Recomended pass through the study plan

Name of the pass: Master specialization Management Informatics, in Czech, 2020

Faculty/Institute/Others:

Department:

Pass through the study plan: Master specialization Management Informatics, in Czech, 2020

Branch of study guranteed by the department: Welcome page

Guarantor of the study branch: Program of study: Informatika

Type of study: Follow-up master full-time

Note on the pass: Jako volitelné p edm ty lze zapisovat povinné p edm ty sousedních specializací.

Coding of roles of courses and groups of courses:

P - compulsory courses of the program, PO - compulsory courses of the branch, Z - compulsory courses, S - compulsory elective courses, PV - compulsory elective courses, F - elective specialized courses, V - elective courses, T - physical training courses

Coding of ways of completion of courses (KZ/Z/ZK) and coding of semesters (Z/L):

KZ - graded assesment, Z - assesment, ZK - examination, L - summer semester, Z - winter semester

Number of semester: 1

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
NI-KOP	Combinatorial Optimization Jan Schmidt, Ji í Vysko il, Petr Fišer Jan Schmidt Jan Schmidt (Gar.)	Z,ZK	6	2P+2C	Z	PP
NI-MPI	Mathematics for Informatics Št pán Starosta, Jan Sp vák Št pán Starosta Št pán Starosta (Gar.)	Z,ZK	7	3P+2C	Z	PP
NI-AM1	Middleware Architectures 1 Tomáš Vitvar, Jaroslav Kucha Jaroslav Kucha Tomáš Vitvar (Gar.)	Z,ZK	5	2P+1C	Z	PS
NI-MEP	Modelling of Enterprise Processes Robert Pergl, Marek Suchánek Robert Pergl Robert Pergl (Gar.)	Z,ZK	5	2P+1C	Z	PS
NI-PAS	Advanced Aspects of Business Št pánka Havlíková, Dominik Vítek, Ji í Maršál, Jana Soukupová, Zden k Ku era, David Buchtela David Buchtela Zden k Ku era (Gar.)	Z,ZK	4	2P+1C	Z	PS
		Min. cours.				
NI-V.2021	ist volitelné magisterské p edm ty	0	Min/Max			
INI-V.ZUZ I	NI-AOA,NI-ATH, (see the list of groups below)	Max. cours.	0/366			V
		79				

Number of semester: 2

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
NI-PDP	Parallel and Distributed Programming Pavel Tvrdík Pavel Tvrdík (Gar.)	Z,ZK	6	2P+2C	L	PP
NI-VSM	Selected statistical Methods Daniel Vašata, Pavel Hrabák, Jana Vacková, Jitka Hrabáková, Ivo Petr, Petr Novák Pavel Hrabák Pavel Hrabák (Gar.)	Z,ZK	7	4P+2C	L	PP
NI-BUI	Business Informatics Petra Pavlí ková Petra Pavlí ková (Gar.)	Z,ZK	5	2P+2C	L	PS
NI-PIS	Enterprise Information Systems Martin Závrbský, Martin Mach, Vlastimil Jinoch, Martin Hasaj David Buchtela David Buchtela (Gar.)	Z,ZK	5	2P+1C	L	PS
NII DV IZMIZ 20	Skupina povinn volitelných p edm t Komunika ní a	Min. cours.	Min/Max			D 14
NI-PV-KMK.20	manažerské kompetence, verze 2021 NI-CAP,NI-HPZ, (see the list of groups below)	2	6/			PV
		Min. cours.				
NII) / 0004	ist volitelné magisterské p edm ty	0	Min/Max			
NI-V.2021	NI-AOA,NI-ATH, (see the list of groups below)	Max. cours.	0/366			V
		79				

Number of semester: 3

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
NI-MPR	Master Project Zden k Muziká	Z	7		Z,L	PP
NI-DSS	Decision Support Systems Robert Pergl, David Buchtela, Petra Pavlí ková David Buchtela Robert Pergl (Gar.)	Z,ZK	5	2P+1C	Z	PS
NI-TSW	Software Product Development Petra Pavlí ková, Tomáš Šubrt Petra Pavlí ková Petra Pavlí ková (Gar.)	KZ	4	1P+2C	Z	PS
NI-PV-MI.20	Povinn volitelné p edm ty magisterské specializace Manažerská informatika, verze 2021 NI-AM2,NI-NUR (see the list of groups below)	Min. cours.	Min/Max 5/			PV
NI-PV-KMK.20	Skupina povinn volitelných p edm t Komunika ní a manažerské kompetence, verze 2021 NI-CAP,NI-HPZ, (see the list of groups below)	Min. cours.	Min/Max 6/			PV
NI-V.2021	ist volitelné magisterské p edm ty NI-AOA,NI-ATH, (see the list of groups below)	Min. cours. 0 Max. cours. 79	Min/Max 0/366			V

Number of semester: 4

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
NI-DIP	Diploma Thesis Zden k Muziká Zden k Muziká Zden k Muziká (Gar.)	Z	30	270ZP	L,Z	PP

