BI-PKM	Introduction to mathematics Tomáš Kalvoda Tomáš Kalvoda Tomáš Kalvoda (Gar.)	Z	4		Z	V
NI-REV	Reverse Engineering Ji í Dostál, Josef Kokeš, Róbert Lórencz <b>Ji í Dostál</b> Ji í Dostál (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  Hana Kubátová Hana Kubátová Hana Kubátová (Gar.)	Z	4	2C	L,Z	V

BI-ST1	Network Technology 1	Z	3	2C	Z	V
BI-ST2	Alexandru Moucha Álexandru Moucha (Gar.)  Network Technology 2	Z	3	3C	L	V
BI-ST3	Alexandru Moucha Alexandru Moucha (Gar.)  Network Technology 3	Z	3	2C		V
BI-ST4	Alexandru Moucha Alexandru Moucha (Gar.)  Network Technology 4		3	2C		-
	Alexandru Moucha Alexandru Moucha (Gar.)				L	V
BI-SOJ	Machine Oriented Languages  Machine vision and image processing	Z,ZK	4	2P+2C	L	V
BI-SVZ	Lukáš Brchl, Marcel Ji ina, Jakub Novák <b>Marcel Ji ina</b> Marcel Ji ina (Gar.)	Z,ZK	5	2P+2C	L,Z	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
TV1	Physical Education	Z	0	0+2	Z	V
TVV	Physical education	Z	0	0+2	Z,L	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	V
TVKZV	Physical Education Course	Z	0	7dní	Z	V
TVKLV	Physical Education Course	Z	0	7dní	L	V
BI-TS1	Theoretical Seminar I Dušan Knop, Tomáš Valla, Ond ej Suchý Tomáš Valla Tomáš Valla (Gar.)	Z	4	2C	Z	V
BI-TS2	Theoretical Seminar II Tomáš Valla, Ond ej Suchý Tomáš Valla Ond ej Suchý (Gar.)	Z	4	2C	L	V
BI-TS3	Theoretical Seminar III Tomáš Valla, Ond ej Suchý, Ond ej Guth Tomáš Valla Tomáš Valla (Gar.)	Z	4	2C	Z	V
BI-TS4	Theoretical Seminar IV Tomáš Valla, Ond ej Suchý 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-CCN	Compiler Construction Christoph Kirsch Christoph Kirsch (Gar.)	Z,ZK	5	3P	L	V
BI-TEX	TeX and Typography Petr Olšák Petr Olšák Petr Olšák (Gar.)	Z,ZK	4	2P+1C	L	V
BI-ULI	Introduction to Linux Zden k Muziká, Jan Ž árek, Dana ermáková, Petr Zemánek <b>Zden k</b> Muziká Zden k Muziká (Gar.)	Z	2	4D	Z	V
BI-OPT	Introduction to Optical Networks Pavel Tvrdík	Z,ZK	4	2P+1C	Z	V
NI-VCC	Virtualization and Cloud Computing Tomáš Vondra, Jan Fesl Tomáš Vondra Tomáš Vondra (Gar.)	Z,ZK	5	2P+1C	L	V
BI-VHS	Virtual game worlds Radek Richtr Radek Richtr (Gar.)	ZK	4	2P+2C	Z	V
BI-VR1	Virtual reality I Petr Klán, Petr Pauš <b>Petr Klán</b> Petr Klán (Gar.)	KZ	4	2P+2C	L,Z	V
BI-VR2	Virtual reality II Petr Klán <b>Petr Klán</b> Petr Klán (Gar.)	KZ	3	1P+2C	L	V
BI-VAK.21	Selected Applications of Combinatorics Tomáš Valla Tomáš Valla (Gar.)	Z	3	2R	L	V
BI-VMM	Selected Mathematical Methods 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 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-ZRS	Basics of System Control Kate ina Hyniová	Z,ZK	4	2P+2C	Z	V