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

Kód		Name of the group of group (for specificat	of courses ar	nd codes of members of this or below the list of courses)	Con	pletion	Credi	ts Scope	Semester	Role
NI-PV-	KMK.20	Skupina povinn manažer	volitelných j ské kompete	o edm t Komunika ní a ence, verze 2021	Min	. cours. 2	Min/M 6/	ax		PV
NI-CAP	Cultural an	d Social Anthropology	NI-HPZ	Master humanities from a study a .		NI-EMZ		Master Manag	gement econon	nics cour
NI-MPX	Manageme	ent practice	NI-MPL	Managerial Psychology		NI-SEP		World Econor	ny and Busines	SS
NI-LNG	Introductio	n to Linguistics for	NI-VEM	Scientific thinking			!			
NI-P\	V-MI.20	Povinn volitelne	é p edm ty n rská informa	nagisterské specializace tika, verze 2021	Min	. cours.	Min/M 5/	ax		PV
NI-AM2	Middlewar	e Architectures 2	NI-NUR	User Interface Design		NI-NSS		Normalized S	oftware System	ns
NI-PDB	Advanced	Database Systems								
	•		•		Min	. cours.				
NI-V	<i>I</i> .2021	ist vol	itelné magis	terské p edm ty	Max	0 . cours. 79	Min/M 0/366			V
NI-AOA	Completing	a professional event	NI-ATH	AlgorithmicTheories of Games		NI-AFP	1	Applied Funct	 ional Programr	mina
NI-ADA NI-APH	. ,	e of computer games	NI-VGA	Video Games Architecture		NI-BPS		• • • • • • • • • • • • • • • • • • • •	puter Networks	0
NI-BSO		and Biomedical Image	NIE-BLO	Blockchain		NI-CTF		Capture The F	<u>' </u>	•
NI-CAP	0	d Social Anthropology	NI-DPH	Game Design		NI-DSW		Design Sprint		
NI-PSD		vices Design	NI-DID	Digital drawing		NI-DZO		Digital Image		
NI-DDM		Data Mining	NI-PAM	Efficient Preprocessing and Para		NI-ESC			Project Course	<u> </u>
NI-GLR		d reinforcement learning	NI-GNN	Graph Neural Networks		NI-GRI		Grid Computin	•	·
NI-HCM	Mind Hack		NI-HSC	Side-Channel Analysis in Hardwar		NI-HMI2			thematics and I	nfor
NI-IBE	Information	<u> </u>	NI-IVS	Intelligent embedded systems		NI-IKM			Classification M	
NI-IAM	Internet an	d Multimedia	NI-IOT	Internet of Things		FITE-EH	ID	Introduction to	European Eco	onomi
NI-KTH	Combinato	rial Theories of Games	NI-FMT	Finite model theory		NI-CCC		Creative Codi	ng and Compu	tationa
NI-KYB	Cybernality	/	NI-LSM2	Statistical Modelling Lab		NI-LOM		Linear Optimiz	zation and Met	hods
NI-MPL	Manageria	I Psychology	NI-MSI	Mathematical Structures in Compu	I	NI-MZI		Mathematics 1	for data science	9
FIT-ITI	Modern IT	infrastructure	NI-MOP	Modern Object-Oriented Programn	ni	NI-MMA		Multiplatform	development of	f mob
NI-NLM	Neural Lar	guage Models	NI-NMS	Neural Networks, Machine Learnin	١	NI-NMU		New media in	art and design	ı
NI-OLI	Linux Drive	ers	NIE-PML	Personalized Machine Learning		NI-ARI		Computer arit	hmetic	
NI-PG1	Computer	Grafics 1	NI-PIV	Computer Vision		NI-EDW		Enterprise Da	ta Warehouse	System
NI-PVR	Advanced	Virtual Reality	NI-AML	Advanced machine learning		NI-IOS		Advanced tec	hniques in iOS	appli

NI-APT	Advanced Program Testing	NI-PVS	Advanced embedded systems	NI-DNP	Advanced .NET
NI-PYT	Advanced Python	NIE-PDL	Practical Deep Learning	FIT-ACM1	Programming Practices 1
FIT-ACM2	Programming Practices 2	FIT-ACM3	Programming Practices 3	FIT-ACM4	Programming Practices 4
FIT-ACM5	Programming Practices 5	FIT-ACM6	Programming Practices 6	NI-GOL	Programming of distributed syste
NI-PSL	Programming in Scala	NI-RUB	Programming in Ruby	NI-ROZ	Pattern Recognition
NI-PLS4	Programming Language Seminar	NI-PLS3	Programming Language Seminar	NI-PLS2	Programming Language Seminar
NI-PLS1	Programming Language Seminar	NI-SCE1	Computer Engineering Seminar Mas	NI-SCE2	Computer Engineering Seminar Mas
NI-SZ1	Knowledge Engineering Seminar Ma	NI-SZ2	Knowledge Engineering Seminar Ma	PI-SCN	Seminars on Digital Design
NI-MLP	Machine Learning in Practice	FIT-SEP	World Economy and Business	NI-SEP	World Economy and Business
NI-TVR	Virtual Reality Technology	NI-TS1	Theoretical Seminar Master I	NI-TS2	Theoretical Seminar Master II
NI-TS3	Theoretical Seminar Master III	NI-TS4	Theoretical Seminar Master IV	NI-TKA	Category Theory
NI-TNN.25	Theory of Neural Networks	NI-TNN	Theory of Neural Networks	NI-CPX	Complexity Theory
FIT-TOP	Academic writing	NI-DVG	Introduction to Discrete and Com	NI-LNG	Introduction to Linguistics for
NI-VEM	Scientific thinking	NI-VOL	Elections	NI-VYC	Computability
NI-VPR	Research Project	NI-ZS10	Master internship abroad for 10	NI-ZS20	Master internship abroad for 20
NI-ZS30	Master internship abroad for 30			•	

List of courses of this pass:

Code	Name of the course	Completion	Credits
FIT-ACM1	Programming Practices 1	KZ	5
'	This is a selective course for preparing talented student for representation in international programming contests.	1	'
FIT-ACM2	Programming Practices 2	KZ	5
	This is a selective course for preparing talented student for representation in international programming contests.		
FIT-ACM3	Programming Practices 3	KZ	5
'	This is a selective course for preparing talented student for representation in international programming contests.		'
FIT-ACM4	Programming Practices 4	KZ	5
	This is a selective course for preparing talented student for representation in international programming contests.		
FIT-ACM5	Programming Practices 5	KZ	5
	This is a selective course for preparing talented student for representation in international programming contests.		'
FIT-ACM6	Programming Practices 6	KZ	5
'	This is a selective course for preparing talented student for representation in international programming contests.	'	'
FIT-ITI	Modern IT infrastructure	Z,ZK	5
with a very limited and	I time-invariable range of software or hardware, this subject tries to explain the issue as a whole and in the context of the time. A mo	dern data or comp	uting cente
is understood here as	s a complex whole, the individual parts of which must be reconciled from different aspects of the view using current technologies.	The proposed solu	tion should
	thus be capable of continuous and economically optimal operation.		
FIT-SEP	World Economy and Business	Z,ZK	4
This course is preser	nted in Czech. The course introduces students of technical university to the international business. It does that predominantly by c	omparing individua	d countries
and key regions of wor	rld economy. Students get to know about different religions and cultures, necessary for doing business in diverse societies as well as	indexes of econon	nic freedom
corruption and econor	mic development, which are needed for the right investment decision. Seminars help to improve on the knowledge in the form of d	iscussions based o	on individua
	readings. It is advised to take bachelor level of this course BIE-SEP as a prerequisite.		
FIT-TOP	Academic writing	Z	2
Publishing is an impor	rtant and required part of research activity. It is not only about obtaining research results but also about applying them in the form	of publication. Writi	ng scientific
publications can be us	seful for students not only in their own publishing activities but also in the preparation of a bachelor's or master's thesis. In the cou	ırse, students will le	earn how to
	e, what parts such an article should have, and how the peer review process works. Students will also try their hand at presenting an		ū
else's article. The cour	rse will be taught in blocks, with theoretical part at the beginning of the semester and one practical at the end of the semester/begin	ining of the exam p	eriod. Date:
	will be determined based on the availability of enrolled students.		1
FITE-EHD	Introduction to European Economic History	Z,ZK	3
The course introduce	es a selection of themes from the European economic history. It gives the student basic knowledge about forming of the global eco	nomy through the	description
	history. As European countries have been dominant actors in this process it focuses predominantly on their roles in the economic	-	
•	e to fragmentation of the Middle Ages, from destruction of WWII to the current affairs, the development of modern financial institute	•	
does not cover detail	led economic history of particular European countries but rather the impact of trade and role of particular events, institutions and	organizations in his	tory. Class
	meetings will consist of a mixture of lecture and discussion.		
NI-AFP	Applied Functional Programming	KZ	5
•	ted in Czech. Functional programming represents one of the traditional programming paradigms. Traditional and novel functional programming paradigms are considered in Czech.		•
the rise nowadays ar	nd the functional paradigm becomes an important construct of traditionally imperative languages (C++, C#, Java). As such, maste	ring this paradigm	becomes a
	necessary competence of a software engineer: the theory and especially the practice.		1
NI-AM1	Middleware Architectures 1	Z,ZK	5
•	new trends, concepts, and technologies in the area of service-oriented architectures. The will gain an overview of information syst		
architecture and aplica	ation servers. The will also study principles and technologies for middleware focused on application integrations, asynchronous comr of applications.	nunications and hig	h availabilit
NI-AM2	Middleware Architectures 2	Z,ZK	5
l l	w trends and technologies on the Web including theoretical foundations. They will gain an overview of Web application architectur		_
	for microservices, distrubuted cache and databases, smart contracts, realtime communication and web security.		3