BI-IOS	Fundamentals of iOS Application Development for iPhone and iPad	KZ	4	2C	Z	V
	Rostislav Babá ek, Igor Rosocha <b>Martin P Ipitel</b> Martin P Ipitel (Gar.)					
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
	f the courses of this group of Study Plan: Code=BI-V.2017 Name=P	urely Electiv	e Cours	es of Bac	helor Pro	ogramme
I, Version 2017 BI-PJV	Programming in Java			7	,ZK	4
	ed in Czech. However, there is an English variant in the program Informatics (B1801 / 4753).				.,∠!\	4
TV1	Physical Education				Z	0
TVV	Physical education				Z	0
TVV0	Physical education				Z	0
TV2	Physical Education				Z	0
TVKLV	Physical Education Course				Z	0
TVKZV	Physical Education Course				Z	0
BI-ZRS	Basics of System Control			7	Z,ZK	4
	troduction to the field of automatic control. Students will gain knowledge in this rapidly evolvi	na field of areat	future. We v			articularly on
	and physical systems. We will provide basic information from the feedback control of linear d	-	-	-	-	
, ,	ystems analysis and design verification, simple PID feedback, PSD, and fuzzy controllers. Stu			J		,
	dynamic systems analysis and design verification and simple PID feedback, PSD, and fuzzy			•		
control loops, issues of and digital controllers a	f stability in control systems, single and continuous adjustment of the controller parameters, and PLC control	anu certain aspe	cis of the ir	ıdustriai impl	ementation	oi continuol
BI-ALO	Algebra and Logic			7	ZZK	4
-	and deepens the study of topics touched upon in the basic course in logic.				.,∠!\	7
BI-AVI.21	Algorithms visually			7	ZZK	4
	nts other algorithm courses at FIT. It brings knowledge about particular important algorithms fi	rom different field	ls of the cor	1		•
knowledge presented ir	n BI-AG1 and BI-AG2. A wide scope of covered subject is made possible due to using visualization	n bz Algovision (v	www.algovis	sion.org <http< td=""><td>p://www.algo</td><td>ovision.org&amp;</td></http<>	p://www.algo	ovision.org&
that make understandir	ng the principles of algorithms easy.					
3I-A2L	English language, preparation for the B2 level exam			<b>I</b>	Z	2
ests with the success	rse corresponds to the preparation for the English exam at the B2 level. Requirements for co lage instructionMeet the requirements for writing assignments - Summary, Abstract, Argum rate set at 70%80% and over in BOTH tests means ORAL EXAM ONLY (no written part). F	nentation Paper.	Succeed in	both the mic	dents are du	ue to: -Take ne final term
ests with the success class of the term.	lage instructionMeet the requirements for writing assignments - Summary, Abstract, Argumrate set at 70%80% and over in BOTH tests means ORAL EXAM ONLY (no written part). Find the programming in Java	nentation Paper.	Succeed in	both the miced by individu	dents are du	ue to: -Take ne final term
tests with the success class of the term. BI-APJ This course is presente	age instructionMeet the requirements for writing assignments - Summary, Abstract, Argumrate set at 70%80% and over in BOTH tests means ORAL EXAM ONLY (no written part). F  Aplication Programming in Java ed in Czech. Advanced technologies in Java.	nentation Paper.	Succeed in	both the miced by individu	dents are du dents and the al teachers	ue to: -Take ne final term during the f
tests with the success class of the term. BI-APJ This course is presente NI-AFP	lage instructionMeet the requirements for writing assignments - Summary, Abstract, Argumrate set at 70%80% and over in BOTH tests means ORAL EXAM ONLY (no written part). Find the programming in Java	nentation Paper. Requirements wil	Succeed in	n both the miced by individu	dents are did deems and the al teachers	ue to: -Take ne final term during the f
tests with the success class of the term. BI-APJ This course is presente NI-AFP This course is presente	age instructionMeet the requirements for writing assignments - Summary, Abstract, Argum rate set at 70%80% and over in BOTH tests means ORAL EXAM ONLY (no written part). F  Aplication Programming in Java ed in Czech. Advanced technologies in Java.  Applied Functional Programming	nentation Paper. Requirements wil	Succeed in I be specified	both the miced by individued by individuely by individuel	dents are did derm and the al teachers ZZK	ue to: -Take ne final term during the f  4  5 nguages are
tests with the success class of the term.  BI-APJ This course is presente NI-AFP This course is presente the rise nowadays and necessary competence	lage instructionMeet the requirements for writing assignments - Summary, Abstract, Argum rate set at 70%80% and over in BOTH tests means ORAL EXAM ONLY (no written part). Find Aplication Programming in Java ed in Czech. Advanced technologies in Java.  Applied Functional Programming ed in Czech. Functional programming represents one of the traditional programming paradiging.	nentation Paper. Requirements wil	Succeed in I be specified	both the miced by individued by individuely by individuel	dents are did derm and the al teachers ZZK	ue to: -Take ne final term during the f  4  5 nguages are
tests with the success class of the term.  BI-APJ This course is presente NI-AFP This course is presente the rise nowadays and necessary competence BIE-ZUM	Application Programming in Java ed in Czech. Advanced technologies in Java.  Applied Functional Programming generates one of the traditional programming paradigment for unctional programming represents one of the traditionally imperative language of a software engineer: the theory and especially the practice.  Artificial Intelligence Fundamentals	nentation Paper. Requirements wil ms. Traditional ar es (C++, C#, Jav	Succeed in the specified and novel fur a). As such	both the miced by individu	dents are did dterm and tr al teachers  ZZK  KZ  amming lan nis paradigm	ue to: -Take ne final term during the f  4  5 nguages are n becomes a
tests with the success class of the term.  BI-APJ This course is presented NI-AFP This course is presented the rise nowadays and necessary competenced BIE-ZUM  Students are introduce	Application Programming in Java ed in Czech. Advanced technologies in Java.  Applied Functional Programming ed in Czech. Functional Programming epresents one of the traditional programming paradign the functional paradigm becomes an important construct of traditionally imperative language e of a software engineer: the theory and especially the practice.  Artificial Intelligence Fundamentals d to the fundamental problems in the Artificial Intelligence, and the basic methods for their so	nentation Paper. Requirements wil ms. Traditional ar as (C++, C#, Jav	Succeed in less specified and novel fur lab. As such labeled and l	a both the miced by individued	dents are did dterm and tr al teachers  ZZK  KZ  amming lan nis paradigm	ue to: -Take ne final term during the f  4  5 nguages are n becomes a  4 e areas of sta
tests with the success class of the term.  BI-APJ This course is presented in the rise nowadays and necessary competence in the rise necessary competence in the rise are introduced in the rise necessary competence in the rise neces	Application Programming in Java ed in Czech. Advanced technologies in Java.  Applied Functional Programming generates one of the traditional programming paradigment for unctional programming represents one of the traditionally imperative language of a software engineer: the theory and especially the practice.  Artificial Intelligence Fundamentals	nentation Paper. Requirements wil ms. Traditional ar as (C++, C#, Jav	Succeed in less specified and novel fur lab. As such labeled and l	a both the miced by individued	dents are did dterm and tr al teachers  ZZK  KZ  amming lan nis paradigm	ue to: -Take ne final term during the f  4  5 nguages are n becomes a  4 e areas of sta
tests with the success class of the term.  BI-APJ This course is presented in the rise nowadays and necessary competence in the rise	Application Programming in Java ed in Czech. Advanced technologies in Java.  Applied Functional Programming ed in Czech. Functional Programming ed in Scech. Functional Programming of the traditional programming paradign the functional paradigm becomes an important construct of traditionally imperative language of a software engineer: the theory and especially the practice.  Artificial Intelligence Fundamentals d to the fundamental problems in the Artificial Intelligence, and the basic methods for their so lent systems, game theory, planning, and machine learning. Modern soft-computing methods	nentation Paper. Requirements wil ms. Traditional ar as (C++, C#, Jav	Succeed in less specified and novel fur lab. As such labeled and l	n both the miced by individued	dents are did de	ue to: -Take ne final term during the f  4  5 nguages are n becomes a  4 e areas of stal networks,
tests with the success class of the term.  BI-APJ This course is presented the rise nowadays and necessary competenced BIE-ZUM  Students are introduced space search, multi-ague be presented as well.  BI-BLE	Application Programming in Java ed in Czech. Advanced technologies in Java.  Applied Functional Programming ed in Czech. Functional Programming epresents one of the traditional programming paradign the functional paradigm becomes an important construct of traditionally imperative language e of a software engineer: the theory and especially the practice.  Artificial Intelligence Fundamentals d to the fundamental problems in the Artificial Intelligence, and the basic methods for their so	mentation Paper. Requirements will ms. Traditional ares (C++, C#, Jav	Succeed in less specified and novel fur a). As such mainly on the colutionary a	n both the miced by individued	dents are did de	ue to: -Take ne final term during the f  4  5 nguages are n becomes a  4 e areas of stal networks,
tests with the success class of the term.  BI-APJ This course is presented the rise nowadays and necessary competenced BIE-ZUM  Students are introduced space search, multi-ague the presented as well.  BI-BLE The course extends kn	Aplication Programming in Java ed in Czech. Advanced technologies in Java.  Applied Functional Programming ged in Czech. Functional programming paradign the functional programming represents one of the traditionally imperative language of a software engineer: the theory and especially the practice.  Artificial Intelligence Fundamentals do to the fundamental problems in the Artificial Intelligence, and the basic methods for their solent systems, game theory, planning, and machine learning. Modern soft-computing methods  Blender	ms. Traditional ares (C++, C#, Jav	Succeed in I be specified and novel fur a). As such mainly on the volutionary and the column and	both the miced by individued b	dents are did de	ue to: -Take ne final term during the f  4  5  nguages are n becomes a  4 e areas of stal networks,  4  graphics and
tests with the success class of the term.  BI-APJ This course is presented the rise nowadays and necessary competenced BIE-ZUM  Students are introduced space search, multi-ague be presented as well.  BI-BLE The course extends knanimation. It offers a content of the terms.	Aplication Programming in Java ed in Czech. Advanced technologies in Java.  Applied Functional Programming geriesents one of the traditional programming paradigment the functional programming represents one of the traditionally imperative language of a software engineer: the theory and especially the practice.  Artificial Intelligence Fundamentals do to the fundamental problems in the Artificial Intelligence, and the basic methods for their so tent systems, game theory, planning, and machine learning. Modern soft-computing methods blender mowledge of opensource program Blender from BI-MGA (Multimedia and Graphics Application).	ms. Traditional ares (C++, C#, Jav	Succeed in I be specified and novel fur a). As such mainly on the volutionary and the column and	both the miced by individued b	dents are did de	ue to: -Take ne final term during the f  4  5  nguages are n becomes a de areas of stal networks, daraphics and
tests with the success class of the term.  BI-APJ This course is presented the rise nowadays and necessary competenced space search, multi-ague be presented as well.  BI-BLE The course extends knanimation. It offers a control of the course is presented the course is presented the course extends knanimation. It offers a control of the course is presented the course	Aplication Programming in Java ed in Czech. Advanced technologies in Java.  Applied Functional Programming ed in Czech. Functional programming represents one of the traditionally imperative language of a software engineer: the theory and especially the practice.  Artificial Intelligence Fundamentals do to the fundamental problems in the Artificial Intelligence, and the basic methods for their so enert systems, game theory, planning, and machine learning. Modern soft-computing methods  Blender  lowledge of opensource program Blender from BI-MGA (Multimedia and Graphics Applicatio complete and practically oriented introduction to Blender environment. Students may continue  Database Systems in Practes ed in Czech.	ms. Traditional ares (C++, C#, Jav	Succeed in I be specified and novel fur a). As such mainly on the volutionary and the column and	both the miced by individual and the miced a	dents are did de	ue to: -Take ne final term during the f  4  5 aguages are n becomes a 4 e areas of stal networks, 4 graphics and urse.  4
tests with the success class of the term.  BI-APJ This course is presented the rise nowadays and necessary competences pace search, multi-ague be presented as well.  BI-BLE The course extends know animation. It offers a control of the course is presented as well.  BI-DSP This course is presented bI-STO	Application Programming in Java ed in Czech. Advanced technologies in Java.  Applied Functional Programming ed in Czech. Functional programming represents one of the traditionally imperative language of a software engineer: the theory and especially the practice.  Artificial Intelligence Fundamentals do to the fundamental problems in the Artificial Intelligence, and the basic methods for their so enert systems, game theory, planning, and machine learning. Modern soft-computing methods  Blender  lowledge of opensource program Blender from BI-MGA (Multimedia and Graphics Applicatio complete and practically oriented introduction to Blender environment. Students may continue  Database Systems in Practes ed in Czech.  Storage and Filesystems	ms. Traditional ares (C++, C#, Jav  Iving. It focuses reprinciple to BI-PGA (Programms)	esucceed in labe specified and novel fur a). As such mainly on the volutionary and the specified and t	both the miced by individual and the miced a	dents are did de	ue to: -Take ne final term during the f  4  5 aguages are n becomes a de areas of stal networks,  4 graphics and urse.  4
tests with the success class of the term.  BI-APJ This course is presented NI-AFP This course is presented the rise nowadays and necessary competenced space search, multi-ague be presented as well.  BI-BLE The course extends known animation. It offers a course is presented BI-STO The student will learn presented the student will learn presented the student will learn presented the student will learn presented.	Application Programming in Java ed in Czech. Advanced technologies in Java.  Applied Functional Programming ed in Czech. Functional programming the functional programming represents one of the traditional programming paradign the functional pradigm becomes an important construct of traditionally imperative language of a software engineer: the theory and especially the practice.  Artificial Intelligence Fundamentals do to the fundamental problems in the Artificial Intelligence, and the basic methods for their so tent systems, game theory, planning, and machine learning. Modern soft-computing methods  Blender towledge of opensource program Blender from BI-MGA (Multimedia and Graphics Applicatio complete and practically oriented introduction to Blender environment. Students may continue  Database Systems in Practes ed in Czech.  Storage and Filesystems orinciples and current solutions of storage systems architecture. The module explains principles	ms. Traditional ares (C++, C#, Jav  Iving. It focuses reprincipations) course. It is it to BI-PGA (Programment)	esucceed in labe specified and novel fur a). As such mainly on the volutionary and the specified and t	both the miced by individual and the miced a	dents are did de	ue to: -Take ne final term during the f  4  5 aguages are n becomes a 4 e areas of stal networks, 4 4 graphics and urse.  4
tests with the success class of the term.  BI-APJ This course is presented the rise nowadays and necessary competences pace search, multi-ague be presented as well.  BI-BLE The course extends know animation. It offers a construction of the student will learn pload balancing and hig	Application Programming in Java ed in Czech. Advanced technologies in Java.  Applied Functional Programming ed in Czech. Functional programming the functional programming represents one of the traditional programming paradign the functional pradigm becomes an important construct of traditionally imperative language of a software engineer: the theory and especially the practice.  Artificial Intelligence Fundamentals do to the fundamental problems in the Artificial Intelligence, and the basic methods for their so tent systems, game theory, planning, and machine learning. Modern soft-computing methods  Blender towledge of opensource program Blender from BI-MGA (Multimedia and Graphics Applicatio complete and practically oriented introduction to Blender environment. Students may continue  Database Systems in Practes ed in Czech.  Storage and Filesystems orinciples and current solutions of storage systems architecture. The module explains principles th availability.	ms. Traditional ares (C++, C#, Jav  Iving. It focuses reprincipations) course. It is it to BI-PGA (Programment)	esucceed in labe specified and novel fur a). As such mainly on the volutionary and the specified and t	both the miced by individual carbon and archiving and both the miced by individual and by individual a	dents are did dents are did determ and the lal teachers  I,ZK  KZ  amming lan his paradigm  I,ZK  sks from the lad the neura  I,ZK  sted in 3D g cations) cou	ue to: -Take ne final term during the f  4  5 aguages are n becomes a 4 e areas of stal networks, 4 graphics and urse.  4 storage scali
tests with the success class of the term.  BI-APJ This course is presented.  NI-AFP This course is presented the rise nowadays and necessary competenced.  BIE-ZUM Students are introduced space search, multi-ago per presented as well.  BI-BLE The course extends known animation. It offers a consumination. It offers a consumination of the student will learn provided balancing and hig NI-DZO	Aplication Programming in Java ed in Czech. Advanced technologies in Java.  Applied Functional Programming ed in Czech. Functional programming represents one of the traditional programming paradign the functional paradigm becomes an important construct of traditionally imperative language e of a software engineer: the theory and especially the practice.  Artificial Intelligence Fundamentals do to the fundamental problems in the Artificial Intelligence, and the basic methods for their so tent systems, game theory, planning, and machine learning. Modern soft-computing methods  Blender towledge of opensource program Blender from BI-MGA (Multimedia and Graphics Applicatio complete and practically oriented introduction to Blender environment. Students may continue  Database Systems in Practes ed in Czech.  Storage and Filesystems orinciples and current solutions of storage systems architecture. The module explains principle th availability.  Digital Image Processing	ms. Traditional ares (C++, C#, Jav  Iving. It focuses ris, including the existence of data store,	esucceed in label specified and novel furnal. As such mainly on the volutionary and the decision of the pramming gramming grammin	both the miced by individual actional programmer, mastering the classical tatalgorithms are properly and archiving Z and archiving Z	dents are did dents are did determ and the lal teachers  I,ZK  KZ  amming lan his paradigm  I,ZK  sks from the lad the neura  I,ZK  I,ZK  I, as so as s	ue to: -Take ne final term during the f  4  5 aguages are n becomes a 4 e areas of stal networks, 4 graphics and urse.  4 storage scalin
tests with the success class of the term.  BI-APJ This course is presented.  NI-AFP This course is presented the rise nowadays and necessary competenced.  BIE-ZUM Students are introduced space search, multi-ago per presented as well.  BI-BLE The course extends known animation. It offers a consumination. It offers a consumination is presented.  BI-STO The student will learn proad balancing and hig NI-DZO This course presents a	Aplication Programming in Java ed in Czech. Advanced technologies in Java.  Applied Functional Programming ed in Czech. Functional programming represents one of the traditional programming paradign the functional paradigm becomes an important construct of traditionally imperative language e of a software engineer: the theory and especially the practice.  Artificial Intelligence Fundamentals do to the fundamental problems in the Artificial Intelligence, and the basic methods for their so tent systems, game theory, planning, and machine learning. Modern soft-computing methods  Blender towledge of opensource program Blender from BI-MGA (Multimedia and Graphics Applicatio complete and practically oriented introduction to Blender environment. Students may continue  Database Systems in Practes ed in Czech.  Storage and Filesystems orinciples and current solutions of storage systems architecture. The module explains principle th availability.  Digital Image Processing a comprehensive overview of modern methods for interactive editing of digital images and vice	ms. Traditional ares (C++, C#, Jav  Iving. It focuses ris, including the exit to BI-PGA (Progress of data store,	esucceed in label specified and novel furnal. As such mainly on the volutionary and the protection, and succeeding the protection, also with practical specified and the speci	both the miced by individual and archiving and archiving arctical algorithm arctical algorithm archiving and archiving arctical algorithm archiving arctical algorithm archiving	dents are did dents are did determ and the did teachers  C,ZK  KZ  amming lan his paradigm  C,ZK  sks from the did the neura  C,ZK  cations) courting  C,ZK  L,ZK  L, as so as s	ue to: -Take ne final term during the final networks,  4 de areas of stal networks,  4 draphics and durse.  4 destorage scalification
tests with the success class of the term.  BI-APJ This course is presented.  NI-AFP This course is presented the rise nowadays and the presented as well.  BIE-ZUM Students are introduced space search, multi-ago per presented as well.  BI-BLE The course extends known animation. It offers a construction of the student will learn proposed balancing and higher presents as a mplement and have an market success.	Aplication Programming in Java ed in Czech. Advanced technologies in Java.  Applied Functional Programming ed in Czech. Functional programming represents one of the traditional programming paradign the functional paradigm becomes an important construct of traditionally imperative language e of a software engineer: the theory and especially the practice.  Artificial Intelligence Fundamentals do to the fundamental problems in the Artificial Intelligence, and the basic methods for their so tent systems, game theory, planning, and machine learning. Modern soft-computing methods  Blender towledge of opensource program Blender from BI-MGA (Multimedia and Graphics Applicatio complete and practically oriented introduction to Blender environment. Students may continue  Database Systems in Practes ed in Czech.  Storage and Filesystems orinciples and current solutions of storage systems architecture. The module explains principle th availability.  Digital Image Processing	ms. Traditional ares (C++, C#, Jav  lving. It focuses right, including the extremely to BI-PGA (Progress of data store, dec. It mainly dealess theoretical theoret	esucceed in labe specified and novel furnal. As such mainly on the volutionary attended for gramming g	both the miced by individual and archiving and archiving the salso value of the salso val	dents are didents are didents.  KZ	ue to: -Take the final term during the final
tests with the success class of the term.  BI-APJ This course is presented.  NI-AFP This course is presented the rise nowadays and necessary competenced.  BIE-ZUM Students are introduced space search, multi-ago per presented as well.  BI-BLE The course extends known animation. It offers a construction of the student will learn properly and balancing and higher the sourse presents a mplement and have a mof digital image proces frequency domain, absorber 1981.	rate set at 70%80% and over in BOTH tests means ORAL EXAM ONLY (no written part). F  Aplication Programming in Java ed in Czech. Advanced technologies in Java.  Applied Functional Programming ed in Czech. Functional programming represents one of the traditional programming paradigit the functional paradigm becomes an important construct of traditionally imperative language e of a software engineer: the theory and especially the practice.  Artificial Intelligence Fundamentals d to the fundamental problems in the Artificial Intelligence, and the basic methods for their so tent systems, game theory, planning, and machine learning. Modern soft-computing methods  Blender towledge of opensource program Blender from BI-MGA (Multimedia and Graphics Application complete and practically oriented introduction to Blender environment. Students may continue  Database Systems in Practes ed in Czech.  Storage and Filesystems orinciples and current solutions of storage systems architecture. The module explains principle the availability.  Digital Image Processing a comprehensive overview of modern methods for interactive editing of digital images and vice interesting theoretical basis. Visually attractive applications provide better understanding of be using. This course will introduce algorithms solving the following practical applications: edge-astraction, hybrid images, gradient domain editing, seamless image stitching and cloning, digit	ms. Traditional ares (C++, C#, Jav  lving. It focuses rest, including the extenses of data store,  dec. It mainly dealess theoretical theo	esucceed in labe specified and novel furnal. As such mainly on the volutionary at the protection, als with practices are mapping e, color-to-generate in the protection, and the mapping e, color-to-generate in the protection, and the mapping e, color-to-generate in the protection in	both the miced by individual and archiving and archiving and archiving and archiving and archiving argues algorithm archiving and archiving archiv	dents are didents are didents are didents are didents are didents are didents are didents.  KZ	ue to: -Take ne final term during the final networks,  4 araphics and durse.  4 storage scaling during the dome blurring in enhancements.
tests with the success class of the term.  BI-APJ This course is presented.  NI-AFP This course is presented the rise nowadays and necessary competenced.  BIE-ZUM Students are introduced space search, multi-aggoe presented as well.  BI-BLE The course extends known animation. It offers a construction of the student will learn produced balancing and higher the student will learn produced balancing and higher the student and have an of digital image process frequency domain, absinteractive as-rigid-as-frequency domain.	rate set at 70%80% and over in BOTH tests means ORAL EXAM ONLY (no written part). F  Aplication Programming in Java and in Czech. Advanced technologies in Java.  Applied Functional Programming and in Czech. Functional programming represents one of the traditional programming paradigm the functional paradigm becomes an important construct of traditionally imperative language of a software engineer: the theory and especially the practice.  Artificial Intelligence Fundamentals to the fundamental problems in the Artificial Intelligence, and the basic methods for their so tent systems, game theory, planning, and machine learning. Modern soft-computing methods are included and practically oriented introduction to Blender environment. Students may continue Database Systems in Practes and in Czech.  Storage and Filesystems  orinciples and current solutions of storage systems architecture. The module explains principle in availability.  Digital Image Processing  a comprehensive overview of modern methods for interactive editing of digital images and vice interesting theoretical basis. Visually attractive applications provide better understanding of bising. This course will introduce algorithms solving the following practical applications: edge-astraction, hybrid images, gradient domain editing, seamless image stitching and cloning, digit possible image deformation, free-form image registration, texture synthesis, interactive segments.	ms. Traditional ares (C++, C#, Jav  lving. It focuses rest, including the extenses of data store,  dec. It mainly dealess theoretical theo	esucceed in labe specified and novel furnal. As such mainly on the volutionary at the protection, als with practices are mapping e, color-to-generate in the protection, and the mapping e, color-to-generate in the protection, and the mapping e, color-to-generate in the protection in	both the miced by individual and programment of the classical tata algorithms are properly and archiving archiving and archiving arc	dents are didents are didents are didents are didents are didents are didents are didents.  KZ  amming lan are didents paradigm  C,ZK  sks from the didents are didents are aluable outs ession, de-ton, context epth, alpha	ue to: -Take ne final term during the final term during are areas of stal networks, final networks, final term during are during the final term during the
tests with the success class of the term.  BI-APJ This course is presented.  NI-AFP This course is presented the rise nowadays and necessary competenced.  BIE-ZUM Students are introduced space search, multi-aggoe presented as well.  BI-BLE The course extends known animation. It offers a construction of the student will learn produced balancing and higher the success of the student and have an of digital image process frequency domain, absonteractive as-rigid-as-policy.	rate set at 70%80% and over in BOTH tests means ORAL EXAM ONLY (no written part). F  Aplication Programming in Java and in Czech. Advanced technologies in Java.  Applied Functional Programming and in Czech. Functional programming represents one of the traditional programming paradigm the functional paradigm becomes an important construct of traditionally imperative language as of a software engineer: the theory and especially the practice.  Artificial Intelligence Fundamentals and to the fundamental problems in the Artificial Intelligence, and the basic methods for their so tent systems, game theory, planning, and machine learning. Modern soft-computing methods are included and practically oriented introduction to Blender environment. Students may continue Database Systems in Practes and in Czech.  Storage and Filesystems  orinciples and current solutions of storage systems architecture. The module explains principle in availability.  Digital Image Processing a comprehensive overview of modern methods for interactive editing of digital images and vice interesting theoretical basis. Visually attractive applications provide better understanding of besing. This course will introduce algorithms solving the following practical applications: edge-astraction, hybrid images, gradient domain editing, seamless image stitching and cloning, digit possible image deformation, free-form image registration, texture synthesis, interactive segments.	ms. Traditional ares (C++, C#, Jav  Iving. It focuses resident in the BI-PGA (Progress of data store, as of data store).  Judge of the store of the store of data store, as of data store, as of data store, as of data store, as of data store, and photo-montaguentation, colorization,	esucceed in labe specified and novel furnal. As such mainly on the volutionary and the volutionary aramming gramming gra	a both the miced by individual cardinal programmer, mastering the classical tata algorithms are properly and archiving and archiving archiving and archiving archiving and archiving archiving and archiving a	dents are didents are didents are didents are didents are didents are didents are didents.  KZ	ue to: -Take ne final term during the final term during are areas of stal networks,  4 graphics and durse.  4 storage scaling during the domitouring in enhancement matting.  4
tests with the success class of the term.  BI-APJ This course is presented.  NI-AFP This course is presented the rise nowadays and enecessary competenced.  BIE-ZUM Students are introduced space search, multi-aggree presented as well.  BI-BLE The course extends known animation. It offers a construction of the student will learn properly and balancing and higher the student will learn properly and balancing and higher the student and have an of digital image process frequency domain, absenteractive as-rigid-as-polymer focuses on statements.	age instructionMeet the requirements for writing assignments - Summary, Abstract, Argumarate set at 70%80% and over in BOTH tests means ORAL EXAM ONLY (no written part). Final Aplication Programming in Java and in Czech. Advanced technologies in Java.  Applied Functional Programming and in Czech. Functional programming represents one of the traditional programming paradign the functional paradigm becomes an important construct of traditionally imperative language of a software engineer: the theory and especially the practice.  Artificial Intelligence Fundamentals and to the fundamental problems in the Artificial Intelligence, and the basic methods for their so tent systems, game theory, planning, and machine learning. Modern soft-computing methods are systems, game theory, planning, and machine learning. Modern soft-computing methods are systems.  Blender to be and practically oriented introduction to Blender environment. Students may continue to Database Systems in Practes and in Czech.  Storage and Filesystems orinciples and current solutions of storage systems architecture. The module explains principle in availability.  Digital Image Processing a comprehensive overview of modern methods for interactive editing of digital images and vicin interesting theoretical basis. Visually attractive applications provide better understanding of bising. This course will introduce algorithms solving the following practical applications: edgestraction, hybrid images, gradient domain editing, seamless image stitching and cloning, digit possible image deformation, free-form image registration, texture synthesis, interactive segments and possible image deformation, free-form image registration, texture synthesis, interactive segments and possible image deformation, free-form image registration of machine learning a deformation of machine learning and con-fidence and possible image deformation of situations and parallelization of machine learning a deformation of machine learning and con-fidence and possible image deform	ms. Traditional ares (C++, C#, Jav  lving. It focuses resident, including the extension of the state of the s	esucceed in labe specified and novel furnal. As such mainly on the volutionary at the protection, als with practices are mapping e, color-to-gation, paintints will gair not succeed and the mapping e, color-to-gation, paintints will gair	both the miced by individual and programment of the classical tate algorithms are properly and archiving archiving and archiving archiving and archiving archiving and archiving archivi	dents are didents are didents are didents are didents are didents are didents are didents.  KZ	ue to: -Take ne final term during the final term during are areas of stal networks, final networks, final term during area during.  4 storage scaling during in enhancement during.  4 with large scaling during in enhancement during.
tests with the success class of the term.  BI-APJ This course is presented.  NI-AFP This course is presented the rise nowadays and necessary competenced.  BIE-ZUM Students are introduced space search, multi-agging the presented as well.  BI-BLE The course extends known animation. It offers a construction of the student will learn processing the summer of digital image processing framework.  NI-DDM Course focuses on statidata processing framework.	rage instructionMeet the requirements for writing assignments - Summary, Abstract, Argumarate set at 70%80% and over in BOTH tests means ORAL EXAM ONLY (no written part). Find the part of the	ms. Traditional ares (C++, C#, Jav  lving. It focuses resident, including the extension of the state of the s	esucceed in labe specified and novel furnal. As such mainly on the volutionary at the protection, als with practices are mapping e, color-to-gation, paintints will gair not succeed and the mapping e, color-to-gation, paintints will gair	both the miced by individual and programment of the classical tate algorithms are properly and archiving archiving and archiving archiving and archiving archiving and archiving archivi	dents are didents are didents are didents are didents are didents are didents are didents.  KZ	ue to: -Take ne final term during the final term during are areas of stal networks, final networks, final term during area during.  4 storage scaling during in enhancement during.  4 with large scaling during in enhancement during.
tests with the success class of the term.  BI-APJ This course is presented.  NI-AFP This course is presented the rise nowadays and necessary competenced.  BIE-ZUM Students are introduced space search, multi-agginates be presented as well.  BI-BLE The course extends known animation. It offers a construction of the student will learn processed by the student will learn processed by the student will learn processed by the student and have an of digital image processed frequency domain, abstinteractive as-rigid-as-pourse focuses on statidata processing framewapproaches to parallelia.	age instructionMeet the requirements for writing assignments - Summary, Abstract, Argumrate set at 70%80% and over in BOTH tests means ORAL EXAM ONLY (no written part). Find the part of the pa	ms. Traditional ares (C++, C#, Jav  lving. It focuses resident, including the extension of the state of the s	esucceed in labe specified and novel furnal. As such mainly on the volutionary at the protection, als with practices are mapping e, color-to-gation, paintints will gair not succeed and the mapping e, color-to-gation, paintints will gair	both the miced by individual and programment of the classical tate algorithms are properly and archiving archiving and archiving archiving and archiving archiving and archiving archivi	dents are didents are didents are didents are didents are didents are didents are didents.  KZ	ue to: -Take he final term during the final term during are areas of stal networks, 4 graphics and durse.  4 detorage scaling during in enhancementating. 4 dith large scaling during the final term during during in enhancementating.
tests with the success class of the term.  BI-APJ This course is presente NI-AFP This course is presente the rise nowadays and necessary competence BIE-ZUM Students are introduce space search, multi-ag be presented as well.  BI-BLE The course extends kn animation. It offers a consideration of the search of th	rate set at 70%80% and over in BOTH tests means ORAL EXAM ONLY (no written part). F  Aplication Programming in Java and in Czech. Advanced technologies in Java.  Applied Functional Programming and in Czech. Functional Programming and in Czech. Functional Programming and in Czech. Functional programming represents one of the traditional programming paradig the functional paradigm becomes an important construct of traditionally imperative language as of a software engineer: the theory and especially the practice.  Artificial Intelligence Fundamentals do to the fundamental problems in the Artificial Intelligence, and the basic methods for their so tent systems, game theory, planning, and machine learning. Modern soft-computing methods  Blender  Blen	ms. Traditional ares (C++, C#, Jav  lving. It focuses resident, including the extension of the state of the s	esucceed in labe specified and novel furnal. As such mainly on the volutionary at the protection, als with practices are mapping e, color-to-gation, paintints will gair not succeed and the mapping e, color-to-gation, paintints will gair	both the miced by individual and programment of the classical tate algorithms are properly and archiving archiving and archiving archiving and archiving archiving and archiving archivi	dents are didents are didents are didents are didents are didents are didents are didents.  KZ	ue to: -Take ne final term during the final term during are areas of stal networks, 4 araphics and arse.  4 detorage scaling during the domital term during in enhanceme matting.  4 detorage scaling during the domital term during during the domital term during during the during t
tests with the success class of the term.  BI-APJ This course is presented.  NI-AFP This course is presented the rise nowadays and necessary competenced.  BIE-ZUM Students are introduce space search, multi-agg be presented as well.  BI-BLE The course extends kn animation. It offers a construction of the student will learn pload balancing and hig NI-DZO This course presents a implement and have an of digital image proces frequency domain, absinteractive as-rigid-as-pNI-DDM Course focuses on stat data processing frames.	rate set at 70%80% and over in BOTH tests means ORAL EXAM ONLY (no written part). F  Aplication Programming in Java and in Czech. Advanced technologies in Java.  Applied Functional Programming and in Czech. Functional Programming and in Czech. Functional Programming and in Czech. Functional programming represents one of the traditional programming paradig the functional paradigm becomes an important construct of traditionally imperative language as of a software engineer: the theory and especially the practice.  Artificial Intelligence Fundamentals do to the fundamental problems in the Artificial Intelligence, and the basic methods for their so tent systems, game theory, planning, and machine learning. Modern soft-computing methods  Blender  Blen	ms. Traditional ares (C++, C#, Jav  lving. It focuses resident, including the extension of the state of the s	esucceed in labe specified and novel furnal. As such mainly on the volutionary at the protection, als with practices are mapping e, color-to-gation, paintints will gair not succeed and the mapping e, color-to-gation, paintints will gair	aboth the miced by individual programment of the miced by individual programment of the material programment of th	dents are didents are didents are didents are didents are didents are didents are didents.  KZ	ue to: -Take he final term during the final term during are areas of stall networks, which is a stall network in the stall networks are also stall networks. The stall networks are also stall networks are also stall networks are also stall networks. The stall networks are also stall networks are also stall networks are also stall networks. The stall networks are also stall networks are also stall networks are also stall networks. The stall networks are also stall networks are also stall networks, which is a stall networks, which is a stall networks, which is a stall networks are also stall networks. The stall networks are also stall networks are also stall networks, which is a stall networks are also stall networks. The stall networks are also stall networks are also stall networks, which is a stall networks are also stall networks. The stall networks are also stall networks are also stall networks are also stall networks. The stall networks are also stall networks are also stall networks are also stall networks. The stall networks are also stall networks are also stall networks are also stall networks. The stall networks are also stall networks are also stall networks are also stall networks. The stall networks are also stall networks are also stall networks are also stall networks. The stall networks are also stall networks are also stall networks are also stall networks. The stall networks are also stall networks. The stall networks are also stall n
tests with the success class of the term.  BI-APJ This course is presented.  NI-AFP This course is presented the rise nowadays and necessary competenced.  BIE-ZUM Students are introduced space search, multi-aggible presented as well.  BI-BLE The course extends know an imation. It offers a consumer of the course is presented.  BI-STO The student will learn processed belonging and higher of the course presents a simplement and have an of digital image process frequency domain, abstinteractive as-rigid-as-processing framewapproaches to paralleliabl-EP1 The course is taught in BI-EP2	Rage instructionMeet the requirements for writing assignments - Summary, Abstract, Argumrate set at 70%80% and over in BOTH tests means ORAL EXAM ONLY (no written part). For a summary and over in BOTH tests means ORAL EXAM ONLY (no written part). For a summary and over in BOTH tests means ORAL EXAM ONLY (no written part). For a summary and in Czech. Advanced technologies in Java.  Application Programming in Java.  Application Programming represents one of the traditional programming paradigited in Czech. Functional programming represents one of the traditionally imperative languages of a software engineer: the theory and especially the practice.  Artificial Intelligence Fundamentals do to the fundamental problems in the Artificial Intelligence, and the basic methods for their so gent systems, game theory, planning, and machine learning. Modern soft-computing methods for their supplies and practically oriented introduction to Blender environment. Students may continue to batabase Systems in Practes and in Czech.  Storage and Filesystems principles and current solutions of storage systems architecture. The module explains principles are comprehensive overview of modern methods for interactive editing of digital images and vice interesting theoretical basis. Visually attractive applications provide better understanding of the sing. This course will introduce algorithms solving the following practical applications: edge-astraction, hybrid images, gradient domain editing, seamless image stitching and cloning, digit possible image deformation, free-form image registration, texture synthesis, interactive segments and principle in the processing of the processing and control patents. The principle is cother algorithms. The course is prezented in czech language.  Effective programming 1  Effective programming 1	ms. Traditional ares (C++, C#, Jav  Iving. It focuses ris, including the existence of data store,  dec. It mainly dealers theoretical because theoretical aware editing, torial photo-montagientation, colorizal glorithms. Stude es of their parallers	esucceed in labe specified and novel furnal. As such mainly on the volutionary and the volutionary aramming gramming gra	a both the miced by individual and programment of the classical transport of the classical algorithm that is also via the classical algorithm that is also via the classical transport of the classical transport	dents are dideterm and the disterm and the all teachers are dideterm and the neural are dideterm and the neural are dideterm and the neural are all teachers are the teachers are didetermined and the teachers are didetermined are discussed as a second are discussed as a seco	ue to: -Take he final term during the final term during are areas of stal networks,  4 praphics and durse.  4 storage scaling during in enhancementating.  4 dith large scaling during the first large scaling during in enhancementating.  4 dith large scaling during the first large scaling during duri
tests with the success class of the term.  BI-APJ This course is presented.  NI-AFP This course is presented the rise nowadays and necessary competenced.  BIE-ZUM Students are introduced space search, multi-agging be presented as well.  BI-BLE The course extends known animation. It offers a construction of the search of th	age instructionMeet the requirements for writing assignments - Summary, Abstract, Argumarate set at 70%80% and over in BOTH tests means ORAL EXAM ONLY (no written part). Final Programming in Java.  Applied Functional Programming at in Zeech. Advanced technologies in Java.  Applied Functional Programming at in Zeech. Functional programming persesents one of the traditional programming paradigm the functional paradigm becomes an important construct of traditionally imperative languages of a software engineer: the theory and especially the practice.  Artificial Intelligence Fundamentals at the fundamental problems in the Artificial Intelligence, and the basic methods for their so tent systems, game theory, planning, and machine learning. Modern soft-computing methods between the systems, game theory, planning, and machine learning. Modern soft-computing methods between the systems and practically oriented introduction to Blender environment. Students may continue Database Systems in Practes and in Czech.  Storage and Filesystems orinciples and current solutions of storage systems architecture. The module explains principle havailability.  Digital Image Processing a comprehensive overview of modern methods for interactive editing of digital images and vice interesting theoretical basis. Visually attractive applications provide better understanding of bising. This course will introduce algorithms solving the following practical applications: edge-astraction, hybrid images, gradient domain editing, seamless image stitching and cloning, digit possible image deformation, free-form image registration, texture synthesis, interactive segments and processing interactive approaches for distributed data mining and parallelization of machine learning as work Apache Spark and with existing distributed DM / ML algorithms. They will learn principle ize other algorithms. The course is prezented in czech language.  Effective programming 1  Effective programming 2	ms. Traditional ares (C++, C#, Jav  Iving. It focuses ris, including the existence of data store,  dec. It mainly dealers theoretical because theoretical aware editing, torial photo-montagientation, colorizal glorithms. Stude es of their parallers	esucceed in labe specified and novel furnal. As such mainly on the volutionary and the volutionary aramming gramming gra	a both the miced by individual and programment of the classical transport of the classical algorithm that is also via the classical algorithm that is also via the classical transport of the classical transport	dents are dideterm and the disterm and the all teachers are dideterm and the neural are dideterm and the neural are dideterm and the neural are all teachers are the teachers are didetermined and the teachers are didetermined are discussed as a second are discussed as a seco	ue to: -Take ne final term during the final term during are areas of stall networks,  4 praphics and durse.  4 storage scaling during in enhancementating.  4 dith large scaling during the first large scaling during in enhancementating.  4 dith large scaling during the first large scaling during dur
ests with the success elass of the term.  BI-APJ This course is presented by the rise nowadays and elecessary competenced by the rise of the rise and the rise and rise presented as well.  BI-BLE The course extends known in the rise and rise presented by the rise and rise presented by the rise and rise presents a requency domain, absorter active as-rigid-a	rate set at 70%80% and over in BOTH tests means ORAL EXAM ONLY (no written part). F  Aplication Programming in Java ad in Czech. Advanced technologies in Java.  Applied Functional Programming ed in Czech. Functional programming represents one of the traditional programming paradigit the functional pradigm becomes an important construct of traditionally imperative language at a software engineer: the theory and especially the practice.  Artificial Intelligence Fundamentals do to the fundamental problems in the Artificial Intelligence, and the basic methods for their so tent systems, game theory, planning, and machine learning. Modern soft-computing methods of the systems, game theory, planning, and machine learning. Modern soft-computing methods problems and practically oriented introduction to Blender environment. Students may continue Database Systems in Practes din Czech.  Storage and Filesystems  Storage and Filesystems  Storinciples and current solutions of storage systems architecture. The module explains principle havailability.  Digital Image Processing a comprehensive overview of modern methods for interactive editing of digital images and vice interesting theoretical basis. Visually attractive applications provide better understanding of being in the processing theoretical basis. Visually attractive applications provide better understanding of being the rottone of the processing and consessible image deformation, free-form image registration, texture synthesis, interactive segments of the process of the processing and processing and coning, digit possible image deformation, free-form image registration, texture synthesis, interactive segments and processing and coloning, digit possible image deformation. The course is prezented in czech language.  Effective programming 1	ms. Traditional ares (C++, C#, Jav  Iving. It focuses ris, including the existence of data store,  dec. It mainly dealers theoretical because theoretical aware editing, torial photo-montagientation, colorizal glorithms. Stude es of their parallers	esucceed in labe specified and novel furnal. As such mainly on the volutionary and the volutionary aramming gramming gra	aboth the miced by individual programments applied and archiving archives and archiving and archiving and archiving and archiving and archiving archiving and archiving archiving and archiving ar	dents are dideterm and the disterm and the all teachers are dideterm and the neural are dideterm and the neural are dideterm and the neural are all teachers are the teachers are didetermined and the teachers are didetermined are discussed as a second are discussed as a seco	ue to: -Take ne final term during the final term during are areas of stall networks,  4 graphics and durse.  4 storage scaling the domital term during in enhancementating.  4 dith large scaling the first large scaling to propose during the first large scaling the first large sc

a database and are accessed through the web interface.

	lanagement Accounting	Z,ZK	5
· ·	terms in the theory of accounting, the principles of balancing the property amounts and liabilities in the ments including opening and closing of bookkeeping. The course provides students with a legal modification.	· ·	
	thods of double-entry bookkeeping for enterprising subjects in the Czech Republic. Principles of manage	•	
Business Inteligence moduls in Business info	·		
I I	I network traffic monitoring	KZ	4
	nd widely used technologies and principles in the area of network infrastructure and traffic monitoring. I k operators (planning and development of resources and infrastructure) and security analysts alike (as	-	
	cquaint students with the modern trends and cornerstone principles in the area of monitoring network t		
level and to develop their practical abilities in	this field.		
	cations on Arduino	KZ	4
-	ade of bachelor study as introduction to embedded systems. Students will learn how to design simple appl of available libraries. The goal of the subject is to show varied software approaches to control embedded		
	le control on higher (objective) layer, this platform is frequently used for artist performance and therefor	,	
Software Engineering students.			
NI-IAM Internet and Mu		Z,ZK	4
	nd modern technologies for network transmissions of audiovisual (AV) signals. The syllabus includes ac communication protocols, device interfaces, codecs, data formats and stereoscopy. We will look at practic	-	
	udents will practically assemble AV transmission chains using HW and SW technologies and verify the		
	Students will learn how to build Internet infrastructure for end-to-end AV transmissions from the recording	g the scene up to	the presentation
for audience.	Asthomatics O		
BIE-IMA2   Introduction to N Students refresh and extend knowledge of el	viatnernatics 2 ementary functions and their properties. Students understand basic mathematical principles and they a	Z ire able to apply th	2 nem in particular
examples.		.o asie to apply a	ioni in partiodiai
BI-CS2 C# language an	d data access	KZ	4
	jective is to introduce students several data access technologies - database, XML, NoSQL - on the Mic	•	
-	onnection, Command, Data Reader and DataAdapter v ADO.NET. Next, they will learn to use current te tegrated directly with the .NET platform languages, which enable LINQ use with Objects, XML and SQI	_	
	ntity Framework - an object-relational mapper that enables .NET developers to work with relational data	•	
•	de First, Database First, Model First approaches. The students will also get to know the Conceptual Mo		
(XML description).			
, ,	design of web applications	KZ	4
on thisplatform. They will learn to create Web	inologies in web application development on the .NET platform. They will acquire a comprehensive overvi API and to use it by client programs.	ew of the developi	nent possibilities
BI-SQL.1 Language SQL,		KZ	4
	-DBS. Students become familiar with advanced relational and non-relational features of SQL language. I	-	
	ect-relational constructions. Part of the course is dedicated to practical database optimization from the po	-	
	zed tables, and materialized views. as well as from the point of view query optimization. Execution plan ss SQL standard, but many features will be demonstrated on Oracle DBMS. Seminars are based on Ora	•	
PostgreSQL.	· •	·	
	thms and programming	KZ	5
	erience with quantum computers and their programming. We focus on fundaments of quantum mechanic es and limitations of quantum computing. During tutorials students work in open-source software devel	•	
, 0 0	es and infinitations of quantum computing. During tutorials students work in open-source software developments ebra at the level of BI-LA1 and BI-LA2 (or BI-LIN) is necessary. Previous completion of BI-MA2 or BI-VI		
might be an advantage. No previous knowled			, , , , , , , , , , , , , , , , , , ,
NI-LSM Statistical Mode	•	KZ	5
	target tracking. The student both learns the existing methods and tries to implement them. The stress is	•	
5 5	numpy and scipy. The second half of the semester is focused on the design of methods and algorithms, wn research and may result in the topic of final work (diploma or bachelor thesis).	and analyses of t	neir properties.
NI-MPL Managerial Psy		ZK	2
, ,	tructures in Computer Science	Z,ZK	4
•	guages. Data types as continous lattices, Scott topology. Procedures as continuous mappings. The Sco	tt model of lambda	a calculus.
Introduction to category theory.		7.71	
· ·	rfacing peripheral devices sing of peripheral devices. Interfacing of real peripheral devices is focused on techniques based on Univ	Z,ZK	5 ISB) The course
	side. Labs are practically oriented. Students gain experience with implementation of relevant parts of U	,	′
drivers, simple application development, and			
BI-MIT Mikrotik technol		KZ	3
	the introduction of the RouterOS operating system and some network Mikrotik technologies which are of students learn how to use and create the architectures of the network solutions which are based on the		
	students learn now to use and create the architectures of the network solutions which are based on the hem. The successful completion of this subject requires the previous knowledge of elementary compute		
and technologies of the data-link, network an			
,	Oriented Programming in Pharo	KZ	4
	of the most widespread paradigms of software creation, especially enterprise information systems, who	-	
	In this course, we build on the knowledge acquired in the course BI-OOP and aim to further deepen the sem Pharo (https://pharo.org). The course focuses on individual approach to students, their development	•	
	tills, which are generally applicable in other OO languages, students will also gain the opportunity to wo		
	the possibility of cooperation with practice and related bachelor, diploma, postgraduate our direct involved		ro Consortium.
I I	sation Technologies	Z,ZK	5
	of modern visualization technologies and their principles, namely technologies related to virtual and au o mapping) and their applications in practice. Several lectures deal with the content creation for the ment	-	
and procedural visualization, scientific data v	· · · · · ·	ionea teomologie	o, namely Hatidi
·			

MMP   Multimedia team project course is presented in Czech.  OLI   Linux Drivers   Linux operating system is an important operating system for personal computer and also for embedded systems. Systems on chip and compasse the variability of peripheral subsystems requiring specific software drivers. This course is an advanced course in the Linux driver deverse provides knowledge of Linux operating system architecture, principles of development of various types drivers, including practical expersional expers	elopment for master's st	
Coll Linux Drivers Linux operating system is an important operating system for personal computer and also for embedded systems. Systems on chip and compase the variability of peripheral subsystems requiring specific software drivers. This course is an advanced course in the Linux driver developed seep provides knowledge of Linux operating system architecture, principles of development of various types drivers, including practical expersion of the Linux driver development of various types drivers, including practical expersion of the Linux driver development of various types drivers, including practical expersion of the Linux driver development of various types drivers, including practical expersion of the Linux driver development of various types drivers, including practical expersion of the Linux driver development of various types drivers, including practical expersion of the Linux driver development of various types drivers, including practical expersion of the Linux driver development of various types drivers, including practical expersion of the Linux driver development of various types drivers, including practical expersion of the Linux driver development of various types drivers.  ACM	nbining powerful processions and interest states and interest states are states are states and interest states are sta	sors and FPGAs tudents. The
Programming Practices 2 course is presented in Czech.  ACM Programming Practices 2 course is presented in Czech.  ACM Programming Practices 3 course is presented in Czech.  ACM Programming Practices 4 course is presented in Czech.  ACMA Programming Practices 3 course is presented in Czech.  ACMA Programming Practices 3 course is presented in Czech.  ACMA Programming Practices 3 course is presented in Czech.  ACMA Programming Practices 4 course is presented in Czech.  ACMA Programming Practices 4 course is presented in Czech.  ACMA Programming Practices 5 course is presented in Czech.  ACMA Programming Practices 5 course is presented in Czech.  AND.21 Programming for the Android Operating System	nbining powerful processions and interest states and interest states are states are states and interest states are sta	tudents. The
se provides knowledge of Linux operating system architecture, principles of development of various types drivers, including practical expertance of the programming practices of the course is presented in Czech.  ACM2 Programming Practices 2 course is presented in Czech.  ACM3 Programming Practices 3 course is presented in Czech.  ACM4 Programming Practices 4 course is presented in Czech.  AND.21 Programming for the Android Operating System	rience.  KZ  KZ	
ACM Programming Practices 1 course is presented in Czech.  ACM2 Programming Practices 2 course is presented in Czech.  ACM3 Programming Practices 3 course is presented in Czech.  ACM4 Programming Practices 4 course is presented in Czech.  AND.21 Programming for the Android Operating System	KZ   KZ	5
course is presented in Czech.  ACM2   Programming Practices 2 course is presented in Czech.  ACM3   Programming Practices 3 course is presented in Czech.  ACM4   Programming Practices 4 course is presented in Czech.  AND.21   Programming for the Android Operating System	KZ	1 3
course is presented in Czech.  ACM3 Programming Practices 3 course is presented in Czech.  ACM4 Programming Practices 4 course is presented in Czech.  AND.21 Programming for the Android Operating System	'	
ACM3   Programming Practices 3 course is presented in Czech.  ACM4   Programming Practices 4 course is presented in Czech.  AND.21   Programming for the Android Operating System	KZ	5
course is presented in Czech.  ACM4 Programming Practices 4 course is presented in Czech.  AND.21 Programming for the Android Operating System	KZ	
ACM4 Programming Practices 4 course is presented in Czech.  AND.21 Programming for the Android Operating System		5
course is presented in Czech.  AND.21 Programming for the Android Operating System	1/7	
AND.21 Programming for the Android Operating System	KZ	5
, , , ,	KZ	4
course is presented in Czech.	'\=	
CS1 Programming in C#	KZ	4
goal of the course is to introduce .NET Framework as a multi-language development platform. Then, programming language C#, its fundar		
rators, arrays, loops, definitions and calls of functions will be discussed. Attention is focused on the object oriented programming in C# - cla		
structors, methods, properties, static members, Garbage Collector, inheritance and polymorphism, collections, delegates, and generics. De as work with files are emphasized.	ebugging and exception	processing, as
PJS.1 JavaScript Programming	KZ	4
n goal of the course is an introduction to Javascript programming. Students will learn also best practices and will use tool that eases develo		
mmended for students of BIE-WSI-WI.2015 branch of study and do not have required knowledge to register for BIE-TWA.1. They should regi		
udy.		
KOT Programing in Kotlin	Z,ZK	4
n is a modern, statically-styled object-functional language that exploits the extensive Java language ecosystem while delivering a number of		
language is fully Java compliant and allows for mixed projects that preserve existing parts written in Java, and continue with the development of the continue with the cont	ent of a modern, object	-functional way
minimum of boiler-plate code. Last but not least, Kotlin is suitable for designing of DSLs (Domain-Specific Languages).	7.71	
PSL Programming in Scala	Z,ZK	4
course introduces the modern programming language Scala which exploits object-functional paradigm. Scala comprises advance languag ance standard library. Scala enables to use of applications functional patterns e.g. H-List, Monads, etc. Scala is used by many powerful framev	= :	_
az, etc.	works and libraries e.g. i	iay, Oassariara,
PMA Programming in Mathematica	Z,ZK	4
lents will be working with modern technical and scientific software. Students will learn how to use different programming styles (functional p		
, how to create dynamic interactive applications and visualisations, data processing and presentations.		
PHP.1 Programing in PHP	KZ	4
course is taught in Czech Main goal of the course is an introduction to PHP - language and technology. Students will learn also best practice.		
elopment in PHP. The course is recommended for students of BIE-WSI-WI.2015 branch of study and do not have required knowledge to require the course is recommended for students of BIE-WSI-WI.2015 branch of study and do not have required knowledge to required knowledge.	gister for BIE-TWA.1. The	ney should
ster for this course in their 3rd semester of study.	7.71	
PS2   Programming in shell 2 lents gain a general overview of available scripting languages, their syntax, semantics, programming style, data structures, pros and cons.	Z,ZK	4
tents gain a general overview of available scripting languages, their syntax, semantics, programming style, data structures, pros and cons. shell and some other particular scripting languages and will get practical experience with shell script programming.	in addition, they gain a	deeper insignt
PDD Data Preprocessing	Z,ZK	5
lents learn to prepare raw data for further processing and analysis. They learn what algorithms can be used to extract information from vario		
series, etc., and learn the skills to apply these theoretical concepts to solve specific problems in individual projects - e.g., extraction of cha		
es.		
PKM Introduction to mathematics	Z	4
course is presented in Czech.		
REV Reverse Engineering	Z,ZK	5
lents will get acquainted with the essentials of reverse engineering of computer software. They will learn how processes start and what hap illed. Students will understand how executable files are organized and how they interact with 3rd party libraries. Another part of the course		
ined. Students will understand now executable lifes are organized and now they interact with 3rd party libraries. Another part of the course ications written in C++. Students will also understand principles of disassemblers and obfuscation techniques. A part of the course will also		
aggers 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 co		
course is on the seminars, where students will solve practically oriented tasks from the real world.	, , , , , , , , , , , , , , , , , , , ,	
SCE1 Computer Engineering Seminar I	Z	4
Seminar of Computer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and res	istance to failures and a	attacks. Students
approached individually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Pa	•	
les and other professional literature and/or work in K N laboratories. The capacity of the subject is limited by the possibilities of the semina	ar teachers. The topics a	are new for each
ester.	7	A
SCE2 Computer Engineering Seminar II Seminar of Computer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and res	Z Z	4
seminal of computer Engineering is a (spelective course for students who want to deal with deeper topics of digital design, reliability and res approached individually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Pa		
les and other professional literature and/or work in K N laboratories. The capacity of the subject is limited by the possibilities of the semina	-	
ester.	· 	
ST1 Network Technology 1	Z	3
subject is oriented to providing the students basic information and practical skills from the area of digital and IP networks. The subject is according to the students basic information and practical skills from the area of digital and IP networks.	credited under the Cisc	o Netacad -
JA1 - R&S Introduction to Networks.		
ST2 Network Technology 2	Z	3
course is presented in Czech.		

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 dur	-	
get further extended in the course. Students will be able to start fine-tune protocols' settings to gain certain advantages like increased efficiency, pr	edictability, extension	on beyond a
simple topology, security, etc.		
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 e beyond a simple topology, security, etc. This module teaches students to configure and fine-tune Wide Area Networks and to experience a complet		-
Broadcast Multiple Access) which radically differs from well-known Ethernet (broadcast) type of networks. Students will also manage router and sw		
recoveries, and emergency procedures. Also the security aspect is treated; students will learn possible intra- and inter-network attacks and the miti	•	
network running.	g	
BI-SOJ Machine Oriented Languages	Z,ZK	4
Students of the course will gain an ability to create their own programs in the assembly language of the most common PC platform focusing on optim	1	
and efficient cooperation of software with hardware. Next, there will be discussed x86 specifics of the majority of OSes from the application point of vi	· · · · · · · · · · · · · · · · · · ·	
This knowledge will be used during reverse engineering, optimization, and evaluation of code security.	_	
BI-SVZ Machine vision and image processing	Z,ZK	5
Camera systems are becoming a common part of life by being universally available. Related to this phenomenon is the need to process and evaluation	ite image information	on. The course
introduces students to different types of camera systems and a variety of methods for image and video processing. The course is focused on practical	l use of camera sys	stems for solving
problems of practice that the graduates may encounter.		
NI-SYP Parsing and Compilers	Z,ZK	5
The module builds upon the knowledge of fundamentals of automata theory, formal language and formal translation theories. Students gain knowledge	of various variants	and applications
of LR parsing and are introduced to special applications of parsers, such as incremental and parallel parsing.		
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 p		articular system
even the implementation details will be shown. Students will be challenged to use Git as users, project managers, team leaders as well as Git servi		
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 classical seminar is intended for students which want to come in deeper contact with contemporary theoretical computer science. It is mostly a classical seminar is intended for students which want to come in deeper contact with contemporary theoretical computer science. It is mostly a classical seminar is intended for students which want to come in deeper contact with contemporary theoretical computer science.		•
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 scier	ntific papers and
other scholarly literature. The capacity is limited by the potentials of the teachers of the seminar.		
BI-TS2 Theoretical Seminar II	Z	_ 4
Theoretical seminar is intended for students which want to come in deeper contact with contemporary theoretical computer science. It is mostly a class tracked individually and concern the mostly as with interactive topics from the latest research in the group. Therefore, an integral part of the groups		•
are treated individually and concern themselves with interesting topics from the latest research in the area. Therefore, an integral part of the course other scholarly literature. The capacity is limited by the the potentials of the teachers of the seminar.	is a work with scier	nunc papers and
	7	4
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 seminar is intended for students which want to come in deeper contact with contemporary theoretical computer science. It is mostly a classical seminar is intended for students which want to come in deeper contact with contemporary theoretical computer science. It is mostly a classical seminar is intended for students which want to come in deeper contact with contemporary theoretical computer science.	Z Z	
are treated individually and concern themselves with interesting topics from the latest research in the area. Therefore, an integral part of the course		•
other scholarly literature. The capacity is limited by the the potentials of the teachers of the seminar.	io a work with color	nuno paporo una
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 classical seminar is intended for students which want to come in deeper contact with contemporary theoretical computer science. It is mostly a classical seminar is intended for students which want to come in deeper contact with contemporary theoretical computer science. It is mostly a classical seminar is intended for students which want to come in deeper contact with contemporary theoretical computer science.		
are treated individually and concern themselves with interesting topics from the latest research in the area. Therefore, an integral part of the course		•
other scholarly literature. The capacity is limited by the the potentials of the teachers of the seminar.		
BI-TDA Test driven architecture	KZ	4
The course is focused on practical examples of how to develop, test, and deploy software with tools like GitLab, Docker, Kubernetes, and more that	1	the DevOps
world. This course has a strong connection on courses like BI(E)-SI1 and BI(E)-SI2. The main goal of this course is to learn by examples that occur	in the semester pr	oject.
NI-TSP Testing and Reliability	Z,ZK	5
Students will gain knowledge about circuit testing and about methods for increasing reliability and security. They will get practical skills to be able to	prepare a test set	with the help of
the intuitive path sensitization and to use an ATPG for automatic test generation. They will be able to design easily testable circuits and systems will	:h built-in-self-test ε	equipment. They
will be able to compute, analyze, and control the reliability and availability of the designed circuits.		
BI-CCN Compiler Construction	Z,ZK	5
This is an introductory class on compiler construction for bachelor students in computer science. The goal of the class is to introduce basic principle.		students to
understand the design and implementation of programming languages. Seeing and actually understanding self-compilation is the overarching them		
BI-TEX TeX and Typography	Z,ZK	4
This course is presented in Czech. This course gives basics of programming in TeX (plain TeX, ConTeXt, LaTeX, OpTeX, LuaTeX). Te second part of	the course focuses	s on typographic
rules.		
BI-ULI Introduction to Linux	Z	2
Students become familiar with the basics of the Linux operating system using e-learning form. They learn to work with the command line and become and to be invested to a line with the command line and become and to be invested to a line with the command line and become and to be invested to a line with the command line and become and to be invested to a line with the command line and become and the second to be invested to a line with the command line and become and the second to be invested to be a line with the command line and become and the second to be a line with the command line and become and the second to be a line with the second to be	ne familiar with bas	sic commands
and techniques of a Unix-like system. Topics can be studied first theoretically and then practically verified in a virtual machine (terminal).	7 71/	4
BI-OPT Introduction to Optical Networks	Z,ZK	4
Students get basic overview of optical networking technology with the emphasis on practical utilization in Internet and in network infrastructures, on of optical network technology and on their solutions. The course will include the history of optical communications, an overview of passive components.	•	
dispersion compensators, and others), and an overview of active components (optical switches and amplifiers, high-speed coherent transmission s		
the most up-to-date topics presented at premium research conferences, such as ECOC or OFC. Attention will also be paid to new applications, such	• •	
ultrastable frequency transfer, or sensor networks. The labs will focus on real work with optical components and on measurement of their paramete		
from practice.		
NI-VCC Virtualization and Cloud Computing	Z,ZK	5
Students will gain knowledge of architectures of large computer systems that are used in data centers and computer infrastructure of companies at	1 1	hey will get
acquainted with virtualization principles, tools and technologies that serve to facilitate and automate configuration, testing and monitoring, and to e		
performance parameters of modern computer systems. Theoretically and practically, they will get acquainted with containerization as the most effective to the container of the c		-
management of complex computer systems and with specific technologies of cloud systems. Finally, they will learn the principles and gain practical st	alls in the use of mo	paern integration
and development tools (Continuous integration and development).		