NI-AML	Advanced machine learning	Z,ZK	5
	ces students to selected advanced topics of machine learning and artificial intelligence. The topics present techniques in the field of rec control and interconnection of physical laws with the field of machine learning. The aim of the exercise is to familiarize students with I	=	- 1
NI-AOA	Completing a professional event	Z	1
	cipation in a one-off professional event, usually a lecture by a foreign guest of the FIT CTU, concluded with a workshop, a test, drafti		- 1
	I in advance by the vice-dean for pedagogical activities or the vice-dean for science and research and is presented within the FIT thro	ough a website, info	omail, etc.
NI-APH	Architecture of computer games	Z,ZK	4
-	basic understanding of the various issues in the field of computer games development, especially from a technical point of view, but also ill get a grasp of component-oriented and functional-oriented architecture, game mechanics, decision-making processes and base co		
	es. They will also understand the basics of pathfinding, networking and scripting and apply them in practical exercises (labs). An important	•	٠ ١
	implementation of a simple game, with a strong focus on nontrivial game mechanics.		
NI-APT	Advanced Program Testing	Z,ZK	5
resting a program	is essential to ensure that a program respects its specification, that changes do not introduce regressions or security issues. The go advanced program testing techniques, beyond writing unit tests, especially fuzzing and symbolic execution.	oal of the course is	to present
NI-ARI	Computer arithmetic	Z,ZK	4
1	Students will learn various data representations used in digital devices and will be able to design arithmetic operations implementa		
NI-ATH	AlgorithmicTheories of Games	Z,ZK	4
_	theory is a branch of mathematics, which has broad applications in economy, biology, politics and computer science. This theory studies in competitive process by designinng a mathematical model and investigating the strategies. The traditional task of classical game t		- 1
. ,	am competitive process by designing a mathematical model and investigating the strategies. The traditional task of classical game to s of the game where no player wants to deviate from his strategy. Due to the recent development of computers, internet, social network	•	
	s and other concepts the algorithmic point of view is gaining attention. In addition to existential questions we study the problems of el		- 1
1	concepts. In this course we introduce the basics of game theory of many players, solution concept (usually equilibria) and methods of		
NI-BPS	Wireless Computer Networks	Z,ZK	4
	n about the modern technologies, protocols, and standards for wireless networks. They will understand the routing mechanisms in ad nisms, and data flow control mechanisms. They will also learn about principles of communication in sensor networks. They get knowle		
	for wireless networks and get skills of configuration of wireless network elements and simulation of wireless networks using suitable		
NI-BSO	Biosignals and Biomedical Image Processing	Z,ZK	5
	irse is to provide students with theoretical principles, techniques, and applications related to the processing and analysis of biological	-	- 1
_	students will work on examples of processing various biosignals in the MATLAB environment. After completing the course, students ement solutions to complex tasks for biosignals and biomedical images, interpret results, and apply their knowledge to real-world medical images.		design and
NI-BUI	Business Informatics	Z,ZK	5
The aim of the cour	se is to focus on operational, tactical and strategic management of business informatics. Students will gain knowledge in the areas of b	usiness process ma	anagement,
	architectures in enterprise informatics. They will also learn about the principles, models and standards (ITIL, COBIT) in IT manageme	=	- 1
	nd resource management (sourcing). Students will learn the process of creating and implementing information strategy, IT Governan e context of information strategy with global business strategy. They will also gain knowledge in the areas of economic IT manageme	=	
buomioco ana an		in, rovende and inv	001110111
	management, IT investment evaluation and human resources management in IT (roles CIO, CEO, CFO).		
NI-CAP	Cultural and Social Anthropology	ZK	2
The one-semester	Cultural and Social Anthropology course aims to acquaint students with the basics of social and cultural anthropology as a scientific discipline dealing with the diversit	y of the world - exa	mples from
The one-semester	Cultural and Social Anthropology course aims to acquaint students with the basics of social and cultural anthropology as a scientific discipline dealing with the diversit earch from our "exotic" cultures (topics: kinship, religion, social exclusion, migration, globalization, , material culture, language, healtl	y of the world - exa	mples from
The one-semester anthropological res	Cultural and Social Anthropology course aims to acquaint students with the basics of social and cultural anthropology as a scientific discipline dealing with the diversit earch from our "exotic" cultures (topics: kinship, religion, social exclusion, migration, globalization, , material culture, language, healtl shown. The course is presented in Czech.	y of the world - exa	mples from
The one-semester anthropological res	Cultural and Social Anthropology course aims to acquaint students with the basics of social and cultural anthropology as a scientific discipline dealing with the diversit earch from our "exotic" cultures (topics: kinship, religion, social exclusion, migration, globalization, , material culture, language, healtl	y of the world - exa h, history, death, et	imples from c) will be
The one-semester of anthropological res NI-CCC Students work on p BLE,) and introdu	Cultural and Social Anthropology course aims to acquaint students with the basics of social and cultural anthropology as a scientific discipline dealing with the diversit earch from our "exotic" cultures (topics: kinship, religion, social exclusion, migration, globalization, , material culture, language, health shown. The course is presented in Czech. Creative Coding and Computational Art ractical tasks, get acquainted with creative and yet proven methods of visualizing various types of data. The course freely follows the ces students to suitable visualization methods for traditional as well as for open data. It combines well-known visualization technique	y of the world - exa h, history, death, et KZ basic graphics cou s with artistic meth	mples from c) will be 4 rses (MGA, ods using
The one-semester of anthropological res NI-CCC Students work on p BLE,) and introdu	Cultural and Social Anthropology course aims to acquaint students with the basics of social and cultural anthropology as a scientific discipline dealing with the diversit earch from our "exotic" cultures (topics: kinship, religion, social exclusion, migration, globalization, , material culture, language, health shown. The course is presented in Czech. Creative Coding and Computational Art ractical tasks, get acquainted with creative and yet proven methods of visualizing various types of data. The course freely follows the ces students to suitable visualization methods for traditional as well as for open data. It combines well-known visualization technique es. The aim is to create an interesting visualization project. It is planned to work closely with IPR CAMP (Center of Architecture and N	y of the world - exa h, history, death, et KZ basic graphics cou s with artistic meth	mples from c) will be 4 rses (MGA, ods using