BI-VHS Virtual game worlds	ZK	4
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 knowled	lge 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-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 virtual world	s communication.
The course focuses on the ways of teaching using virtual reality technologies and interactive activities in educational virtual 3D worlds. I	It improves computational thir	nking, empathy
and shared social activities.		
BI-VR2 Virtual reality II	KZ	3
Continuation of the course Virtual Reality I. The new course focuses on collaborative telepresence, spatial computing and social life of a	avatars. The objective is to dev	elop applications
for computer science and gamification in various social metaverse and desktop engines.		
BI-VAK.21 Selected Applications of Combinatorics	Z	3
The course aims to introduce students in an accessible form to various branches of theoretical computer science and combinatorics. In contract, the course aims to introduce students in an accessible form to various branches of theoretical computer science and combinatorics.	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 introd	duce some basic data structu	res. 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. Area	s from which we
will select problems to be solved will include, for example, graph theory, combinatorial and algorithmic game theory, approximation algor	rithms, optimization and more	e. Students will
also try to implement solutions to the studied problems with a special focus on the effective use of existing tools.		
BI-VMM Selected Mathematical Methods	Z,ZK	4
We start reviewing geometric properties of linear spaces with inner product. Next, we introduce and analyze the discrete Fourier transform	orm (DFT) and its fast implement	entation (FFT).
Further we deal with differential calculus of functions involving multiple variables. We present methods for the localization of extreme val	lues of functions. For this purp	poses, we study
normed linear spaces and quadratic forms. In addition, we introduce the least square method. The last part of the course is devoted to op-	ptimization and duality. The lin	ear programming
and the Simplex method is analyzed in more detail.		
NI-VYC Computability	Z,ZK	4
Classical theory of recursive 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 scie	entific and/or research instituti	on. Before the
internship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of	of the professional asstant and	d extent of the
	or the professional content an	
internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever	·	
internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can be considered as a student can earn for one internship is 30 credits.	ry 10 credits correspond to 4	weeks of full-time
	ry 10 credits correspond to 4	weeks of full-time
employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount categories academic year's dead-line.	ry 10 credits correspond to 4	weeks of full-time
employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount caexceeds the academic year's dead-line.	ry 10 credits correspond to 4 an be divided into two subject Z	weeks of full-time is if the internship
employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can exceed the academic year's dead-line.  BI-ZS20 Bachelor internship abroad for 20 credits	ry 10 credits correspond to 4 an be divided into two subject  Z entific and/or research instituti	weeks of full-time is if the internship 20 on. Before the
employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount catevoor exceeds the academic year's dead-line.  BI-ZS20  Bachelor internship abroad for 20 credits  Each student can once within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scie	ry 10 credits correspond to 4 an be divided into two subject   Z entific and/or research instituti of the professional content an	weeks of full-time as if the internship 20 on. Before the ad extent of the
employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount continued and exceeds the academic year's dead-line.  BI-ZS20 Bachelor internship abroad for 20 credits  Each student can once within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scienternship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can be applied to the content of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can be applied to the content of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits.	ry 10 credits correspond to 4 can be divided into two subject    Z centific and/or research institution the professional content arry 10 credits correspond to 4	weeks of full-time is if the internship 20 on. Before the id extent of the weeks of full-time
employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can exceed the academic year's dead-line.  BI-ZS20  Bachelor internship abroad for 20 credits  Each student can once within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scie internship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can be calculated as a student can earn for one internship is 30 credits.	ry 10 credits correspond to 4 can be divided into two subject    Z centific and/or research institution the professional content arry 10 credits correspond to 4	weeks of full-time is if the internship  20 on. Before the ind extent of the weeks of full-time
employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount continued a student can earn for one internship is 30 credits. This amount continued a student can earn for one internship is 30 credits. This amount continued a student can earn for one internship is 30 credits. This amount continued a student can earn for one internship is 30 credits. This amount contents a student can earn for one internship is 30 credits. This amount contents are calculated as a student can earn for one internship is 30 credits. This amount contents are calculated as a student can earn for one internship is 30 credits. This amount can exceed a student can earn for one internship is 30 credits. This amount can exceed a student can earn for one internship is 30 credits. This amount can exceed a student can earn for one internship is 30 credits. This amount can exceed a student can earn for one internship is 30 credits. This amount can exceed a student can earn for one internship is 30 credits. This amount can exceed a student can earn for one internship is 30 credits. This amount can exceed a student can earn for one internship is 30 credits. This amount can exceed a student can earn for one internship is 30 credits. This amount can exceed a student can earn for one internship is 30 credits. This amount can exceed a student can earn for one internship is 30 credits. This amount can exceed a student can earn for one internship is 30 credits. This amount can exceed a student can earn for one internship is 30 credits. This amount can exceed a student can earn for one internship is 30 credits. This amount can exceed a student can earn for one internship is 30 credits. This amount can exceed a student can exceed a student can earn for one internship is 30 credits. This amount can exceed a student can	ry 10 credits correspond to 4 can be divided into two subject    Z centific and/or research institution the professional content arry 10 credits correspond to 4	weeks of full-time is if the internship 20 on. Before the id extent of the weeks of full-time
employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount coexceeds the academic year's dead-line.  BI-ZS20  Bachelor internship abroad for 20 credits  Each student can once within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scie internship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount coexceeds the academic year's dead-line.	ry 10 credits correspond to 4 can be divided into two subject    Z centific and/or research institution of the professional content are ry 10 credits correspond to 4 can be divided into two subject    Z	weeks of full-time as if the internship  20 on. Before the ad extent of the weeks of full-time as if the internship
employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount coexceeds the academic year's dead-line.  BI-ZS20  Bachelor internship abroad for 20 credits  Each student can once within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scie internship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can exceed the academic year's dead-line.  BI-ZS30  Bachelor internship abroad for 30 credits	ry 10 credits correspond to 4 can be divided into two subject    Zentific and/or research institution of the professional content are ry 10 credits correspond to 4 can be divided into two subject    Zentific and/or research institution	weeks of full-time as if the internship  20 on. Before the ad extent of the weeks of full-time as if the internship  30 on. Before the
employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount coexceeds the academic year's dead-line.  BI-ZS20  Bachelor internship abroad for 20 credits  Each student can once within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scie internship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can exceed 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 science.	ry 10 credits correspond to 4 can be divided into two subject    Z centific and/or research instituti of the professional content ar ry 10 credits correspond to 4 can be divided into two subject    Z centific and/or research instituti of the professional content ar	20 on. Before the weeks of full-time is if the internship  20 on. Before the ind extent of the weeks of full-time is if the internship  30 on. Before the ind extent of the
employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount coexceeds the academic year's dead-line.  BI-ZS20  Bachelor internship abroad for 20 credits  Each student can once within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scie internship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount coexceeds 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 scie internship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever	ry 10 credits correspond to 4 can be divided into two subject    Z centific and/or research institution of the professional content arry 10 credits correspond to 4 can be divided into two subject    Z centific and/or research institution of the professional content arry 10 credits correspond to 4	20 on. Before the weeks of full-time is if the internship  20 on. Before the ind extent of the weeks of full-time is if the internship  30 on. Before the ind extent of the weeks of full-time
employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount coexceeds the academic year's dead-line.  BI-ZS20  Bachelor internship abroad for 20 credits  Each student can once within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scie internship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount coexceeds 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 scie internship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever	ry 10 credits correspond to 4 can be divided into two subject    Z centific and/or research institution of the professional content arry 10 credits correspond to 4 can be divided into two subject    Z centific and/or research institution of the professional content arry 10 credits correspond to 4	20 on. Before the dextent of full-time is if the internship  30 on. Before the weeks of full-time is if the internship  30 on. Before the id extent of the weeks of full-time
employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount coexceeds the academic year's dead-line.  BI-ZS20  Bachelor internship abroad for 20 credits  Each student can once within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scie internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can exceed 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 scie internship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can exceed the academic year's dead-line.	ry 10 credits correspond to 4 can be divided into two subject    Z centific and/or research institution of the professional content arry 10 credits correspond to 4 can be divided into two subject    Z centific and/or research institution of the professional content arry 10 credits correspond to 4	20 on. Before the dextent of full-time is if the internship  30 on. Before the weeks of full-time is if the internship  30 on. Before the id extent of the weeks of full-time
employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount coexceeds the academic year's dead-line.  BI-ZS20  Bachelor internship abroad for 20 credits  Each student can once within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scie internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can exceed 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 scie internship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can exceed the academic year's dead-line.  BI-ZIVS  Intelligent Embedded System Fundamentals	ry 10 credits correspond to 4 can be divided into two subject    Zentific and/or research institution of the professional content arry 10 credits correspond to 4 can be divided into two subject    Zentific and/or research institution of the professional content arry 10 credits correspond to 4 can be divided into two subject    KZ	weeks of full-time is if the internship  20 on. Before the ind extent of the weeks of full-time is if the internship  30 on. Before the ind extent of the weeks of full-time is if the internship
employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount coexceeds the academic year's dead-line.  BI-ZS20  Bachelor internship abroad for 20 credits  Each student can once within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scie internship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can exceed 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 scie internship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can exceed the academic year's dead-line.  BI-ZIVS  Intelligent Embedded System Fundamentals	ry 10 credits correspond to 4 can be divided into two subject    Zentific and/or research institution of the professional content arry 10 credits correspond to 4 can be divided into two subject    Zentific and/or research institution of the professional content arry 10 credits correspond to 4 can be divided into two subject    KZ  nce. The aim of the course is a	20 on. Before the dextent of the weeks of full-time is if the internship  30 on. Before the weeks of full-time is if the internship  30 on. Before the weeks of full-time is if the internship  4 to teach students
employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount coexceeds the academic year's dead-line.  BI-ZS20  Bachelor internship abroad for 20 credits  Each student can once within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scie internship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount coexceeds 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 scie internship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount coexceeds the academic year's dead-line.  BI-ZIVS  Intelligent Embedded System Fundamentals  Intelligent embedded system fundamentals course is focused on high-level technology embedded systems integrating artificial intelligent	ry 10 credits correspond to 4 can be divided into two subject    Z entific and/or research institution the professional content arry 10 credits correspond to 4 can be divided into two subject    Z entific and/or research institution the professional content arry 10 credits correspond to 4 can be divided into two subject    Entific and/or research institution the professional content arry 10 credits correspond to 4 can be divided into two subject    KZ    Ince. The aim of the course is also formation control, sensor re-	weeks of full-time is if the internship  20 on. Before the id extent of the weeks of full-time is if the internship  30 on. Before the id extent of the weeks of full-time is if the internship  4 to teach students ading, application
employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount continued to exceed the academic year's dead-line.  BI-ZS20  Bachelor internship abroad for 20 credits  Each student can once within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scie internship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount context acceeds 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 scie internship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount context is acceeded the academic year's dead-line.  BI-ZIVS  Intelligent Embedded System Fundamentals  Intelligent embedded system fundamentals course is focused on high-level technology embedded systems integrating artificial intelligent modern humanoid robot control and development of applications in a graphical development environment. Lectures provide fundamentals	ry 10 credits correspond to 4 can be divided into two subject    Z entific and/or research institution the professional content arry 10 credits correspond to 4 can be divided into two subject    Z entific and/or research institution the professional content arry 10 credits correspond to 4 can be divided into two subject    Entific and/or research institution the professional content arry 10 credits correspond to 4 can be divided into two subject    KZ    Ince. The aim of the course is also formation control, sensor re-	weeks of full-time as if the internship  20 on. Before the add extent of the weeks of full-time as if the internship  30 on. Before the add extent of the weeks of full-time as if the internship  4 to teach students adding, application
employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount coexceeds the academic year's dead-line.  BI-ZS20 Bachelor internship abroad for 20 credits  Each student can once within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scie internship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount coexceeds 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 scie internship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount coexceeds the academic year's dead-line.  BI-ZIVS Intelligent Embedded System Fundamentals  Intelligent embedded system fundamentals course is focused on high-level technology embedded systems integrating artificial intelligent modern humanoid robot control and development of applications in a graphical development environment. Lectures provide fundamentals interfaces, robot navigation and development tools. In labs, students program a set of basic task by using the robot simulator and real hat technologies.	ry 10 credits correspond to 4 can be divided into two subject    Zentific and/or research institution the professional content arry 10 credits correspond to 4 can be divided into two subject    Zentific and/or research institution the professional content arry 10 credits correspond to 4 can be divided into two subject    Example 1    KZ    Ince. The aim of the course is a lardware to get practical expensional content arry 10 credits correspond to 4 can be divided into two subject    KZ    Ince. The aim of the course is a lardware to get practical expensional content arry 10 credits correspond to 4 can be divided into two subjects    KZ    Ince. The aim of the course is a lardware to get practical expensions.	weeks of full-time as if the internship  20 on. Before the add extent of the weeks of full-time as if the internship  30 on. Before the add extent of the weeks of full-time as if the internship  4 to teach students adding, application
employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount coexceeds the academic year's dead-line.  BI-ZS20 Bachelor internship abroad for 20 credits  Each student can once within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scie internship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount coexceeds 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 scie internship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount coexceeds the academic year's dead-line.  BI-ZIVS Intelligent Embedded System Fundamentals  Intelligent Embedded System fundamentals course is focused on high-level technology embedded systems integrating artificial intelligent modern humanoid robot control and development of applications in a graphical development environment. Lectures provide fundamentals interfaces, robot navigation and development tools. In labs, students program a set of basic task by using the robot simulator and real has technologies.  BI-ZPI Process engineering	ry 10 credits correspond to 4 can be divided into two subject    Z entific and/or research institution of the professional content arry 10 credits correspond to 4 can be divided into two subject    Z entific and/or research institution of the professional content arry 10 credits correspond to 4 can be divided into two subject    KZ enter the aim of the course is a company of the course is a compa	weeks of full-time is if the internship  20 on. Before the id extent of the weeks of full-time is if the internship  30 on. Before the id extent of the weeks of full-time is if the internship  4 to teach students ading, application rience with these
employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount coexceeds the academic year's dead-line.  BI-ZS20 Bachelor internship abroad for 20 credits  Each student can once within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scie internship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount coexceeds 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 scie internship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount coexceeds the academic year's dead-line.  BI-ZIVS Intelligent Embedded System Fundamentals  Intelligent embedded system fundamentals course is focused on high-level technology embedded systems integrating artificial intelligent modern humanoid robot control and development of applications in a graphical development environment. Lectures provide fundamentals interfaces, robot navigation and development tools. In labs, students program a set of basic task by using the robot simulator and real hat technologies.	ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are represented by the professiona	weeks of full-time is if the internship  20 on. Before the id extent of the weeks of full-time is if the internship  30 on. Before the id extent of the weeks of full-time is if the internship  4 to teach students ading, application rience with these
employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount coexceeds the academic year's dead-line.  BI-ZS20  Bachelor internship abroad for 20 credits  Each student can once within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scie internship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount caexceeds 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 scie internship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount caexceeds the academic year's dead-line.  BI-ZIVS  Intelligent Embedded System Fundamentals  Intelligent embedded system fundamentals course is focused on high-level technology embedded systems integrating artificial intelligent modern humanoid robot control and development of applications in a graphical development environment. Lectures provide fundamentals interfaces, robot navigation and development tools. In labs, students program a set of basic task by using the robot simulator and real has technologies.  BI-ZPI  Process engineering  Students will learn fundamentals of process engineering in this subject. Students wil	ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the profess	weeks of full-time is if the internship  20 on. Before the id extent of the weeks of full-time is if the internship  30 on. Before the id extent of the weeks of full-time is if the internship  4 to teach students ading, application rience with these  4
employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount coexceeds the academic year's dead-line.  BI-ZS20  Bachelor internship abroad for 20 credits  Each student can once within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scie internship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount coexceeds 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 scie internship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of internship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount coexceeds the academic year's dead-line.  BI-ZIVS  Intelligent Embedded System Fundamentals  Intelligent embedded system fundamentals course is focused on high-level technology embedded systems integrating artificial intelligent modern humanoid robot control and development of applications in a graphical development environment. Lectures provide fundamentals interfaces, robot navigation and development tools. In labs, students will get necessary foundations for understanding formal lear	ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the profess	weeks of full-time is if the internship  20 on. Before the id extent of the weeks of full-time is if the internship  30 on. Before the id extent of the weeks of full-time is if the internship  4 to teach students ading, application rience with these  4
employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount coexceeds the academic year's dead-line.  BI-ZS20  Bachelor internship abroad for 20 credits  Each student can once within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scie internship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount coexceeds 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 scie internship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount coexceeds the academic year's dead-line.  BI-ZIVS  Intelligent Embedded System Fundamentals  Intelligent embedded system fundamentals course is focused on high-level technology embedded systems integrating artificial intelligent modern humanoid robot control and development of applications in a graphical development environment. Lectures provide fundamentals interfaces, robot navigation and development tools. In labs, students program a set of basic task by using the robot simulator and real has technologies.  BI-ZIV  Process engineering  Students will learn fundamentals of process engineering in this subject. Students wil	ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the pro	weeks of full-time is if the internship  20 on. Before the id extent of the weeks of full-time is if the internship  30 on. Before the id extent of the weeks of full-time is if the internship  4 to teach students ading, application rience with these  4
employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount coexceeds the academic year's dead-line.  BI-ZS20   Bachelor internship abroad for 20 credits  Each student can once within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scie internship, Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount coexceeds 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 scie internship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence or internship, Auxiliary courses BI-ZS10, BI-ZS30, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount coexceeds the academic year's dead-line.  BI-ZIVS   Intelligent Embedded System Fundamentals  Intelligent embedded system fundamentals course is focused on high-level technology embedded systems integrating artificial intelligent modern humanoid robot control and development of applications in a graphical development environment. Lectures provide fundamentals interfaces, robot navigation and development tools. In labs, students program a set of basic task by using the robot simulator and real hetechnologies.  BI-ZPI   Process engineering  Students will learn fundamentals of process engineering in this subject. Students will get necessary foundations for understanding forms learn basics of the used notations (UML, BPMN, BORM). The focus in this subject lies	ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the pro	weeks of full-time is if the internship  20 on. Before the id extent of the weeks of full-time is if the internship  30 on. Before the id extent of the weeks of full-time is if the internship  4 to teach students ading, application rience with these  4 Illing and they will ses using modern siness strategy of
employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount coexceeds the academic year's dead-line.  BI-ZS20  Bachelor internship abroad for 20 credits  Each student can once within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scie internship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount coexceeds 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 scie internship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount coexceeds the academic year's dead-line.  BI-ZIVS  Intelligent Embedded System Fundamentals  Intelligent embedded system fundamentals course is focused on high-level technology embedded systems integrating artificial intelligent modern humanoid robot control and development of applications in a graphical development environment. Lectures provide fundamentals interfaces, robot navigation and development tools. In labs, students program a set of basic task by using the robot simulator and real hetechnologies.  BI-ZPI  Process engineering  Students will learn fundamentals of process engineering in this subject. Students will	ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the pro	weeks of full-time is if the internship  20 on. Before the id extent of the weeks of full-time is if the internship  30 on. Before the id extent of the weeks of full-time is if the internship  4 to teach students ading, application rience with these  4 Illing and they will ses using modern siness strategy of
employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount conceded the academic year's dead-line.  BI-ZS20  Bachelor internship abroad for 20 credits  Each student can once within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scie internship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount conceded 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 scie internship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount conceded the academic year's dead-line.  BI-ZIVS  Intelligent Embedded System Fundamentals  Intelligent embedded system fundamentals course is focused on high-level technology embedded systems integrating artificial intelligent modern humanoid robot control and development of applications in a graphical development environment. Lectures provide fundamentals interfaces, robot navigation and development of applications in a graphical development environment. Lectures provide fundamentals interfaces, robot navigation and development tools. In labs, students program a set of basic task by using the robot simulator and real has t	ry 10 credits correspond to 4 can be divided into two subject    Zentific and/or research institution the professional content arry 10 credits correspond to 4 can be divided into two subject    Zentific and/or research institution the professional content arry 10 credits correspond to 4 can be divided into two subject    Example 1    KZ can be divided into two subject    Ince. The aim of the course is a content of the professional content arry 10 credits correspond to 4 can be divided into two subject    KZ can be divide	weeks of full-time is if the internship  20 on. Before the id extent of the weeks of full-time is if the internship  30 on. Before the id extent of the weeks of full-time is if the internship  4 to teach students ading, application rience with these  4 defining and they will it is essusing modern is strategy of its strategy of its if the internship
employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount contends to exceed the academic year's dead-line.  BI-ZS20  Bachelor internship abroad for 20 credits Each student can once within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scie internship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount of 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 scie internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount of exceeds the academic year's dead-line.  BI-ZIVS  Intelligent Embedded System Fundamentals  Intelligent embedded system fundamentals course is focused on high-level technology embedded systems integrating artificial intelligent modern humanoid robot control and development of applications in a graphical development environment. Lectures provide fundamental interfaces, robot navigation and development of applications in a graphical development environment. Lectures provide fundamentals fundamentals of process engineering in this subject. Students will get necessary foundations for understanding formate learn basics of the used notations (UML, BPMN, BORM). The focus in this subject lies in training of practical skills of formalisation and netarprise.	ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the pro	weeks of full-time as if the internship  20 on. Before the add extent of the weeks of full-time as if the internship  30 on. Before the add extent of the weeks of full-time as if the internship  4 to teach students adding, application rience with these  4 ses using modern siness strategy of
employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount context exceeds the academic year's dead-line.  BI-ZS20 Bachelor internship abroad for 20 credits Each student can once within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scie internship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of internship, Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount of 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 scie internship, huxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of internship, huxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount of exceeds the academic year's dead-line.  BI-ZIVS Intelligent Embedded System Fundamentals Intelligent embedded system fundamentals course is focused on high-level technology embedded systems integrating artificial intelligen modern humanoid robot control and development of applications in a graphical development environment. Lectures provide fundamentals interfaces, robot navigation and development tools. In labs, students will get necessary foundations for understanding formal learn basics of the used notations (UML, BPMN, BORM). The fo	ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the pro	weeks of full-time is if the internship  20 on. Before the id extent of the weeks of full-time is if the internship  30 on. Before the id extent of the weeks of full-time is if the internship  4 to teach students ading, application rience with these  4 Illing and they will ses using modern siness strategy of  3 ork. The resulting
employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount conceeds the academic year's dead-line.  BI-ZS20  Bachelor internship abroad for 20 credits Each student can once within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scienternship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence of internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS20, BI-ZS20 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount conceeds 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 scienternship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence internship, Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship in S KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship in IS KOS. Ever employment with a foreign institution of the vicenship in IS LOS. Ever employment with a foreign institution of the internship in IS KOS. Ever employmen	ry 10 credits correspond to 4 can be divided into two subject    Zentific and/or research institution the professional content arry 10 credits correspond to 4 can be divided into two subject    Zentific and/or research institution the professional content arry 10 credits correspond to 4 can be divided into two subject    Example 1    KZ can be divided into two subject    Ince. The aim of the course is a content of the professional content arry 10 credits correspond to 4 can be divided into two subject    KZ can be divide	weeks of full-time is if the internship  20 on. Before the id extent of the weeks of full-time is if the internship  30 on. Before the id extent of the weeks of full-time is if the internship  4 to teach students ading, application rience with these  4 defining and they will it is essusing modern is strategy of its strategy of internal incomplete.
employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount coexceeds the academic year's dead-line.  BI-ZS20  Bachelor internship abroad for 20 credits  Each student can once within his / her bachelor's study programme have a foreign internship at a foreign university or other foreign scie internship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence or internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount coexceeds 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 scie internship the Dean of the FIT, or the vice-dean for study affairs assesses the professional content. The student must provide evidence or internship. Auxiliary courses BI-ZS10, BI-ZS20, BI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Ever employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount coexceeds the academic year's dead-line.  BI-ZIVS  Intelligent Embedded System Fundamentals  Intelligent embedded system fundamentals course is focused on high-level technology embedded systems integrating artificial intelligent modern humanoid robot control and development of applications in a graphical development environment. Lectures provide fundamentals interfaces, robot navigation and development follos. In labs, students program a set of basic task by using the robot simulator and real has technologies.  BI-ZPI  Process engineering  Students will get necessary foundations for understanding formal learn basics of the	ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the professional content are ry 10 credits correspond to 4 can be divided into two subject of the pro	weeks of full-time is if the internship  20 on. Before the id extent of the weeks of full-time is if the internship  30 on. Before the id extent of the weeks of full-time is if the internship  4 to teach students ading, application rience with these  4 Illing and they will ses using modern siness strategy of  3 ork. The resulting