The one-semester anthropological res NI-CCC Students work on p BLE,) and introdu modern technologic	Cultural and Social Anthropology course aims to acquaint students with the basics of social and cultural anthropology as a scientific discipline dealing with the diversit earch from our "exotic" cultures (topics: kinship, religion, social exclusion, migration, globalization, , material culture, language, healtl shown. The course is presented in Czech. Creative Coding and Computational Art ractical tasks, get acquainted with creative and yet proven methods of visualizing various types of data. The course freely follows the ces students to suitable visualization methods for traditional as well as for open data. It combines well-known visualization technique es. The aim is to create an interesting visualization project. It is planned to work closely with IPR CAMP (Center of Architecture and M (Institute of Intermedia FEL).	y of the world - exa h, history, death, et KZ basic graphics cou is with artistic meth Metropolitan Planni	amples from c) will be 4 rses (MGA, ods using ng) and IIM
The one-semester anthropological res NI-CCC Students work on p BLE,) and introdu modern technologic	Cultural and Social Anthropology course aims to acquaint students with the basics of social and cultural anthropology as a scientific discipline dealing with the diversit earch from our "exotic" cultures (topics: kinship, religion, social exclusion, migration, globalization, , material culture, language, health shown. The course is presented in Czech. Creative Coding and Computational Art ractical tasks, get acquainted with creative and yet proven methods of visualizing various types of data. The course freely follows the ces students to suitable visualization methods for traditional as well as for open data. It combines well-known visualization technique es. The aim is to create an interesting visualization project. It is planned to work closely with IPR CAMP (Center of Architecture and N	y of the world - exact, h, history, death, et KZ basic graphics cousts with artistic meth Metropolitan Plannin Z,ZK	amples from c) will be 4 rses (MGA, ods using ng) and IIM
The one-semester anthropological res NI-CCC Students work on p BLE,) and introdu modern technological NI-CPX Students will learn	Cultural and Social Anthropology course aims to acquaint students with the basics of social and cultural anthropology as a scientific discipline dealing with the diversit earch from our "exotic" cultures (topics: kinship, religion, social exclusion, migration, globalization, , material culture, language, health shown. The course is presented in Czech. Creative Coding and Computational Art ractical tasks, get acquainted with creative and yet proven methods of visualizing various types of data. The course freely follows the ces students to suitable visualization methods for traditional as well as for open data. It combines well-known visualization technique es. The aim is to create an interesting visualization project. It is planned to work closely with IPR CAMP (Center of Architecture and M (Institute of Intermedia FEL). Complexity Theory n about the fundamental classes of problems in the complexity theory and different models of algoritms and about implications of the (in)tractability of difficult problems.	y of the world - exact, h, history, death, et KZ basic graphics cours with artistic meth Metropolitan Planning Z,ZK a theory concerning	amples from c) will be 4 rses (MGA, ods using ng) and IIM 5 g practical
The one-semester anthropological res NI-CCC Students work on p BLE,) and introdu modern technologic	Cultural and Social Anthropology course aims to acquaint students with the basics of social and cultural anthropology as a scientific discipline dealing with the diversit earch from our "exotic" cultures (topics: kinship, religion, social exclusion, migration, globalization, , material culture, language, health shown. The course is presented in Czech. Creative Coding and Computational Art ractical tasks, get acquainted with creative and yet proven methods of visualizing various types of data. The course freely follows the ces students to suitable visualization methods for traditional as well as for open data. It combines well-known visualization technique es. The aim is to create an interesting visualization project. It is planned to work closely with IPR CAMP (Center of Architecture and M (Institute of Intermedia FEL). Complexity Theory n about the fundamental classes of problems in the complexity theory and different models of algoritms and about implications of the (in)tractability of difficult problems. Capture The Flag	y of the world - exact, h, history, death, et KZ basic graphics cours with artistic methodetropolitan Planning Z,ZK a theory concerning KZ	amples from c) will be 4 rses (MGA, ods using ng) and IIM
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The one-semester anthropological res NI-CCC Students work on p BLE,) and introdu modern technologic NI-CPX Students will lear NI-CTF	Cultural and Social Anthropology course aims to acquaint students with the basics of social and cultural anthropology as a scientific discipline dealing with the diversit earch from our "exotic" cultures (topics: kinship, religion, social exclusion, migration, globalization, , material culture, language, health shown. The course is presented in Czech. Creative Coding and Computational Art reactical tasks, get acquainted with creative and yet proven methods of visualizing various types of data. The course freely follows the ces students to suitable visualization methods for traditional as well as for open data. It combines well-known visualization technique es. The aim is to create an interesting visualization project. It is planned to work closely with IPR CAMP (Center of Architecture and M (Institute of Intermedia FEL). Complexity Theory In about the fundamental classes of problems in the complexity theory and different models of algoritms and about implications of the (in)tractability of difficult problems. Capture The Flag The course is designed to introduce students to CTF competitions and let them gain practical experience in the field of cyber see Distributed Data Mining	y of the world - exact, h, history, death, et KZ basic graphics couse with artistic methodetropolitan Planning Z,ZK etheory concerning KZ curity.	amples from c) will be 4 rses (MGA, ods using ng) and IIM 5 g practical 4
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NI-DSW			
	Design Sprint	Z	2
	n projects using the Design Sprint method, developed by Google. Thanks to this method the teams are able to go from idea to validate		1
the course the stu	dents will get familiar with the method as participants. Through practical challenges they will try the whole 5 day process starting with testing the prototypes (plus final presentation).	research and link	sning with
NI-DVG	Introduction to Discrete and Computational Geometry	Z,ZK	5
The course intends	to introduce the students to the discipline of Discrete and Computational Geometry. The main goal of the course is to get familiar with	the most fundame	ntal notions
NII DZO	of this discipline, and to be able to solve simple algorithmic problems with a geometric component.	7 71/	
NI-DZO This course prese	Digital Image Processing ats a comprehensive overview of modern methods for interactive editing of digital images and video. It mainly deals with practical algor	Z,ZK	th easy to
	an interesting theoretical basis. Visually attractive applications provide better understanding of basic theoretical background that is als		I
	rocessing. This course will introduce algorithms solving the following practical applications: edge-aware editing, tone mapping, HDR of	-	- 1
	abstraction, hybrid images, gradient domain editing, seamless image stitching and cloning, digital photo-montage, color-to-gray conve id-as-possible image deformation, free-form image registration, texture synthesis, interactive segmentation, colorization, painting, ad		
NI-EDW	Enterprise Data Warehouse Systems	Z,ZK	5
	a Warehouses course focuses on the area of business intelligence. Students will be introduced to business intelligence methods and	,	-