## List of courses of this pass:

Code	Name of the course	Completion	Credits
BI-3DT.1	3D Printing	KZ	4

BI-A2L	English language, preparation for the B2 level exam	Z	2
The content of the	course corresponds to the preparation for the English exam at the B2 level. Requirements for course credit. Academic Achievement -	students are due	to: -Take an
active part in the language instructionMeet the requirements for writing assignments - Summary, Abstract, Argumentation PaperSucceed 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			
	class of the term.		•
BI-AAG	Automata and Grammars	Z,ZK	6
	uced to basic theoretical and implementation principles of the following topics: construction, use and mutual transformations of finite		
	ars, translation finite automata, construction and use of pushdown automata, hierarchy of formal languages, Relationships between for		
	ed through the module is applicable in designs of algorithms for searching in text, data compression, simple parsing and translation,		
BI-ACM	Programming Practices 1	KZ	5
	This course is presented in Czech.		ſ
BI-ACM2	Programming Practices 2	KZ	5
	This course is presented in Czech.		
BI-ACM3	Programming Practices 3	KZ	5
	This course is presented in Czech.		
BI-ACM4	Programming Practices 4	KZ	5
	This course is presented in Czech.		,
BI-ADU.1	Unix Administration	Z,ZK	5
Students will learn t	he 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 a	administrator roles. They will get theoretical and practical knowledge of user management and administration, of users access rights,	file systems, disk s	subsystems,
processes, memo	ory, network services and remote access, and in the areas of system deployment and virtualization. In the labs, they will verify the kno	owledge from the le	ectures on
	specific examples from practice.		
BI-ADW.1	Windows Administration	Z,ZK	4
'	This course is presented in Czech. However, there is an English variant in the program Informatics (B1801 / 4753).		ı
BI-AG1	Algorithms and Graphs 1	Z,ZK	6
	rs the basics of efficient algorithm design, data structures, and graph theory, belonging to the core knowledge of every computing cur		d partially
	rledge from the course BI-DML.21, in which students acquire the knowledge and skills in combinatorics necessary for evaluating the		
algo	rithms. The course also follows up knowledge from BI-MA1.21, the practical usage of asymptotic mathematics, in particular, the asym	ptotic notation.	
BI-AG2	Algorithms and Graphs 2	Z,ZK	5
	nted in Czech, introduces basic algorithms and concepts of graph theory as a follow=up on the introduction given in the compulsory c	,	rther delves
	structures and amortized complexity analysis. It also includes a very light introduction to approximation algorithms. For English versic		
BI-ALO	Algebra and Logic	Z,ZK	4
	The course extends and deepens the study of topics touched upon in the basic course in logic.	. —,—-	•
BI-AND.21	Programming for the Android Operating System	KZ	4
D171110.21	This course is presented in Czech.	112	•
BI-ANG	English Language, Internal Certificate	ZK	2
Dirato	Course information and teaching materials can be found at https://moodle-vyuka.cvut.cz/course/search.php?search=BI-AN		_
BI-ANG1	English Language Examination without Preparatory Courses	Z,ZK	2
BI-APJ		Z,ZK	4
DI-APJ	Aplication Programming in Java This course is presented in Czech. Advanced technologies in Java.	Z,ZK	4
DI ADO 4		7.71/	_
BI-APS.1	Architectures of Computer Systems	Z,ZK	5
	n the construction principles of internal architecture of computers with universal processors at the level of machine instructions. Spec	-	
1 ' '	n processing and on the memory hierarchy. Students will understand the basic concepts of RISC and CISC architectures and the princ ocessors, but also in superscalar processors that can execute multiple instructions in one cycle, while ensuring the correctness of the	•	
	elaborates the principles and architectures of shared memory multiprocessor and multicore systems and the memory coherence and	•	
		KZ	
BI-ARD	Interactive applications on Arduino ned for students of first grade of bachelor study as introduction to embedded systems. Students will learn how to design simple applicat	l	4
	ried peripherals with help of available libraries. The goal of the subject is to show varied software approaches to control embedded s	· ·	-
	by of a PC. Thanks to possible control on higher (objective) layer, this platform is frequently used for artist performance and therefore		
not only on diopic	Software Engineering students.	io dallabio ovoit ioi	TTOD and
BI-AVI.21	Algorithms visually	Z,ZK	4
	ments other algorithm courses at FIT. It brings knowledge about particular important algorithms from different fields of the computer sc		l
	and in BI-AG1 and BI-AG2. A wide scope of covered subject is made possible due to using visualization bz Algovision (www.algovision.org&l		-
landinidago procento	that make understanding the principles of algorithms easy.	.,p.,,a.go	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
BI-BAP	Bachelor Thesis	Z	14
		Z,ZK	5
BI-BEK	Secure Code arn how to assess security risks and how to take them into account in the design phase of their own code and solutions. After getting fa		-
	gain practical experience with running programs with reduced privileges and methods of specifying these privileges, since not every		_
	ileges. Dangers inherent in buffer overflows will be practically demonstrated. Students will be introduced to the principles of securing		
•	database systems, web, remote procedure calls, and sockets in general. The module concludes with Denial of Service attacks and the		
BI-BEZ	Security	Z,ZK	6
	Occurry		l
	d the mathematical fundamentals of cryptography and have an overview of current cryptographic algorithms and applications; symmetric a		ntoeveteme
i and hash functions	d the mathematical fundamentals of cryptography and have an overview of current cryptographic algorithms and applications: symmetric a . They also learn the fundamentals of secure programming and IT security, the fundamentals of designing and using modern cryptos	and asymmetric cry	
and hash functions	. They also learn the fundamentals of secure programming and IT security, the fundamentals of designing and using modern cryptos	and asymmetric cry	
	They also learn the fundamentals of secure programming and IT security, the fundamentals of designing and using modern cryptos.  They are able to use properly and securely cryptographic primitives and systems that are based on these primitives.	and asymmetric cry ystems for comput	er systems.
BI-BIG	They also learn the fundamentals of secure programming and IT security, the fundamentals of designing and using modern cryptos.  They are able to use properly and securely cryptographic primitives and systems that are based on these primitives.  DB Technologies for Big Data	and asymmetric cry	
BI-BIG	They also learn the fundamentals of secure programming and IT security, the fundamentals of designing and using modern cryptos.  They are able to use properly and securely cryptographic primitives and systems that are based on these primitives.  DB Technologies for Big Data  This course is presented in Czech.	and asymmetric cry ystems for comput KZ	er systems.
BI-BIG BI-BLE	They also learn the fundamentals of secure programming and IT security, the fundamentals of designing and using modern cryptos.  They are able to use properly and securely cryptographic primitives and systems that are based on these primitives.  DB Technologies for Big Data  This course is presented in Czech.  Blender	and asymmetric cry ystems for comput KZ Z,ZK	er systems.
BI-BIG BI-BLE The course exten	They also learn the fundamentals of secure programming and IT security, the fundamentals of designing and using modern cryptos.  They are able to use properly and securely cryptographic primitives and systems that are based on these primitives.  DB Technologies for Big Data  This course is presented in Czech.  Blender  ds knowledge of opensource program Blender from BI-MGA (Multimedia and Graphics Applications) course. It is intended for those in	and asymmetric cry ystems for comput  KZ  Z,ZK  nterested in 3D gra	4 4 aphics and
BI-BIG BI-BLE The course exten	They also learn the fundamentals of secure programming and IT security, the fundamentals of designing and using modern cryptos.  They are able to use properly and securely cryptographic primitives and systems that are based on these primitives.  DB Technologies for Big Data  This course is presented in Czech.  Blender	and asymmetric cry ystems for comput  KZ  Z,ZK  nterested in 3D gra	4 4 aphics and

BI-CAO	Digital and Analog Circuits	Z,ZK	5
•	fundamental understanding of technologies underlying electronic digital systems. They understand the basic theoretical models and circuits, and conductors. They are able to design simple circuits and evaluate circuit parameters. They understand the differences betw		, ,
	of electronic devices.		
BI-CCN	Compiler Construction	Z,ZK	5
	actory class on compiler construction for bachelor students in computer science. The goal of the class is to introduce basic principles		
	nd the design and implementation of programming languages. Seeing and actually understanding self-compilation is the overarching		
BI-CS1	Programming in C# urse is to introduce .NET Framework as a multi-language development platform. Then, programming language C#, its fundamental co	KZ	4
-	s, loops, definitions and calls of functions will be discussed. Attention is focused on the object oriented programming in C# - class def		
	ods, properties, static members, Garbage Collector, inheritance and polymorphism, collections, delegates, and generics. Debugging		·
,	well as work with files are emphasized.		3,
BI-CS2	C# language and data access	KZ	4
	and data access course objective is to introduce students several data access technologies - database, XML, NoSQL - on the Micros		tudents will
get to know objects	s used to retrieve data - Connection, Command, Data Reader and DataAdapter v ADO.NET. Next, they will learn to use current techr	nologies such as L	INQ - a set
-	rying and updating data, integrated directly with the .NET platform languages, which enable LINQ use with Objects, XML and SQL (L		
•	). Another objective is the Entity Framework - an object-relational mapper that enables .NET developers to work with relational data u	-	- 1
(ORM). This part of	the course introduces Code First, Database First, Model First approaches. The students will also get to know the Conceptual Model (XML description).	, Storage Model ar	nd Mapping
DI CC2	· · · · · · · · · · · · · · · · · · ·	KZ	
BI-CS3	Language C# - design of web applications introduced to current technologies in web application development on the .NET platform. They will acquire a comprehensive overview of		4
The students will be	on thisplatform. They will learn to create WebAPI and to use it by client programs.	or the development	possibilities
BI-DAN	Taxes for non-Economists	Z,ZK	4
	cial insurance contributions, are obligatory payments paid by people or institutions to public budgets. This is the way how a significant p	,	
_	ns who pays which taxes or who bears the tax burden. The course introduces students to the tax theory and policy fundamentals and s		
of income, consum	ption, and wealth. The course provides practical information on calculations of tax liabilities of both citizens and institutions as well as	s information abou	t important
	taxpayers' formal duties towards public administration.		
BI-DBS	Database Systems	Z,ZK	6
	oduced to the database engine architecture and typical user roles. They are briefly introduced to various database models. They learn	-	
	constraints) using a conceptual model and implement them in a relational database engine. They get a hands-on experience with the		
	ation - the relational database model. They learn the principles of normalizing a relational database schema. They understand the funda	•	
-	ling parallel user access to a single data source, as well as recovering a database engine from a failure. They are briefly introduced t ases with respect to speed of access to large quantities of data. This introductory-level course does not cover: Administration of datab		-
iii rolational databa	optimizing database applications, distributed database systems, data stores.	oddo dydiomio, dob	agging and
BI-DPR	Document., Presentation, Rhetorics	KZ	4
	d to the professional communication and writing of the scientific texts (bachelor's and diploma thesis). Students will learn to create and pr		esentations
	and presenting before an audience. Students will also learn to write technical reports and scientific texts.		
BI-EHD	Introduction to European Economic History	Z,ZK	3
	This course is presented in Czech. However, there is an English variant in the program Informatics (B1801 / 4753).		
BI-EJA	Enterprise Java	Z,ZK	4
The course is on a	dvanced technologies in the Java programming language. The focus is on technologies for development of enterprise information sys a database and are accessed through the web interface.	stems which are co	onnected to
DLEMD		1/7	4
BI-EMP	Economics and Management Principles ned to fundamental problems of business economy. The course makes students familiar with a life cycle of business, specifically with	KZ	4 nundation
	nto state economic environment (CR), management of property and capital structure, business transaction records keeping during ar	-	
3	between business production and costs, evaluation of enterprise financial health and business rehabilitation or termination		,
BI-EP1	Effective programming 1	Z	4
'	The course is taught in Czech.	'	
BI-EP2	Efficient Programming 2	KZ	4
Continuation of Eff	ficient Programming 1. Students will practice implementation of algorithms by solving typical problems. Various ways of solving individual	dual problems are	discussed,
	with the aim to choose the best one and avoid implementation errors.		
BI-FMU	Financial and Management Accounting	Z,ZK	5
	rse is explanation of basic terms in the theory of accounting, the principles of balancing the property amounts and liabilities in the 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		
or economic open	Business Inteligence moduls in Business information systems.	ment accounting a	ie base oi
BI-FTR.1	Financial Markets	Z,ZK	5
2	This course is presented in Czech. However, there is an English variant in the program Informatics (B1801 / 4753).	_,	
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		
even the ir	nplementation details will be shown. Students will be challenged to use Git as users, project managers, team leaders as well as Git s	server administrato	rs.
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	_	- 1
	mandatory skills to network operators (planning and development of resources and infrastructure) and security analysts alike (as a s		
ror analysis). The go	oals of the course are to acquaint students with the modern trends and cornerstone principles in the area of monitoring network traffi	c on a hardware a	na software
DI FIVII	level and to develop their practical abilities in this field.	7 71/	2
BI-HMI	History of Mathematics and Informatics  This course is presented in Czech.	Z,ZK	3
BI-HWB	Hardware Security	Z,ZK	5
	s with hardware resources used to ensure security of computer systems including embedded ones. The students become familiar with		
	lles, the security features of modern processors, and storage media protection through encryption. They will gain knowledge about vo		-