not only in designi	ng warehouses and various architectures, but also their deployment and maintenance. This course also includes an introduction to the	e area of reporting	and data
NI-EMZ	visualization. Master Management economics course from a study abroad	Z	4
	gement-economic course "Management economics course from a study abroad" covers in the study plan the nature of the economics		
	their trip abroad. Completion by compensation is therefore assumed. Recognition is decided by the vice-dean for study and pedagog		
NII 500	dean and on the basis of the student's request.	177	
NI-ESC	Experimental Project Course t course offers a holistic exploration of the design process, providing students with a well-rounded understanding of the principles, m	KZ sethodologies and	8 tools used
	ogy-driven solutions that are user-centric and industry-relevant. Throughout the semester, students will work on real-world design proj	_	
experts, and learn	to integrate theory with practical application. Through a hands-on, project-based learning approach, students will develop their skills	in user-centered d	esign and
NU ENAT	user experience evaluation, as well as gain experience working in a team to design and prototype a functional solution."	7 71/	
NI-FMT The aim of the cour	Finite model theory se is to introduce students to the basics of finite model theory. The original motivation is the questions expressibility and verifiability of	Z,ZK	4 of database
	nception in the 1970s, the course has evolved rapidly and touched on many other areas of theoretical computer science, such as des		
	Constraint Satisfaction Problem (CSP), the theory of algorithmic meta-theorems and combinatorics.		
NI-GLR	Games and reinforcement learning	Z,ZK	4
The field of reinford	ement learning is very hot recently, because of advances in deep learning, recurrent neural networks and general artificial intelligenc give you both theoretical and practical background so you can participate in related research activities. Presented in English		ntended to
NI-GNN	Graph Neural Networks	Z,ZK	4
	duces students to advanced artificial intelligence techniques for working with graphs. Lectures will focus on the latest graph neural new	etworks for creatin	-
representations o	nodes, edges and entire graphs. The techniques discussed cover various types of graphs, including time-varying graphs. The last page 1975 and interpretability of graph power last page 1975 and probability of graph power last page 1975 and p		so covers
NI-GOL	graph generation and interpretability of graph neural networks. In the exercises, students will try out selected techniques and prot Programming of distributed systems in GO	KZ	5
NI-GRI	Grid Computing	Z,ZK	5
111 0111	Grid computing and gain knowledge about the world-wide network and computing infrastructure.	_,	
NI-HCM	Mind Hacking	ZK	5
,	s an emerging discipline that is closely related to cyber security. While the domain of cyber security is the protection of networks, info itive security is the protection of the human mind from intentional and unintentional digital manipulation. The topic of cognitive securit	rmation systems a	
_	into occurry to the protocolor of the namen from monitorial and animonal angual manipulation. The topic of cognitive occurry	•	′
	ation warfare, increasing digital dependence and the development of artificial intelligence, where these phenomena from the Internet e	ty is growing in imp	ortance in
	impacts such as disruption of social cohesion, threats to democracy or war.	ty is growing in impenvironment have r	ortance in
NI-HMI2	impacts such as disruption of social cohesion, threats to democracy or war. History of Mathematics and Informatics	ty is growing in impenvironment have r	portance in eal societal
	impacts such as disruption of social cohesion, threats to democracy or war. History of Mathematics and Informatics sented in Czech. Selected topics {Infinitesimal calculus, probability, number theory, general algebra, different examples of algorithms	ty is growing in impenvironment have reconstruction. ZK s, transformations,	portance in eal societal
	impacts such as disruption of social cohesion, threats to democracy or war. History of Mathematics and Informatics	ty is growing in impenvironment have reconstruction. ZK s, transformations,	portance in eal societal
This course is pre	impacts such as disruption of social cohesion, threats to democracy or war. History of Mathematics and Informatics sented in Czech. Selected topics (Infinitesimal calculus, probability, number theory, general algebra, different examples of algorithms functions, eliptic curves, etc.) note on possibilities of applications of some mathematical methods in informatics and its developm Master humanities from a study abroad nanities that has been studied abroad" is covered by the Humanities from a study abroad in Compulsory Humanities Module that is re-	ty is growing in impenvironment have reconstruction of the service	oortance in eal societal 3 recursive
This course is pre	impacts such as disruption of social cohesion, threats to democracy or war. History of Mathematics and Informatics sented in Czech. Selected topics {Infinitesimal calculus, probability, number theory, general algebra, different examples of algorithms functions, eliptic curves, etc.) note on possibilities of applications of some mathematical methods in informatics and its developm Master humanities from a study abroad nanities that has been studied abroad" is covered by the Humanities from a study abroad in Compulsory Humanities Module that is resubstitution is approved by the Vice-Dean for study affairs on behalf of the Dean at the request of the student.	ty is growing in impenvironment have reconstruction by the service of the service	ortance in eal societal 3 recursive 2 culum. The
This course is pre NI-HPZ Master course "Hur NI-HSC	impacts such as disruption of social cohesion, threats to democracy or war. History of Mathematics and Informatics sented in Czech. Selected topics (Infinitesimal calculus, probability, number theory, general algebra, different examples of algorithms functions, eliptic curves, etc.) note on possibilities of applications of some mathematical methods in informatics and its developm Master humanities from a study abroad nanities that has been studied abroad" is covered by the Humanities from a study abroad in Compulsory Humanities Module that is resubstitution is approved by the Vice-Dean for study affairs on behalf of the Dean at the request of the student. Side-Channel Analysis in Hardware	ty is growing in imperior in the environment have reconstructed by the environment have reconstructed by the environment. Z equired in the curricular to the curricular to the environment.	ortance in eal societal 3 recursive 2 culum. The
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NI-IOT Internet of Things Z,ZK 4 The subject is focused on the area of hardware and software technologies for the strongly growing computer support of various devices. Its goal is familiarization with available development elements (Raspberry Pi, Arduino Due) and with the language for efficient application development and modification (GNU Forth). NI-IVS Intelligent embedded systems Intelligent embedded systems course for master's degree is focused on high-level technology embedded systems integrating artificial intelligence. The course is an advance version of the Intelligent embedded system fundamentals course for the bachelor degree. The aim of the course is to teach students humanoid robot programming and advance application development. Lectures provide basis of motion control, sensor reading, application interfaces, robot navigation and development tools. In labs, students develop advanced applications combining knowledge of various courses like nature inspired algorithms, data mining algorithms, image recognition and web technologies NI-KOP Combinatorial Optimization Z,ZK 6 The students will gain knowledge and understanding necessary deployment of combinatorial heuristics at a professional