including side-chan	inel attacks and tampering with hardware during manufacture. Students will have an overview of contact and contactless smart card tecan and related topics for multi-factor authentication (biometrics). Students will understand the problems of effective implementation of		applications
BI-IOS	Fundamentals of iOS Application Development for iPhone and iPad  This course is presented in Czech.	KZ	4
BI-JPO	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 v	'	_
· ·	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 commi	=	
· ·	d the architecture of the bus system. The problems will be practically evaluated in the labs and with the help of the educational micropro and programmable hardware design kits (FPGA).	· · · · · · · · · · · · · · · · · · ·	
BI-KOM	Conceptual Modelling	Z,ZK	5
	sed on developing abstract thinking and precise formulation skills using conceptual models. Students learn skills of discerning key te		-
	cify correct relations in complex systems of social reality, mostly enterprises and institutions. Students learn basics of ontological struc		=
	learn how to express business rules and constraints using the OCL language and foundations of OWL/RDF semantic data represent	J	
· ·	ns of enterprise engineering, being a discipline for conceptual modelling of enterprises and institutes and their processes. The DEMO n		=
	will be taught. The course is designed with the respect to continuation in software implementations.	netriod drid trie Br	MITTIOLATION
DI KOT		7 71/	1
BI-KOT	Programing in Kotlin	Z,ZK	4
	n, statically-styled object-functional language that exploits the extensive Java language ecosystem while delivering a number of advar		
The language is iu	Illy Java compliant and allows for mixed projects that preserve existing parts written in Java, and continue with the development of a result of the interest		ictional way
D1 1/0 A	with minimum of boiler-plate code. Last but not least, Kotlin is suitable for designing of DSLs (Domain-Specific Languages)		
BI-KSA	Cultural and Social Anthropology	ZK	2
	course aims to acquaint students with the basics of social and cultural anthropology as a scientific discipline dealing with the diversit	=	-
anthropological res	earch from our "exotic" cultures (topics: kinship, religion, social exclusion, migration, globalization, , material culture, language, health	n, history, death, e	etc) will be
<b>5</b>	shown. The course is presented in Czech.		
BI-LIN	Linear Algebra	Z,ZK	7
	nt in Czech. Students understand the theoretical foundation of algebra and mathematical principles of linear models of systems aroun		•
	s are only linear. They know the basic methods for operating with matrices and linear spaces. They are able to perform matrix operation		
	ey can apply these mathematical principles to solving problems in 2D or 3D analytic geometry. They understand the error-detecting and		1
BI-MEK	Macroeconomic Context of Domestic and World Economy	Z,ZK	4
	This course is presented in Czech.		T
BI-MGA	Multimedia and Graphics Applications	Z,ZK	5
	uainted with multimedia technologies and applications for 2D/3D bitmap and vector graphics. During the course, current tools for wor		
٠ .	ttion will be introduced. Students learn several basic techniques of creation and editing content in computer graphics, introduction to gra	•	•
	y learn to use multimedia transmission and representation systems, including real-time multimedia processing. They understand the processing transmission and representation systems, including real-time multimedia processing.		ion and use
	of graphics processing cards. They gain a number of practical skills, such as vectorizing raster images, retouching photos, or creating		
BI-MIK	Fundamentals of Microeconomics	Z,ZK	4
	This course is presented in Czech. However, there is an English variant in the program Informatics (B1801 / 4753).		
BI-MIT	Mikrotik technologies	KZ	3
	on of the subject stands in the introduction of the RouterOS operating system and some network Mikrotik technologies which are con		
	vice providers (ISPs). The students learn how to use and create the architectures of the network solutions which are based on the m		
and now to adminis	trate and practically deploy them. The successful completion of this subject requires the previous knowledge of elementary computer ne	etworks concepts i	ike protocois
DIMIO	and technologies of the data-link, network and transport layer of the OSI model.	7 71/	
BI-MLO	Mathematical Logic	Z,ZK	5
DLMMD	The course seminary is taught in Czech.	1/7	1
BI-MMP	Multimedia team project	KZ	4
	This course is presented in Czech.		
BI-MPP.21	Methods of interfacing peripheral devices	Z,ZK	5
	sed on methods for interfacing of peripheral devices. Interfacing of real peripheral devices is focused on techniques based on Universa		
includes both PC s	side and peripheral devices side. Labs are practically oriented. Students gain experience with implementation of relevant parts of USE	devices, Linux a	na vvinaows
DIAN/TO4	drivers, simple application development, and APIs of selected devices.	7.71	
BI-MVT.21	Modern Visualisation Technologies	Z,ZK	5
	urse is to give an overview of modern visualization technologies and their principles, namely technologies related to virtual and augm	•	
nign resolution alsp	lays (e.g., SAGE and video mapping) and their applications in practice. Several lectures deal with the content creation for the mentione	ea tecnnologies, n	amely fractal
DI 00D	and procedural visualization, scientific data visualization, and 3D model scanning.	7.71	
BI-OOP	Object-Oriented Programming	Z,ZK	4
	rogramming has been used in the last 50 years to solve computational problems by using graphs of objects that collaborate together		_
course we look at	some of the main principles of object-oriented programming and design. The emphasis is on practical techniques for software develo	pment including to	esting, error
	handing, refactoring and design patterns.		
BI-OPT	Introduction to Optical Networks	Z,ZK	4
_	overview of optical networking technology with the emphasis on practical utilization in Internet and in network infrastructures, on poss	-	
· · · · · · · · · · · · · · · · · · ·	technology and on their solutions. The course will include the history of optical communications, an overview of passive components		-
	sators, and others), and an overview of active components (optical switches and amplifiers, high-speed coherent transmission system	,	
•	e topics presented at premium research conferences, such as ECOC or OFC. Attention will also be paid to new applications, such as		
uitiastable freque	ncy transfer, or sensor networks. The labs will focus on real work with optical components and on measurement of their parameters.	Students WIII SOIVE	tear lasks
DI OSV	from practice.	7 71/	
BI-OSY	Operating Systems	Z,ZK	5 odgo of OS
	and the classical theory of operating systems (OS) in addition to the knowledge gained in the module "Programming in Shell 1". They ses and threads implementations. They understand the problems of race conditions, thread scheduling, resource allocation and dead	-	-
•	ies and threads implementations. They understand the problems of face conditions, thread scheduling, resource allocation and dead nt of virtual memory, principles and architectures of disks, RAID and file systems. They are able to design and implement simple mult	-	
l manayemen	in a final manary, principles and architectures of dians, the and the systems. They are able to design and implement simple mult	поачеч арріїса	