level. They will be able not only to select and implement but also to apply and evaluate heuristics for practical problems. Combinatorial Theories of Games Traditional game theory is a branch of mathematics, which has broad applications in economy, biology, politics and computer science. This theory studies the behaviour of agents (players) of a certain competitive process by designing a mathematical model and investigating the strategies. The traditional task of classical game theory is to find the equilibria, which are the states of the game where no player wants to deviate from his strategy. Historically, the second big development in game theory of two-player full-information combinatorial games, was by Conway, Berlekamp and Guy. They developed a theory, originally used for solving end-games in Go, into a full fledged field. The idea is to evaluate games such that otherwise incompatible games can be added, that is, played simultaneously. This led to the algrebraic approach to study combinatorial games. The third most important step is the work of Beck, who established the theory of positional games (like tic-tac-toe and hex). In analysis of these game, one cannot escape the brute-force traversal of the game tree, which is no efficient. Beck introduced the "false probabilistic method", which aims to tackhle this problem. In this course we build the foundation of the theory of combinatorial and positional games. We focus on theoretical analysis of games and building the theory, not on the programming aspects of game solving algorithms. The course requires independent work, ability to mathematically analyse, think and proof. The course is also suitable for bachelors student in the third year, who attended introduction to graph theory, as well as for PhD students looking for research topics. NI-KYB Cybernality Students get acquainted with the fundamentals of legislation and international activities in the area of fighting cybercrime. Students will understand the classification of attacks and have an overview of systems for computer surveillance and traffic monitoring in the cyberspace. Students will also familiarize themselves with hacker activities and behavior. The course will also discuss the cooperation of the state agencies and subjects dealing with defence of the cyberspace (especially CSIRT and CERT teams). NI-LNG Introduction to Linguistics for IT Students This one-semester course should provide a gentle introduction to linguistics and language research for students majoring in IT and programming. Students get acquainted with basic concepts used in language descriptions as well as major theories influencing the current mainstream in linguistics. Specific attention will be paid to empirical and quantitative methods in linguistics, including the use of language corpora, and to specific issues of Czech. NI-LOM Linear Optimization and Methods Z,ZK Students learn the applications of optimization methods in computer science, economics, and industry. They are aware of practical importance of linear and integer programming. They are able to work with optimization software and are familiar with languages used in programming of that software. They get skills in formalization of optimization problems in computer science (such as scheduling of tasks to processors, analysis of network flows), distribution and allocation of resources (transportation problems, travelling salesman problems, etc.), issues from economics, and modelling of conflicts via the game theory. They get an overview of computational complexity of optimization problems. They get orientation in algorithms in linear programming. NI-LSM2 Statistical Modelling Lab ΚZ 5 The topic of LSM2 is advanced multiple target tracking (MTT). This domain covers simultaneous tracking of multiple targets using radar under the presence of clutter, or video tracking. We aim at the state-of-the-art filters, in particular the PHD (Probability Hypothesis Density) and PMBM (Poisson Multi-Bernoulli) filters. NI-MEP Modelling of Enterprise Processes Z,ZK 5 The subject is focused on introduction to the discipline of Enterprise Engineering. Students learn the importance of a proper methodological approach for (re)engineering and implementation of processes, organisation structures and information support in big enterprises and institutions. NI-MLP Machine Learning in Practice Applying machine learning methods to real projects in practice involves many other necessary tasks - from understanding the intentions of the client to, ideally, technical implementation The course guides students through all phases of a project according to the standard CRISP-DM methodology, not only theoretically but also practically. The aim is to experience real data processing and learn how to describe the whole process from exploration to evaluation of the model performance in the form of a clear and understandable report. Multiplatform development of mobile applications ΚZ Students will learn the latest trends in mobile development technologies for iOS platform. Class covers advanced topics, students need to know all the basics from the beginners class K7 NI-MOP Modern Object-Oriented Programming in Pharo Object-oriented programming is currently one of the most widespread paradigms of software creation, especially enterprise information systems, where its ability to natural abstraction is used to build complex modern applications. In this course, we build on the knowledge acquired in the course BI-OOP and aim to further deepen the skills of design and implementation of object systems in modern pure object system Pharo (https://pharo.org). The course focuses on individual approach to students, their development needs 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-MPI Mathematics for Informatics Z.ZK The course comprises topics from general algebra with focus on finite structures used in computer science. It includes topics from multi-variate analysis, smooth optimization and multi-variate integration. The third large topic is computer arithmetics and number representation in a computer along with error manipulation. The last topic includes selected numerical algorithm and their stability analysis. The topics are completed with demonstration of applications in computer science. The course focuses on clear presentation and argumentation. NI-MPL Managerial Psychology ZK NI-MPR Master Project Ζ 1. At the beginning of the semester, a student reserves her/his final thesis topic and gets together with its supervisor. Together they decide on partial tasks that should be carried out during the semester. If the requirements they agreed upon are met, the supervisor awards the student an assessment for the course MI-MPR at the end of the semester. 2. The external supervisor enters the information on granting the credit using the form "Granting credit from the external supervisor of the final thesis" (http://fit.cvut.cz/student/studijni/formulare). The completed and signed form must be delivered in person or by email to the SZZ coordinator, who will arrange for the credit to be granted. 3. If the FT topic that the student has reserved is rather general, the immediate tasks the supervisor assigns to the student for the upcoming semester should aim at fine-tuning the FT topic so that the FTT will be complete and approvable at the end of the semester. Management practice The Student can once, within its master's degree graduate (to apply) management practices in the selected subject of practice (business subject) on the operational, tactical or strategic level of management (typically at the position of project manager, middle or top manager). The selected subject of practice and professional filling is assessed well in advance the course guarantor. In the selected subject of practice may not have a substantial ownership interest or substantial decision-making influence of the relatives of the student (e.g. as a member of the top management).