BI-PA1						
	Programming and Algorithmics 1	Z,ZK	6			
	ability to formulate algorithms for solving basic problems and write them in the C language. They understand data types (simple, structure)					
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.					
BI-PA2	Programming and Algorithmics 2	Z,ZK	7			
Students know the	e instruments of object-oriented programming and are able to use them for specifying and implementing abstract data types (stack, o	, lueue, enlargeable	array, set,			
table). They can imp	plement linked structures. They learn these skills using the programming language C++. Although this is not a module of programming in	n C++, students are	e introduced			
	with all C++ features needed to achieve the main objective (operator overloading, templates).					
BI-PAI	Law and Informatics	ZK	3			
	This course is presented in Czech. However, there is an English variant in the program Informatics (B1801 / 4753).					
BI-PGA	Programming of graphic applications	Z,ZK	5			
	This course is presented in Czech only.	2,21	3			
DI DOD 4		7 71/				
BI-PGR.1	Computer graphics programming	Z,ZK	5			
	o program a simple interactive 3D graphical application like a computer game or scientific visualisation, to design the scene, add textu					
	ke wall surface, wood, sky), and set up the lighting. At the same time, they understand the fundamental principles and terms used in					
• • • • •	peometric transformations, or lighting model. They gain knowledge allowing orientation in computer graphics, and representing solid fund					
development, e.g.	for GPU programming and animations. They get used to techniques utilised in geometric modelling, modelling of curves and surface	s, and scientific vis	sualisation.			
BI-PHP.1	Programing in PHP	KZ	4			
The course is ta	ught in Czech Main goal of the course is an introduction to PHP - language and technology. Students will learn also best practices a	and will use tool th	at eases			
development in F	PHP. The course is recommended for students of BIE-WSI-WI.2015 branch of study and do not have required knowledge to register I	for BIE-TWA.1. The	ey should			
	register for this course in their 3rd semester of study.					
BI-PJP	Programming Languages and Compilers	Z,ZK	5			
	isic methods of implementation of common high-level programming languages. They get experience with the design and implementat		_			
	imming language: data types, subroutines, and data abstractions. Students are able to formally specify a translation of a text that has					
	mpiler based on such a specification. The notion of compiler in this context is not limited to compilers of programming languages, but	•	•			
lonn and whic a co	for parsing and processing text in a language defined by a LL(1) grammar.	caterias to all other	or programs			
DI DIO 4		1/7	4			
BI-PJS.1	JavaScript Programming	KZ	4			
	course is an introduction to Javascript programming. Students will learn also best practices and will use tool that eases development	•				
recommended for s	tudents of BIE-WSI-WI.2015 branch of study and do not have required knowledge to register for BIE-TWA.1. They should register for the	nis course in their 4	th semester			
	of study.					
BI-PJV	Programming in Java	Z,ZK	4			
	This course is presented in Czech. However, there is an English variant in the program Informatics (B1801 / 4753).					
BI-PKM	Introduction to mathematics	Z	4			
	This course is presented in Czech.	_	•			
BI-PMA	Programming in Mathematica	Z,ZK	4			
	· · · · · · · · · · · · · · · · · · ·	,				
Students will be wo		iiig, ruie-baseu pi	Students will be working with modern technical and scientific software. Students will learn how to use different programming styles (functional programming, rule-based programming,			
DI DNO	etc.), how to create dynamic interactive applications and visualisations, data processing and presentations.	1/7				
BI-PNO	Practical Digital Design	KZ	5			
Students get an ov	Practical Digital Design erview of the contemporary digital design flow and learn practical skills to use synchronous design techniques. They understand the	basics of the VHD	L language,			
Students get an ov	Practical Digital Design erview of the contemporary digital design flow and learn practical skills to use synchronous design techniques. They understand the on technologies FPGA and ASIC. Students demonstrate practical use of the design techniques in the module project sing modern, in	basics of the VHD	L language,			
Students get an over and implementation	Practical Digital Design erview of the contemporary digital design flow and learn practical skills to use synchronous design techniques. They understand the on technologies FPGA and ASIC. Students demonstrate practical use of the design techniques in the module project sing modern, in tools.	basics of the VHD	L language, AD design			
Students get an ov	Practical Digital Design erview of the contemporary digital design flow and learn practical skills to use synchronous design techniques. They understand the on technologies FPGA and ASIC. Students demonstrate practical use of the design techniques in the module project sing modern, in	basics of the VHD	L language,			
Students get an over and implementation BI-PPA	Practical Digital Design erview of the contemporary digital design flow and learn practical skills to use synchronous design techniques. They understand the on technologies FPGA and ASIC. Students demonstrate practical use of the design techniques in the module project sing modern, in tools.	basics of the VHD dustry-standard C	L language, AD design			
Students get an ow and implementation BI-PPA The course deals	Practical Digital Design erview of the contemporary digital design flow and learn practical skills to use synchronous design techniques. They understand the on technologies FPGA and ASIC. Students demonstrate practical use of the design techniques in the module project sing modern, in tools.  Programming Paradigms	basics of the VHD dustry-standard C	L language, AD design 5			
Students get an own and implementation BI-PPA The course deals programming parado	Practical Digital Design erview of the contemporary digital design flow and learn practical skills to use synchronous design techniques. They understand the on technologies FPGA and ASIC. Students demonstrate practical use of the design techniques in the module project sing modern, in tools.  Programming Paradigms with basic paradigms of high-level programming languages, including their basic execution models, benefits, and limitations of particular designs.	basics of the VHD dustry-standard C Z,ZK cular approaches. I ne principles are de	L language, AD design  5  Functional emonstrated			
Students get an own and implementation BI-PPA The course deals programming parado	Practical Digital Design erview of the contemporary digital design flow and learn practical skills to use synchronous design techniques. They understand the on technologies FPGA and ASIC. Students demonstrate practical use of the design techniques in the module project sing modern, in tools.  Programming Paradigms  with basic paradigms of high-level programming languages, including their basic execution models, benefits, and limitations of partic digm and its basic principles are explained in details. Logic programming is introduced as another way of declarative programming. The	basics of the VHD dustry-standard C Z,ZK cular approaches. I ne principles are de	L language, AD design  5  Functional emonstrated			
Students get an overall and implementation and implementation BI-PPA  The course deals programming paradon lambda calculus	Practical Digital Design erview of the contemporary digital design flow and learn practical skills to use synchronous design techniques. They understand the on technologies FPGA and ASIC. Students demonstrate practical use of the design techniques in the module project sing modern, in tools.  Programming Paradigms with basic paradigms of high-level programming languages, including their basic execution models, benefits, and limitations of partic digm and its basic principles are explained in details. Logic programming is introduced as another way of declarative programming. The sand on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstrated as C++ and Java.	basics of the VHD idustry-standard C Z,ZK cular approaches. I ne principles are de eam programming	L language, AD design  5  Functional emonstrated languages			
Students get an own and implementation BI-PPA The course deals programming parado	Practical Digital Design erview of the contemporary digital design flow and learn practical skills to use synchronous design techniques. They understand the on technologies FPGA and ASIC. Students demonstrate practical use of the design techniques in the module project sing modern, in tools.  Programming Paradigms with basic paradigms of high-level programming languages, including their basic execution models, benefits, and limitations of partic ligm and its basic principles are explained in details. Logic programming is introduced as another way of declarative programming. The sand on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstresuch as C++ and Java.  Law and business	basics of the VHD dustry-standard C Z,ZK cular approaches. I ne principles are de	L language, AD design  5  Functional emonstrated			
BI-PPA The course deals programming paradon lambda calculus	Practical Digital Design erview of the contemporary digital design flow and learn practical skills to use synchronous design techniques. They understand the on technologies FPGA and ASIC. Students demonstrate practical use of the design techniques in the module project sing modern, in tools.  Programming Paradigms with basic paradigms of high-level programming languages, including their basic execution models, benefits, and limitations of partic light and its basic principles are explained in details. Logic programming is introduced as another way of declarative programming. The sand on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstresuch as C++ and Java.  Law and business This course is presented in Czech.	basics of the VHD idustry-standard C Z,ZK cular approaches. I he principles are de eam programming Z,ZK	L language, AD design  5 Functional emonstrated languages  4			
Students get an overall and implementation and implementation BI-PPA  The course deals programming paradon lambda calculus	Practical Digital Design erview of the contemporary digital design flow and learn practical skills to use synchronous design techniques. They understand the on technologies FPGA and ASIC. Students demonstrate practical use of the design techniques in the module project sing modern, in tools.  Programming Paradigms with basic paradigms of high-level programming languages, including their basic execution models, benefits, and limitations of partic light and its basic principles are explained in details. Logic programming is introduced as another way of declarative programming. The sand on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstresuch as C++ and Java.  Law and business This course is presented in Czech.  Project management	basics of the VHD idustry-standard C Z,ZK cular approaches. I ne principles are de eam programming	L language, AD design  5  Functional emonstrated languages			
BI-PPA The course deals programming paradon lambda calculus BI-PRP	Practical Digital Design erview of the contemporary digital design flow and learn practical skills to use synchronous design techniques. They understand the on technologies FPGA and ASIC. Students demonstrate practical use of the design techniques in the module project sing modern, in tools.  Programming Paradigms with basic paradigms of high-level programming languages, including their basic execution models, benefits, and limitations of particular digm and its basic principles are explained in details. Logic programming is introduced as another way of declarative programming. The sand on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstresuch as C++ and Java.  Law and business This course is presented in Czech.  Project management This course is presented in Czech.	basics of the VHD idustry-standard C Z,ZK cular approaches. I he principles are de ream programming Z,ZK	L language, AD design  5 Functional emonstrated languages  4			
BI-PPA The course deals programming paradon lambda calculus BI-PRP BI-PRR BI-PS1	Practical Digital Design erview of the contemporary digital design flow and learn practical skills to use synchronous design techniques. They understand the on technologies FPGA and ASIC. Students demonstrate practical use of the design techniques in the module project sing modern, in tools.  Programming Paradigms with basic paradigms of high-level programming languages, including their basic execution models, benefits, and limitations of particles and its basic principles are explained in details. Logic programming is introduced as another way of declarative programming. The sand on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstres such as C++ and Java.  Law and business This course is presented in Czech.  Project management This course is presented in Czech.  Programming in Shell 1	basics of the VHD dustry-standard C Z,ZK cular approaches. I he principles are de ream programming Z,ZK KZ	L language, AD design  5 Functional emonstrated languages  4  4  5			
BI-PPR BI-PRR BI-PS1 Students get an own and implementation and implem	Practical Digital Design erview of the contemporary digital design flow and learn practical skills to use synchronous design techniques. They understand the on technologies FPGA and ASIC. Students demonstrate practical use of the design techniques in the module project sing modern, in tools.  Programming Paradigms with basic paradigms of high-level programming languages, including their basic execution models, benefits, and limitations of particles and its basic principles are explained in details. Logic programming is introduced as another way of declarative programming. The sand on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstres such as C++ and Java.  Law and business This course is presented in Czech.  Project management This course is presented in Czech.  Programming in Shell 1  knowledgeable users of common Unix-like operating systems. They understand the fundamental principles of the operating systems	basics of the VHD idustry-standard C  Z,ZK cular approaches. I ne principles are de ream programming  Z,ZK  KZ  KZ  (file systems, proc	L language, AD design  5 Functional emonstrated languages  4  4  5 sesses and			
BI-PPR BI-PRR BI-PS1 Students get an own and implementation and implem	Practical Digital Design erview of the contemporary digital design flow and learn practical skills to use synchronous design techniques. They understand the on technologies FPGA and ASIC. Students demonstrate practical use of the design techniques in the module project sing modern, in tools.  Programming Paradigms with basic paradigms of high-level programming languages, including their basic execution models, benefits, and limitations of particles and its basic principles are explained in details. Logic programming is introduced as another way of declarative programming. The sand on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstres such as C++ and Java.  Law and business This course is presented in Czech.  Project management This course is presented in Czech.  Programming in Shell 1  knowledgeable users of common Unix-like operating systems. They understand the fundamental principles of the operating systems thts, memory management, network interfaces). They gain the knowledge of advanced users, with hands-on experience of the shell, I	basics of the VHD idustry-standard C  Z,ZK cular approaches. I ne principles are de ream programming  Z,ZK  KZ  KZ  (file systems, proc	L language, AD design  5 Functional emonstrated languages  4  4  5 sesses and			
BI-PRP BI-PRR BI-PS1 Students get an own and implementation and implem	Practical Digital Design erview of the contemporary digital design flow and learn practical skills to use synchronous design techniques. They understand the on technologies FPGA and ASIC. Students demonstrate practical use of the design techniques in the module project sing modern, in tools.  Programming Paradigms with basic paradigms of high-level programming languages, including their basic execution models, benefits, and limitations of particles and its basic principles are explained in details. Logic programming is introduced as another way of declarative programming. The sand on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstres such as C++ and Java.  Law and business This course is presented in Czech.  Project management This course is presented in Czech.  Programming in Shell 1  knowledgeable users of common Unix-like operating systems. They understand the fundamental principles of the operating systems this, memory management, network interfaces). They gain the knowledge of advanced users, with hands-on experience of the shell, I process various text data.	basics of the VHD dustry-standard C  Z,ZK cular approaches. I ne principles are de ream programming  Z,ZK  KZ  KZ  (file systems, proc basic commands, a	L language, AD design  5 Functional emonstrated languages  4  4  5 sesses and			
BI-PRP BI-PRR BI-PS1 Students get an own and implementation and implem	Practical Digital Design erview of the contemporary digital design flow and learn practical skills to use synchronous design techniques. They understand the on technologies FPGA and ASIC. Students demonstrate practical use of the design techniques in the module project sing modern, in tools.  Programming Paradigms with basic paradigms of high-level programming languages, including their basic execution models, benefits, and limitations of particling and its basic principles are explained in details. Logic programming is introduced as another way of declarative programming. The sand on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstrach such as C++ and Java.  Law and business This course is presented in Czech.  Project management This course is presented in Czech.  Programming in Shell 1  knowledgeable users of common Unix-like operating systems. They understand the fundamental principles of the operating systems hts, memory management, network interfaces). They gain the knowledge of advanced users, with hands-on experience of the shell, I process various text data.  Programming in shell 2	basics of the VHD dustry-standard C  Z,ZK cular approaches. I ne principles are de ream programming  Z,ZK  KZ  KZ  (file systems, processic commands, as	L language, AD design  5 Functional emonstrated languages  4  4  5 essess and and filters to			
BI-PRP BI-PRR BI-PS1 Students get an own and implementation and implem	Practical Digital Design erview of the contemporary digital design flow and learn practical skills to use synchronous design techniques. They understand the on technologies FPGA and ASIC. Students demonstrate practical use of the design techniques in the module project sing modern, in tools.  Programming Paradigms with basic paradigms of high-level programming languages, including their basic execution models, benefits, and limitations of particles and its basic principles are explained in details. Logic programming is introduced as another way of declarative programming. The sand on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstres such as C++ and Java.  Law and business This course is presented in Czech.  Project management This course is presented in Czech.  Programming in Shell 1  knowledgeable users of common Unix-like operating systems. They understand the fundamental principles of the operating systems this, memory management, network interfaces). They gain the knowledge of advanced users, with hands-on experience of the shell, I process various text data.	basics of the VHD dustry-standard C  Z,ZK cular approaches. I ne principles are de ream programming  Z,ZK  KZ  KZ  (file systems, processic commands, as	L language, AD design  5 Functional emonstrated languages  4  4  5 essess and and filters to			
BI-PRP BI-PRR BI-PS1 Students get an own and implementation and implem	Practical Digital Design erview of the contemporary digital design flow and learn practical skills to use synchronous design techniques. They understand the on technologies FPGA and ASIC. Students demonstrate practical use of the design techniques in the module project sing modern, in tools.  Programming Paradigms with basic paradigms of high-level programming languages, including their basic execution models, benefits, and limitations of particling and its basic principles are explained in details. Logic programming is introduced as another way of declarative programming. The sand on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstrach such as C++ and Java.  Law and business This course is presented in Czech.  Project management This course is presented in Czech.  Programming in Shell 1  knowledgeable users of common Unix-like operating systems. They understand the fundamental principles of the operating systems hts, memory management, network interfaces). They gain the knowledge of advanced users, with hands-on experience of the shell, I process various text data.  Programming in shell 2	basics of the VHD dustry-standard C  Z,ZK cular approaches. I ne principles are de ream programming  Z,ZK  KZ  KZ  (file systems, processic commands, as	L language, AD design  5 Functional emonstrated languages  4  4  5 essess and and filters to			
BI-PRP BI-PRR BI-PRR BI-PRR BI-PRR BI-PRR BI-PRR BI-PS1 Students become threads, access right	Practical Digital Design erview of the contemporary digital design flow and learn practical skills to use synchronous design techniques. They understand the on technologies FPGA and ASIC. Students demonstrate practical use of the design techniques in the module project sing modern, in tools.  Programming Paradigms with basic paradigms of high-level programming languages, including their basic execution models, benefits, and limitations of partic digm and its basic principles are explained in details. Logic programming is introduced as another way of declarative programming. The sand on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstres such as C++ and Java.  Law and business This course is presented in Czech.  Project management This course is presented in Czech.  Programming in Shell 1  knowledgeable users of common Unix-like operating systems. They understand the fundamental principles of the operating systems hts, memory management, network interfaces). They gain the knowledge of advanced users, with hands-on experience of the shell, I process various text data.  Programming in shell 2  eneral overview of available scripting languages, their syntax, semantics, programming style, data structures, pros and cons. In addition to shell and some other particular scripting languages and will get practical experience with shell script programming.	basics of the VHD dustry-standard C  Z,ZK cular approaches. I he principles are de ream programming  Z,ZK  KZ  KZ  (file systems, processic commands, as  Z,ZK  on, they gain a decentification.	L language, AD design  5 Functional emonstrated languages  4  4  5 essess and and filters to			
BI-PRP BI-PRR BI-PS1 Students get an own and implementation and implem	Practical Digital Design erview of the contemporary digital design flow and learn practical skills to use synchronous design techniques. They understand the on technologies FPGA and ASIC. Students demonstrate practical use of the design techniques in the module project sing modern, in tools.  Programming Paradigms with basic paradigms of high-level programming languages, including their basic execution models, benefits, and limitations of particling and its basic principles are explained in details. Logic programming is introduced as another way of declarative programming. The sand on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstrated as a C++ and Java.  Law and business This course is presented in Czech.  Project management This course is presented in Czech.  Programming in Shell 1  knowledgeable users of common Unix-like operating systems. They understand the fundamental principles of the operating systems hts, memory management, network interfaces). They gain the knowledge of advanced users, with hands-on experience of the shell, I process various text data.  Programming in shell 2  eneral overview of available scripting languages, their syntax, semantics, programming style, data structures, pros and cons. In additional contents are supported by the contents of the syntax, semantics, programming style, data structures, pros and cons. In additional contents of the syntax, semantics, programming style, data structures, pros and cons. In additional contents of the syntax, semantics, programming style, data structures, pros and cons. In additional contents of the syntax, semantics, programming style, data structures, pros and cons. In additional contents of the syntax, semantics, programming style, data structures, pros and cons. In additional contents of the syntax is a syntax is a syntax in the syntax is a syntax in the syntax is a syntax is a syntax is a syntax is a syntax is and syntax is a	basics of the VHD dustry-standard C  Z,ZK cular approaches. I he principles are de eam programming  Z,ZK  KZ  KZ  (file systems, proc basic commands, a  Z,ZK  on, they gain a dec  Z,ZK	Language, AD design  5 Functional emonstrated languages  4  4  5 esesses and and filters to  4 eper insight			
BI-PRP BI-PRR BI-PS1 Students get an own and implementation and implem	Practical Digital Design erview of the contemporary digital design flow and learn practical skills to use synchronous design techniques. They understand the on technologies FPGA and ASIC. Students demonstrate practical use of the design techniques in the module project sing modern, in tools.  Programming Paradigms with basic paradigms of high-level programming languages, including their basic execution models, benefits, and limitations of partic fligm and its basic principles are explained in details. Logic programming is introduced as another way of declarative programming. This is and on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstrated as C++ and Java.  Law and business This course is presented in Czech.  Project management This course is presented in Czech.  Programming in Shell 1  knowledgeable users of common Unix-like operating systems. They understand the fundamental principles of the operating systems hits, memory management, network interfaces). They gain the knowledge of advanced users, with hands-on experience of the shell, I process various text data.  Programming in shell 2  meral overview of available scripting languages, their syntax, semantics, programming style, data structures, pros and cons. In additions shell and some other particular scripting languages and will get practical experience with shell script programming.  Computer Networks  In the design techniques of the design technologies, and algorithms necessary to communicate in computer networks. The topic	basics of the VHD dustry-standard C  Z,ZK cular approaches. I he principles are de eam programming  Z,ZK  KZ  (file systems, proc basic commands, a  Z,ZK  on, they gain a dec  Z,ZK  cs are primarily foc	Language, AD design  5 Functional emonstrated languages  4  4  5 essess and and filters to  4 eper insight  5 used on the			
BI-PRP BI-PRR BI-PS1 Students get an own and implementation and implem	Practical Digital Design erview of the contemporary digital design flow and learn practical skills to use synchronous design techniques. They understand the on technologies FPGA and ASIC. Students demonstrate practical use of the design techniques in the module project sing modern, in tools.  Programming Paradigms with basic paradigms of high-level programming languages, including their basic execution models, benefits, and limitations of particiting and its basic principles are explained in details. Logic programming is introduced as another way of declarative programming. The sand on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstresuch as C++ and Java.  Law and business This course is presented in Czech.  Project management This course is presented in Czech.  Programming in Shell 1  knowledgeable users of common Unix-like operating systems. They understand the fundamental principles of the operating systems hits, memory management, network interfaces). They gain the knowledge of advanced users, with hands-on experience of the shell, it process various text data.  Programming in shell 2  eneral overview of available scripting languages, their syntax, semantics, programming style, data structures, pros and cons. In additions that and some other particular scripting languages and will get practical experience with shell script programming.  Computer Networks	basics of the VHD dustry-standard C  Z,ZK cular approaches. I he principles are de eam programming  Z,ZK  KZ  (file systems, proc basic commands, a  Z,ZK  on, they gain a dec  Z,ZK  cs are primarily foc	Language, AD design  5 Functional emonstrated languages  4  4  5 sesses and and filters to  4 sper insight  5 used on the			
BI-PRP BI-PRR BI-PRR BI-PS1 Students become threads, access right BI-PS2 Students gain a get BI-PS1 Students understant 2nd to 4th layer of and implementation.	Practical Digital Design erview of the contemporary digital design flow and learn practical skills to use synchronous design techniques. They understand the on technologies FPGA and ASIC. Students demonstrate practical use of the design techniques in the module project sing modern, in tools.  Programming Paradigms with basic paradigms of high-level programming languages, including their basic execution models, benefits, and limitations of partic digm and its basic principles are explained in details. Logic programming is introduced as another way of declarative programming. The sand on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstrance as a current of the sand business.  Law and business This course is presented in Czech.  Project management This course is presented in Czech.  Programming in Shell 1  knowledgeable users of common Unix-like operating systems. They understand the fundamental principles of the operating systems hits, memory management, network interfaces). They gain the knowledge of advanced users, with hands-on experience of the shell, process various text data.  Programming in shell 2  meral overview of available scripting languages, their syntax, semantics, programming style, data structures, pros and cons. In additinto shell and some other particular scripting languages and will get practical experience with shell script programming.  Computer Networks and the basic common techniques, protocols, technologies, and algorithms necessary to communicate in computer networks. The topic of the ISO OSI model. They also get a basic understanding of communication media, security, and network administration. Students in network application and configure a simple network.	basics of the VHD dustry-standard C  Z,ZK cular approaches. I he principles are de eam programming  Z,ZK  KZ  KZ  (file systems, proc basic commands, a  Z,ZK  on, they gain a dec  Z,ZK  cs are primarily foc will be able to write	Language, AD design  5 Functional emonstrated languages  4  4  5 essess and and filters to  4 eper insight  5 used on the a simple			
BI-PRR BI-PRR BI-PRR BI-PRR BI-PS1 Students become threads, access right BI-PS2 Students gain a get BI-PSI Students understand 2nd to 4th layer of BI-PST	Practical Digital Design erview of the contemporary digital design flow and learn practical skills to use synchronous design techniques. They understand the on technologies FPGA and ASIC. Students demonstrate practical use of the design techniques in the module project sing modern, in tools.  Programming Paradigms with basic paradigms of high-level programming languages, including their basic execution models, benefits, and limitations of particities and its basic principles are explained in details. Logic programming is introduced as another way of declarative programming. The sand on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstres such as C++ and Java.  Law and business This course is presented in Czech.  Project management This course is presented in Czech.  Programming in Shell 1  knowledgeable users of common Unix-like operating systems. They understand the fundamental principles of the operating systems has, memory management, network interfaces). They gain the knowledge of advanced users, with hands-on experience of the shell, in process various text data.  Programming in shell 2  eneral overview of available scripting languages, their syntax, semantics, programming style, data structures, pros and cons. In additing into shell and some other particular scripting languages and will get practical experience with shell script programming.  Computer Networks  In the Iso OSI model. They also get a basic understandling of communication media, security, and network administration. Students were network application and configure a simple network.  Probability and Statistics	basics of the VHD dustry-standard C  Z,ZK cular approaches. I the principles are defeam programming  Z,ZK  KZ  (file systems, processic commands, as a comma	Language, AD design  5 Functional emonstrated languages  4  4  5 desses and and filters to  4 deper insight  5 used on the a simple  5			
BI-PRR BI-PRR BI-PRR BI-PRR BI-PRR BI-PS1 Students become threads, access right BI-PS2 Students gain a get BI-PSI Students understant 2nd to 4th layer of the students will less than the students are students will less than the	Practical Digital Design erview of the contemporary digital design flow and learn practical skills to use synchronous design techniques. They understand the on technologies FPGA and ASIC. Students demonstrate practical use of the design techniques in the module project sing modern, in tools.  Programming Paradigms with basic paradigms of high-level programming languages, including their basic execution models, benefits, and limitations of particities and its basic principles are explained in details. Logic programming is introduced as another way of declarative programming. This is and on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstres such as C++ and Java.  Law and business This course is presented in Czech.  Project management This course is presented in Czech.  Programming in Shell 1  knowledgeable users of common Unix-like operating systems. They understand the fundamental principles of the operating systems this, memory management, network interfaces). They gain the knowledge of advanced users, with hands-on experience of the shell, process various text data.  Programming in shell 2  Interview of available scripting languages, their syntax, semantics, programming style, data structures, pros and cons. In addition shell and some other particular scripting languages and will get practical experience with shell script programming.  Computer Networks  Interview of the Universe of the Shell o	basics of the VHD dustry-standard C  Z,ZK cular approaches. It is principles are defeam programming  Z,ZK  KZ  (file systems, processic commands, as a comma	Language, AD design  5 Functional emonstrated languages  4  4  5 desses and and filters to  4 deper insight  5 used on the a simple  5 to to apply			
BI-PRP BI-PRR BI-PRS1 Students become threads, access right BI-PS1 Students become threads, arcess right BI-PS1 Students will lebasic models of rar	Practical Digital Design erview of the contemporary digital design flow and learn practical skills to use synchronous design techniques. They understand the on technologies FPGA and ASIC. Students demonstrate practical use of the design techniques in the module project sing modern, in tools.  Programming Paradigms with basic paradigms of high-level programming languages, including their basic execution models, benefits, and limitations of particling and its basic principles are explained in details. Logic programming is introduced as another way of declarative programming. The send on Lisp (Racket) and Prolog programming languages, Moreover, usage of these principles is demonstrated on modern mainstres such as C++ and Java.  Law and business This course is presented in Czech.  Project management This course is presented in Czech.  Programming in Shell 1  knowledgeable users of common Unix-like operating systems. They understand the fundamental principles of the operating systems hits, memory management, network interfaces). They gain the knowledge of advanced users, with hands-on experience of the shell, in process various text data.  Programming in shell 2  Programming in shell 2  General overview of available scripting languages, their syntax, semantics, programming style, data structures, pros and cons. In addition shell and some other particular scripting languages and will get practical experience with shell script programming.  Computer Networks  In the basic common techniques, protocols, technologies, and algorithms necessary to communicate in computer networks. The topic of the ISO OSI model. They also get a basic understanding of communication media, security, and network administration. Students in network application and configure a simple network.  Probability and Statistics  arm the basics of probabilistic thinking, the ability to synthesize prior and posterior information and learn to work with random variable and movariable distributions and solve applied probabilistic problems in informatics and	basics of the VHD dustry-standard C  Z,ZK cular approaches. I the principles are defeam programming  Z,ZK  KZ  KZ  (file systems, processic commands, as a c	Language, AD design  5 Functional emonstrated languages  4  4  5 dessess and and filters to  4 deper insight  5 used on the a simple  5 e to to apply to perform			
BI-PRP BI-PRR BI-PRS1 Students become threads, access right BI-PS1 Students become threads, arcess right BI-PS1 Students will lebasic models of rar	Practical Digital Design erview of the contemporary digital design flow and learn practical skills to use synchronous design techniques. They understand the on technologies FPGA and ASIC. Students demonstrate practical use of the design techniques in the module project sing modern, in tools.  Programming Paradigms with basic paradigms of high-level programming languages, including their basic execution models, benefits, and limitations of particling and its basic principles are explained in details. Logic programming is introduced as another way of declarative programming. The sand on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstres under a C++ and Java.  Law and business This course is presented in Czech.  Project management This course is presented in Czech.  Programming in Shell 1  knowledgeable users of common Unix-like operating systems. They understand the fundamental principles of the operating systems hits, memory management, network interfaces). They gain the knowledge of advanced users, with hands-on experience of the shell, I process various text data.  Programming in Shell 2  Interval overview of available scripting languages, their syntax, semantics, programming style, data structures, pros and cons. In addition into shell and some other particular scripting languages and will get practical experience with shell script programming.  Computer Networks  Interval of the ISO OSI model. They also get a basic understanding of communication media, security, and network administration. Students in network application and configure a simple network.  Probability and Statistics  arn the basics of probabilistic thinking, the ability to synthesize prior and posterior information and learn to work with random variable distributions and solve applied probabilistic problems in informatics and computer science. Using the statistical induction of the introduced to the methods of determining the statistical induction of the proper in the produced	basics of the VHD dustry-standard C  Z,ZK cular approaches. I he principles are de eam programming  Z,ZK  KZ  (file systems, proc basic commands, a  Z,ZK  on, they gain a dec  z,ZK  cs are primarily foc will be able to write  z,ZK  es. They will be able on they will be able on they will be able	Language, AD design  5 Functional emonstrated languages  4  4  5 dessess and and filters to  4 deper insight  5 used on the a simple  5 e to to apply to perform			
BI-PRP BI-PRR BI-PRS1 Students become threads, access right students gain a get and to 4th layer of BI-PST The students will lebasic models of rare estimations of unknown and implementation.	Practical Digital Design erview of the contemporary digital design flow and learn practical skills to use synchronous design techniques. They understand the on technologies FPGA and ASIC. Students demonstrate practical use of the design techniques in the module project sing modern, in tools.  Programming Paradigms with basic paradigms of high-level programming languages, including their basic execution models, benefits, and limitations of particities and its basic principles are explained in details. Logic programming is introduced as another way of declarative programming. The sand on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstres and on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstres and on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstres and on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstres and on Lisp (Racket) and Prolog programming languages and business  This course is presented in Czech.  Programming in Shell 1  knowledgeable users of common Unix-like operating systems. They understand the fundamental principles of the operating systems hits, memory management, network interfaces). They gain the knowledge of advanced users, with hands-on experience of the shell, process various text data.  Programming in Shell 2  Internal overview of available scripting languages, their syntax, semantics, programming style, data structures, pros and cons. In additionation shell and some other particular scripting languages and will get practical experience with shell script programming.  Computer Networks  Intervery Networks  Intervery Networks  Intervery Networks  Intervery Networks and algorithms necessary to communicate in computer networks. The topic of the ISO OSI model. They also get a basic understanding of communication media, se	basics of the VHD dustry-standard C  Z,ZK cular approaches. I he principles are de eam programming  Z,ZK  KZ  (file systems, proc basic commands, a  Z,ZK  cs are primarily foc will be able to write  Z,ZK  es. They will be able tatistical dependen	Language, AD design  5 Functional emonstrated languages  4  4  5 desses and and filters to  4 deper insight  5 used on the a simple  5 e to to apply to perform ce of two or			
BI-PRP BI-PRR BI-PRS1 Students become threads, access right BI-PS1 Students become threads, arcess right BI-PS1 Students will lebasic models of rar	Practical Digital Design erview of the contemporary digital design flow and learn practical skills to use synchronous design techniques. They understand the on technologies FPGA and ASIC. Students demonstrate practical use of the design techniques in the module project sing modern, in tools.  Programming Paradigms with basic paradigms of high-level programming languages, including their basic execution models, benefits, and limitations of partic ligim and its basic principles are explained in details. Logic programming is introduced as another way of declarative programming. The sand on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstres and on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstres and on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstres and on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstres and on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstres and on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstress.  Project management This course is presented in Czech.  Programming in Shell 1  knowledgeable users of common Unix-like operating systems. They understand the fundamental principles of the operating systems hits, memory management, network interfaces). They gain the knowledge of advanced users, with hands-on experience of the shell, introduced users, with hands-on experience of the shell, introduced to the operating systems hits, memory management, network administration. Students with the shell and some other particular scripting languages and will get practical experience with shell script programming.  Computer Networks  In the list of the list of the shell probabilistic problems in	basics of the VHD dustry-standard C  Z,ZK cular approaches. I he principles are de eam programming  Z,ZK  KZ  (file systems, proc basic commands, a  Z,ZK  on, they gain a dec  z,ZK  cs are primarily foc will be able to write  z,ZK  es. They will be able on they will be able on they will be able	Language, AD design  5 Functional emonstrated languages  4  4  5 dessess and and filters to  4 deper insight  5 used on the a simple  5 e to to apply to perform			
BI-PRR BI-PRR BI-PRR BI-PRR BI-PRR BI-PS1 Students become threads, access right BI-PS2 Students gain a get a get and to 4th layer of the students will le basic models of rar estimations of unknown and implementations.	Practical Digital Design erview of the contemporary digital design flow and learn practical skills to use synchronous design techniques. They understand the on technologies FPGA and ASIC. Students demonstrate practical use of the design techniques in the module project sing modern, in tools.  Programming Paradigms with basic paradigms of high-level programming languages, including their basic execution models, benefits, and limitations of particular and its basic principles are explained in details. Logic programming is introduced as another way of declarative programming. The sand on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstres and on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstres and on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstres and on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstres and on Lisp (Racket) and Prolog programming in Shell 1  Rhowledgeable users of common Unix-like operating systems. They understand the fundamental principles of the operating systems hats, memory management, network interfaces). They gain the knowledge of advanced users, with hands-on experience of the shell, process various text data.  Programming in shell 2  Interal overview of available scripting languages, their syntax, semantics, programming style, data structures, pros and cons. In addition into shell and some other particular scripting languages and will get practical experience with shell script programming.  Computer Networks  1 dthe basic common techniques, protocols, technologies, and algorithms necessary to communicate in computer networks. The topic of the ISO OSI model. They also get a basic understanding of communication media, security, and network administration. Students in network application and configure a simple netwo	basics of the VHD dustry-standard C  Z,ZK cular approaches. I the principles are defeam programming  Z,ZK  KZ  (file systems, processic commands, as a comma	Language, AD design  5 Functional emonstrated languages  4  4  5 elesses and and filters to  4 eper insight  5 used on the a simple  5 e to to apply to perform ce of two or			
BI-PRR BI-PRR BI-PRR BI-PRR BI-PRR BI-PS1 Students become threads, access right BI-PS2 Students gain a get a	Practical Digital Design erview of the contemporary digital design flow and learn practical skills to use synchronous design techniques. They understand the on technologies FPGA and ASIC. Students demonstrate practical use of the design techniques in the module project sing modern, in tools.  Programming Paradigms with basic paradigms of high-level programming languages, including their basic execution models, benefits, and limitations of particitigm and its basic principles are explained in details. Logic programming is introduced as another way of declarative programming. The search on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstres such as C++ and Java.  Law and business This course is presented in Czech.  Project management This course is presented in Czech.  Programming in Shell 1  knowledgeable users of common Unix-like operating systems. They understand the fundamental principles of the operating systems has, memory management, network interfaces). They gain the knowledge of advanced users, with hands-on experience of the shell, process various text data.  Programming in Shell 2  Internal overview of available scripting languages, their syntax, semantics, programming style, data structures, pros and cons. In addition to shell and some other particular scripting languages and will get practical experience with shell script programming.  Computer Networks  In the basic common techniques, protocols, technologies, and algorithms necessary to communicate in computer networks. The topic of the ISO OSI model. They also get a basic understanding of communication media, security, and network administration. Students to network application and configure a simple network.  Probability and Statistics  arm the basics of probabilistic thinking, the abilistic problems in informatics and computer science. Using the statistical induction wariable distributions and solve applied probabilistic problems in informatics and computer science. Using the sta	basics of the VHD dustry-standard C  Z,ZK cular approaches. I he principles are de ream programming  Z,ZK  KZ  KZ  (file systems, proc basic commands, a  Z,ZK  on, they gain a dec  Z,ZK  cs are primarily foc will be able to write  Z,ZK  ss. They will be able tatistical dependen  Z,ZK  KZ  KZ  KZ  KZ  KZ  KZ  KZ	Language, AD design  5 Functional emonstrated languages  4  4  5 elesses and and filters to  4 eper insight  5 used on the a simple  5 e to to apply to perform ce of two or  4  5			
BI-PRP BI-PRR BI-PRR BI-PRR BI-PRR BI-PS1 Students become threads, access right BI-PS2 Students gain a get a	Practical Digital Design erview of the contemporary digital design flow and learn practical skills to use synchronous design techniques. They understand the on technologies FPGA and ASIC. Students demonstrate practical use of the design techniques in the module project sing modern, in tools.  Programming Paradigms with basic paradigms of high-level programming languages, including their basic execution models, benefits, and limitations of particular and its basic principles are explained in details. Logic programming is introduced as another way of declarative programming. The sand on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstres and on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstres and on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstres and on Lisp (Racket) and Prolog programming languages. Moreover, usage of these principles is demonstrated on modern mainstres and on Lisp (Racket) and Prolog programming in Shell 1  Rhowledgeable users of common Unix-like operating systems. They understand the fundamental principles of the operating systems hats, memory management, network interfaces). They gain the knowledge of advanced users, with hands-on experience of the shell, process various text data.  Programming in shell 2  Interal overview of available scripting languages, their syntax, semantics, programming style, data structures, pros and cons. In addition into shell and some other particular scripting languages and will get practical experience with shell script programming.  Computer Networks  1 dthe basic common techniques, protocols, technologies, and algorithms necessary to communicate in computer networks. The topic of the ISO OSI model. They also get a basic understanding of communication media, security, and network administration. Students in network application and configure a simple netwo	basics of the VHD dustry-standard C  Z,ZK cular approaches. In the principles are determined by the principles are primarily for will be able to write by the principles are primarily for will be able to write be able to write by the principles are primarily for the principles are determined by th	Language, AD design  5 Functional emonstrated languages  4  4  5 dessess and and filters to  4 deper insight  5 used on the a simple  5 de to to apply to perform ce of two or  4  5 echnologies			

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-SAP Computer Structure and Architecture Z.ZK 6 Students understand basic digital computer units and their structures, functions, and hardware implementation: ALU, control unit, memory system, inputs, outputs, data storage and transfer. In the labs, students gain practical experience with the design and implementation of the logic of a simple processor using modern digital design tools. The subject teaches basic knowledge of digital computer construction principles, how a computer performs its operations, what is machine code, and what are its connections to higher programming languages. Computer Engineering Seminar I 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 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 Z.ZK 4 This course is presented in Czech. The course introduces students of technical university to the international business. It does that predominantly by comparing individual 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-SI1.2 Software Engineering I Students learn the methods of analysis and design of large software systems, which are typically designed and implemented in teams. They get practical skill thanks to applying hands-on analysis and design of a large-scale software project that is to be developed within the concurrent BI-SP1 module. They get skill to use CASE tools and UML for modelling and solving software-related problems. They get overview of object-oriented analysis, design, architecture, validation, verification, and testing processes. BI-SI2.3 Software Engineering 2 3 This course is presented in Czech. However, there is an English variant in the program Informatics (B1801 / 4753). BI-SOJ Machine Oriented Languages Z,ZK 4 Students of the course will gain an ability to create their own programs in the assembly language of the most common PC platform focusing on optimal use of microprocessor's features and efficient cooperation of software with hardware. Next, there will be discussed x86 specifics of the majority of OSes from the application point of view linked to higher level languages. This knowledge will be used during reverse engineering, optimization, and evaluation of code security. BI-SP1 Team Software Project 1 ΚZ 4 Students gain hands-on experience with the analysis, design, and prototyping of a large-scale software system. Theoretical support is provided by the BEI-SWI course that runs concurrently and that teaches the necessary techniques and theory. 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) with respect to both the formal and material aspects of the design. The resulting work will be further developed and finished in the BEI-SP2 course. 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 and finished in the BIE-SP2 course. BI-SP2 Team Software Project 2 K7 Students gain hands-on experience with the iterative development process while working on a large-scale software project. The first iteration is the result of the BEI-SP1 course project. However, this time, the functionality, testing and documenting of the system being developed will be emphasized. Students will work in teams of 4-6 people. The teacher, in the role of the team and project leader, regularly consults with the team (at the seminars) with regard to the formal as well as material aspects of their solution. The BEI-SI2 course that runs concurrently will provide the students with supporting knowledge, especially in the area of teamwork, testing and quality assurance of the software product. BI-SP2.1 Team Software Project 2 ΚZ 4 This course is presented in Czech. However, there is an English variant in the program Informatics (B1801 / 4753). BI-SQL.1 Language SQL, advanced ΚZ 4 Module is based on knowledge obtained in BI-DBS. Students become familiar with advanced relational and non-relational features of SQL language. In particular stored program unites, triggers, recursive queries, OLAP support, object-relational constructions. Part of the course is dedicated to practical database optimization from the point of view of specialized database 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 and partially on PostgreSQL. BI-SRC Real-time systems K7 Students obtain the basic knowledge in the Real-time theory and in the design methods for RT systems including the dependability issues. Thereticla knowledges from lectures will be experimentally verified on the practical labs of the Department of Digital Design. This subject is mainly based on embedded R-T systems, therefore the used design kits are the same as in BI-VES subject and FPGA. **BI-SSB** System and Network Security Z,ZK 5 This course is focused on selected areas of computer networks and computer systems in terms of cyber security BI-ST1 Network Technology 1 Ζ 3 The subject is oriented to providing the students basic information and practical skills from the area of digital and IP networks. The subject is acredited under the Cisco Netacad -CCNA1 - R&S Introduction to Networks. BI-ST2 Network Technology 2 3 Ζ This course is presented in Czech. BI-ST3 Ζ Network Technology 3 3 Students will further enhance their knowledge acquired from previous BI-ST1 and BI-ST2 courses. Principles of routing and switching presented during BI-ST1 and BI-ST2 courses will get further extended in the course. Students will be able to start fine-tune protocols' settings to gain certain advantages like increased efficiency, predictability, extension beyond a simple topology, security, etc.

BI-ST4 Network Technology 4 3 Students will further enhance their knowledge already acquired from previous BI-ST1, BI-ST2, and BI-ST3 courses. Principles of routing and switching presented during BI-ST1 and BI-ST2 courses got further extended in BI-ST3. Students were able to start fine-tune protocols' settings to gain certain advantages like increased efficiency, predictability, extension beyond a simple topology, security, etc. This module teaches students to configure and fine-tune Wide Area Networks and to experience a completely other type of network (Non Broadcast Multiple Access) which radically differs from well-known Ethernet (broadcast) type of networks. Students will also manage router and switch firmware, perform password recoveries, and emergency procedures. Also the security aspect is treated; students will learn possible intra- and inter-network attacks and the mitigation ways while maintaining the network running. **BI-STO** Storage and Filesystems The student will learn principles and current solutions of storage systems architecture. The module explains principles of data store, protection, and archiving, as so as storage scaling, load balancing and high availability. BI-SVZ Machine vision and image processing Camera systems are becoming a common part of life by being universally available. Related to this phenomenon is the need to process and evaluate image information. The course introduces students to different types of camera systems and a variety of methods for image and video processing. The course is focused on practical use of camera systems for solving problems of practice that the graduates may encounter. 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 are well known in the DevOps world. This course has a strong connection on courses like BI(E)-SI1 and BI(E)-SI2. The main goal of this course is to learn by examples that occur in the semester project. **BI-TEX** TeX and Typography This course is presented in Czech. This course gives basics of programming in TeX (plain TeX, ConTeXt, LaTeX, OpTeX, LuaTeX). Te second part of the course focuses on typographic rules. Information Systems Design Z,ZK 5 Students know various types of ISs and their practical implementation aspects and are able to match the needs of different market segments (customers) with applications of existing technologies (databases, programming languages, GUI etc.). BI-TS1 Theoretical Seminar I Ζ 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. User Interface Design Students have a basic overview of the methods for designing and testing common user interfaces. They have 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 the methods that bring users into the development process to ensure optimal communication with a user. BI-TWA.1 Web Application Design 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 AngularJS. BI-ULI Introduction to Linux 7 2 Students become familiar with the basics of the Linux operating system using e-learning form. They learn to work with the command line and become 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-VAK.21 Selected Applications of Combinatorics Ζ 3 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-VES Embedded Systems** Z,ZK 5 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-VMM Selected Mathematical Methods We start reviewing geometric properties of linear spaces with inner product. Next, we introduce and analyze the discrete Fourier transform (DFT) and its fast implementation (FFT). Further we deal with differential calculus of functions involving multiple variables. We present methods for the localization of extreme values of functions. For this purposes, we study normed linear spaces and quadratic forms. In addition, we introduce the least square method. The last part of the course is devoted to optimization and duality. The linear programming and the Simplex method is analyzed in more detail.

BI-VR1 Virtual reality I ΚZ Introduction to Virtual Reality (VR), virtual reality operating system and virtual reality creation. Another objective is to meet the rules and requirements of virtual worlds communication. The course focuses on the ways of teaching using virtual reality technologies and interactive activities in educational virtual 3D worlds. It improves computational thinking, empathy and shared social activities. BI-VR2 ΚZ Virtual reality II 3 Continuation of the course Virtual Reality I. The new course focuses on collaborative telepresence, spatial computing and social life of avatars. The objective is to develop applications for computer science and gamification in various social metaverse and desktop engines. Searching the Web and Multimedia Databases Students get basic overview about search techniques in the web environment that is interpreted as a very large distributed and heterogeneous storage of documents. In particular, students acquire information about search techniques in text and hypertext documents (the web pages themselves) and about feature extraction from web pages. They get detailed knowledge of similarity search in multimedia databases (generally in collections of unstructured data). They also learn techniques for programming web search engines for the mentioned data types (documents). BI-VZD **Data Mining** Students are introduced to the basic methods of discovering knowledge in data. In particular, they learn the basic techniques of data preprocessing, multidimensional data visualization, statistical techniques of data transformation, and fundamental principles of knowledge discovery methods. Students will be aware of the relationships between model bias and variance, and know the fundamentals of assessing model quality. Data mining software is extensively used in the module. Students will be able to apply basic data mining tools to common problems (classification, regression, clustering). BI-XML XML Technology Z,ZK 4 Students learn to make and validate XML documents (XML Schema, Relax, Schematron) and learn standard methods of their processing (SAX, DOM). An emphasis will be given to language XPath which enables addressing of parts of XML documents and its usage in different XML technologies. Students will also learn basics of XSLT programming. XSLT and XPath programming will be based on version 2.0. Students will gain a broad overview of XML technologies. Z,ZK BI-ZDM Elements of Discrete Mathematics 5 Students get both a mathematical sound background, but also practical calculation skills in the area of combinatorics, value estimation and formula approximation, tools for solving recurrent equations, and basics of graph theory. Intelligent Embedded System Fundamentals Intelligent embedded system fundamentals course is focused on high-level technology embedded systems integrating artificial intelligence. The aim of the course is to teach students modern humanoid robot control and development of applications in a graphical development environment. Lectures provide fundamentals of motion control, sensor reading, application 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 practical experience with these technologies. Elements of Calculus BI-7MA Z,ZK Students acquire knowledge and understanding of the fundamentals of classical calculus so that they are able to apply mathematical way of thinking and reasoning and are able to use basic proof techniques. They get skills to practically handle functions of one variable in solving the problems in informatics. They understand the links between the integrals and sums of sequences. They are able to estimate lower or upper bounds of values of real functions and to handle simple asymptotic expressions. **BI-ZNF** PHP Framework Nette - basics 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 popular framework. The resulting knowledge should serve for the efficient creation of a web backend in PHP language. **BI-ZNS** Z,ZK Knowledge-based Systems 5 Students will become familiar with the systems based on knowledge (knowledge-based systems), which are systems that usetechniques of artificial intelligence to solve problems that require human judgment, learning and reasoning from findingsand actions. The course introduces students to the philosophy and architecture of knowledge-based systems to support decision-makingand planning. The course assumes knowledge of set theory, probability theory, artificial neural networks, and evolutionary algorithms. BI-ZPI Process engineering Students will learn fundamentals of process engineering in this subject. Students will get necessary foundations for understanding formal principles of process modelling and they will learn basics of the used notations (UML, BPMN, BORM). The focus in this subject lies in training of practical skills of formalisation and modelling of business processes using modern CASE tools. The role of process engineering for information systems development is discussed as well as its importance in the overall context of information and business strategy of an enterprise. **BI-ZRS** Basics of System Control Z,ZK 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 our attention particularly on control of engineering and physical systems. We will provide basic information from the feedback control of linear dynamical SISO systems, description methods of system models, basic linear dynamic systems analysis and design verification, simple PID feedback, PSD, and fuzzy controllers. Students will learn the methods of creating a description of the system model, the basic linear dynamic systems analysis and design verification and simple PID feedback, PSD, and fuzzy controllers. Attention is also given to sensors and actuators in control loops, issues of stability in control systems, single and continuous adjustment of the controller parameters, and certain aspects of the industrial implementation of continuous and digital controllers and PLC control. Bachelor internship abroad for 10 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 research institution. Before 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 content and extent of the 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 to 4 weeks of full-time employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can be divided into two subjects if the internship exceeds the academic year's dead-line. BI-ZS20 Bachelor internship abroad for 20 credits Ζ 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 research institution. Before 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 content and extent of the 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 to 4 weeks of full-time employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can be divided into two subjects if the internship exceeds the academic year's dead-line. BI-ZS30 Bachelor internship abroad for 30 credits 30 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 research institution. Before 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 content and extent of the 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 to 4 weeks of full-time employment with a foreign institution. The maximum number of credits a student can earn for one internship is 30 credits. This amount can be divided into two subjects if the internship exceeds the academic year's dead-line.

BI-ZUM	Artificial Intelligence Fundamentals	Z,ZK	4
	uced to the fundamental problems in the Artificial Intelligence, and the basic methods for their solving. It focuses mainly on the classical		
space search, multi	i-agent systems, game theory, planning, and machine learning. Modern soft-computing methods, including the evolutionary algorithms be presented as well.	s and the neural ne	etworks, will
BI-ZWU	Introduction to Web and User Interfaces	Z,ZK	4
DI-ZVVO	This course is presented in Czech.	۷,۷۱۲	, ,
BIE-EEC	English language external certificate	Z	4
	se can be recognized for any active semester after the submission of a certificate certificate that demonstrates their proficiency in English	sh comparable to c	r exceeding
	the B2 level of the Common European Framework of Reference for Languages.		
BIE-IMA2	Introduction to Mathematics 2	Z	2
Students refresh ar	nd extend knowledge of elementary functions and their properties. Students understand basic mathematical principles and they are a	ble to apply them	in particular
BIE-ZUM	examples.	7.71/	4
	Artificial Intelligence Fundamentals  uced to the fundamental problems in the Artificial Intelligence, and the basic methods for their solving. It focuses mainly on the classica	Z,ZK	eas of state
	i-agent systems, game theory, planning, and machine learning. Modern soft-computing methods, including the evolutionary algorithms		
•	be presented as well.		
FI-FIL	Philosophy	ZK	2
	see A0B16		
FI-GNO	Introduction to Gnoseology	ZK	2
-	uvádí do teorie poznání, systémovým pohledem nahlíží na pole kultury, na vztahy a rozdíly mezi p írodními a humánními obory, v do		
•	lenkových proud 20. století jsou ukázány prom ny paradigmat a p evrat k postmodernismu, analýzou paralelism ve v d a um ní o osti na teorii p írodních jazyk a sémiotiky je vedena diskuze i o kognitivních procesech, v historickém p ehledu nastín na hlediska este	•	•
•	ely spojitých p írodních soustav a systém, v záv ru p ednášek je pozornost v nována filozofii v dy a otázkám udržitelného rozvoje.		
. ,	Ing. Ivo Janoušek CSc.		,
FI-HPZ	Humanities subject from a study abroad	Z	3
A "Humanities sub	pject that has been studied abroad" is covered by the Humanities subject from a study abroad in Compulsory Humanities Module that	is required in the	curriculum.
	The substitution is approved by the Vice-Dean for study affairs on behalf of the Dean at the request of the student.		
FI-HTE	History of Technology and Economics	ZK	2
The course introdu	ces the scientific disciplines of history and technology, economic and social history of the Czech lands and Czechoslovakia in compa the European region 19 to 21 century.	arison with the dev	elopment of
FI-KSA	Cultural and Social Anthropology	ZK	2
	course aims to acquaint students with the basics of social and cultural anthropology as a scientific discipline dealing with the diversity		l
	search from our "exotic" cultures (topics: kinship, religion, social exclusion, migration, globalization, , material culture, language, health		
	shown. The course is an interesting alternative to other humanities, taught at FIT.		
FI-MPL	Managerial Psychology	ZK	2
FI-ULI	Introduction to Linguistics for Computer	ZK	2
FI-VEZ	This course is presented in Czech. economic-managerial course from a study abroad	Z	4
	ject that has been studied abroad" is covered by the Humanities subject from a study abroad in Compulsory Humanities Module that	_	1
	The substitution is approved by the Vice-Dean for study affairs on behalf of the Dean at the request of the student.	•	
NI-AFP	Applied Functional Programming	KZ	5
	ented in Czech. Functional programming represents one of the traditional programming paradigms. Traditional and novel functional programming paradigms.		
the rise nowadays	and the functional paradigm becomes an important construct of traditionally imperative languages (C++, C#, Java). As such, master	ing this paradigm b	becomes a
NI-DDM	necessary competence of a software engineer: the theory and especially the practice.  Distributed Data Mining	KZ	4
	Distributed Data Willining   state-of-the-art approaches for distributed data mining and parallelization of machine learning algorithms. Students will gain hands o		l
	amework Apache Spark and with existing distributed DM / ML algorithms. They will learn principles of their parallel implementations a	= -	-
	approaches to parallelize other algorithms. The course is prezented in czech language.		
NI-DSP	Database Systems in Practes	Z,ZK	4
	This course is presented in Czech.		
NI-DZO	Digital Image Processing	Z,ZK	4
· · · · · · · · · · · · · · · · · · ·	ents a comprehensive overview of modern methods for interactive editing of digital images and video. It mainly deals with practical alg e an interesting theoretical basis. Visually attractive applications provide better understanding of basic theoretical background that is als		-
-	processing. This course will introduce algorithms solving the following practical applications: edge-aware editing, tone mapping, HDR		
	abstraction, hybrid images, gradient domain editing, seamless image stitching and cloning, digital photo-montage, color-to-gray conv	· ·	_
interactive as-riç	gid-as-possible image deformation, free-form image registration, texture synthesis, interactive segmentation, colorization, painting, ac	lding depth, alpha	matting.
NI-IAM	Internet and Multimedia	Z,ZK	4
	se is focused on principles and modern technologies for network transmissions of audiovisual (AV) signals. The syllabus includes acq	-	
•	signals (output), network communication protocols, device interfaces, codecs, data formats and stereoscopy. We will look at practical u nissions. Within the labs, students will practically assemble AV transmission chains using HW and SW technologies and verify the effe		
	ncy of AV transmissions. Students will learn how to build Internet infrastructure for end-to-end AV transmissions from the recording the	-	
	for audience.		
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	on and its modeling using numpy and scipy. The second half of the semester is focused on the design of methods and algorithms, and 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	-	properties.
NI-MOP	Modern Object-Oriented Programming in Pharo	KZ	4
_	pgramming is currently one of the most widespread paradigms of software creation, especially enterprise information systems, where i		l
	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 chiect system Pharo (https://pharo.org). The course focuses on individual approach to students, their dayslopment or	node and areas of	interest In

addition to deepening object programming skills, which are generally applicable in other OO languages, students will also gain the opportunity to work on interesting projects and OO technologies in terms of semestral work with the possibility of cooperation with practice and related bachelor, diploma, postgraduate our direct involvement in the Pharo Consortium. NI-MPL Managerial Psychology ZK NI-MSI Mathematical Structures in Computer Science Z,ZK Mathematical semantics of programming languages. Data types as continuous lattices, Scott topology. Procedures as continuous mappings. The Scott model of lambda calculus. Introduction to category theory. NI-OLI Linux Drivers 7.7K The Linux operating system is an important operating system for personal computer and also for embedded systems. Systems on chip and combining powerful processors and FPGAs increase the variability of peripheral subsystems requiring specific software drivers. This course is an advanced course in the Linux driver development for master's students. The course provides knowledge of Linux operating system architecture, principles of development of various types drivers, including practical experience. NI-PDD Data Preprocessing Students learn to prepare raw data for further processing and analysis. They learn what algorithms can be used to extract information from various data sources, such as images, texts, time series, etc., and learn the skills to apply these theoretical concepts to solve specific problems in individual projects - e.g., extraction of characteristics from images or from web NI-PSL Programming in Scala The course introduces the modern programming language Scala which exploits object-functional paradigm. Scala comprises advance language features - e.g.pattern matching and advance standard library. Scala enables to use of applications functional patterns e.g. H-List, Monads, etc. Scala is used by many powerful frameworks and libraries e.g. Play, Cassandra, Scalaz, etc. Reverse Engineering Students will get acquainted with the essentials of reverse engineering of computer software. They will learn how processes start and what happens before and after the main function is called. Students will understand how executable files are organized and how they interact with 3rd party libraries. Another part of the course is dedicated 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 dedicated to debuggers: how debuggers and debugging work and which methods can be used to detect it. One of the lectures will be dedicated to the latest trends on the computer malware scene. The focus of the course is on the seminars, where students will solve practically oriented tasks from the real world. NI-SYP Parsing and Compilers The module builds upon the knowledge of fundamentals of automata theory, formal language and formal translation theories. Students gain knowledge of various variants and applications of LR parsing and are introduced to special applications of parsers, such as incremental and parallel parsing. NI-TSP Testing and Reliability Z.ZK Students will gain knowledge about circuit testing and about methods for increasing reliability and security. They will get practical skills to be able to prepare a test set with the help of the intuitive path sensitization and to use an ATPG for automatic test generation. They will be able to design easily testable circuits and systems with built-in-self-test equipment. They will be able to compute, analyze, and control the reliability and availability of the designed circuits. NI-VCC Virtualization and Cloud Computing Z.ZK Students will gain knowledge of architectures of large computer systems that are used in data centers and computer infrastructure of companies and organizations. They will get 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 and development tools (Continuous integration and development) NI-VYC Computability Z,ZK 4 Classical theory of recursive functions and effective computability. TV1 Physical Education Ζ 0 TV2 Physical Education Ζ 0 TV2K1 Physical Education 2 Z 1 Z TVKLV Physical Education Course 0 **TVKZV** Physical Education Course Ζ 0

Physical education

Physical education

Z

0

0

For updated information see <a href="http://bilakniha.cvut.cz/en/FF.html">http://bilakniha.cvut.cz/en/FF.html</a> Generated: day 2024-05-20, time 14:02.

TVV

TVV0