NI-MSI	Mathematical Structures in Computer Science	Z,ZK	4
Mathematical se	emantics of programming languages. Data types as continous lattices, Scott topology. Procedures as continuous mappings. The Scott Introduction to category theory.	model of lambda	calculus.
NI-MZI	Mathematics for data science	Z,ZK	4
In this course, stud	ents are introduced to those fields of mathematics that are necessary for understanding standard methods and algorithms used in da	ta science. The sti	udied topics
include mainly: li	near algebra (matrix factorisations, eigenvalues, diagonalization), continuous optimisation (optimisation with constraints, duality princi	iple, gradient meth	ods) and
	selected notions from probability theory and statistics.		
NI-NLM	Neural Language Models	Z	5
in this course, stud	ents will learn the technical foundations of the Transformer architecture as well as the practical aspects of using language models. The students how to use language models to solve problems, make informed risk assessments, and work critically with the scientific lit	•	e is to teach
NI-NMS	Neural Networks, Machine Learning and Randomness	Z,ZK	4
	ds, i.e. methods based on randomness, are extremely important for the construction and training of neural networks as well as a numb	<i>'</i>	
	urse "Neural networks, machine learning and randomness" will discuss in sufficient depth a number of specific types of neural network		- 1
	ell as a number of specific stochastic methods for neural networks and machine learning. In the final two topics, it explains the general s	=	-
neural networks ar	nd shows that, in addition to the use of randomness in neural networks and machine learning, machine learning models, including neural	ıral networks, are	used in one
	of the most important applications of randomness stochastic optimization methods, which include e.g. popular evolutionary algor	ithms.	
NI-NMU	New media in art and design	ZK	3
	duces students to the issue of using new media in artistic and design work. Key topics are moving image, internet, computer game and		-
familiarize the stud	lent with the largest possible range of creative approaches in new media. The subject emphasizes dialogue with students, especially i	n lectures devoted	to specific
NI NICO	art projects.	71/	
NI-NSS	Normalized Software Systems the foundations of normalized systems theory that studies the evolvability of modular structures based on concepts from engineering,	ZK	5
	from thermodynamics. Students will understand a set of principles that indicate where violations of stability and entropy-related issue	•	- 1
	second part of the course, students learn how to construct software architectures using a set of 5 design patterns called elements. The	, ,	
	mation systems in terms of storing data, executing actions, workflows, connectors, and triggers, while handling violations of the stability	=	
	This knowledge allows students to realize new levels of evolvability in software architectures.		
NI-NUR	User Interface Design	Z,ZK	5
	stand the theorical background of human-computer interaction and user interface (UI) design, will learn formal description of UIs, formal		
	ocesures. They get acquainted with graphical, speech, and multimodal UIs. Thanks to the gained knowledge, the students will be able		
NI-OLI	Linux Drivers	Z,ZK	4
· ·	g system is an important operating system for personal computer and also for embedded systems. Systems on chip and combining po	=	
	ability of peripheral subsystems requiring specific software drivers. This course is an advanced course in the Linux driver developmen urse provides knowledge of Linux operating system architecture, principles of development of various types drivers, including practica		ents. The
NI-PAM	Efficient Preprocessing and Parameterized Algorithms	Z.ZK	4
	poptimization problems for which no polynomial time algorithms are known (e.g. NP-complete problems). Despite that it is often necess	, ,	
-	We will demonstrate that many problems can be solved much more effectively than by naively trying all possible solutions. Often one	-	
		can find a commo	n property
(parameter) of the	nputs from practice-e.g., all solutions are relatively small. Parameterized algorithms exploit that by limiting the time complexity exponer		
and polynomially in	nputs from practice-e.g., all solutions are relatively small. Parameterized algorithms exploit that by limiting the time complexity exponer in the input size (which can be huge). Parameterized algorithms also represent a way to formalize the notion of effective polynomial time.	ntially in this (small ne preprocessing o) parameter of the input,
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and polynomially in which is not poss plethora of param	nputs from practice-e.g., all solutions are relatively small. Parameterized algorithms exploit that by limiting the time complexity exponer in the input size (which can be huge). Parameterized algorithms also represent a way to formalize the notion of effective polynomial time sible in the classical complexity. Such a polynomial time preprocessing is then a suitable first step, whatever is the subsequent solution eterized algorithm design methods and we will also show how to prove that for some problem (and parameter) such an algorithm (pre	ntially in this (small ne preprocessing on method. We will p esumably) does no) parameter of the input, present a
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NI-PLS1 The Programming			
The Programming	Programming Language Seminar	Z	2
about programming	g Language Seminar aims to introduce students to research in programming languages. It has the format of a reading group in which		
about programming	g languages and related fields. Participating students are expected to present a paper of their interest and actively participate in the di is a joint venue between FIT and MFF CUNI. It is open to all students and researchers interested in programming languages		eading group
NI-PLS2	Programming Language Seminar	Z	2
- 1	g Language Seminar aims to introduce students to research in programming languages. It has the format of a reading group in which	_	1
about programming	glanguages and related fields. Participating students are expected to present a paper of their interest and actively participate in the di	iscussions. The r	eading group
	is a joint venue between FIT and MFF CUNI. It is open to all students and researchers interested in programming languages		T
NI-PLS3	Programming Language Seminar	. Z	2
	g Language Seminar aims to introduce students to research in programming languages. It has the format of a reading group in which g languages and related fields. Participating students are expected to present a paper of their interest and actively participate in the di		
about programming	is a joint venue between FIT and MFF CUNI. It is open to all students and researchers interested in programming languages		eauling group
NI-PLS4	Programming Language Seminar	Z	2
	g Language Seminar aims to introduce students to research in programming languages. It has the format of a reading group in which	-	I
about programming	g languages and related fields. Participating students are expected to present a paper of their interest and actively participate in the di		eading group
	is a joint venue between FIT and MFF CUNI. It is open to all students and researchers interested in programming languages		T
NI-PSD	Public Services Design	KZ	4
	oduce students to specifics of UX, Service design and development for public sector. We will look into the design and development pr Ind designesr) as well as clients. In small teams students will work on projects from partner organizations and will try out collaboration		
suppliers (devs a	Course is aimed at students-designers as well as clients.	i with client repre	senialives.
NI-PSL	Programming in Scala	Z.ZK	4
	uces the modern programming language Scala which exploits object-functional paradigm. Scala comprises advance language feature	,	-
	ibrary. Scala enables to use of applications functional patterns e.g. H-List, Monads, etc. Scala is used by many powerful frameworks and		-
	Scalaz, etc.		
NI-PVR	Advanced Virtual Reality	KZ	4
	ces advanced parts of the virtual reality. It is a continuation of the already running graphic objects, especially the creation of 3D models		_
-	students to their application in virtual reality. Lectures will focus on virtual reality technology, its use in various applications and will also ines (mainly Unity3D). The course is freely connected with the subject VHS (virtual game worlds), students will be able to apply the kni	-	
iii avallable 3D eligi	in virtual reality, or directly create a complex game for VR.	owiedge gairied i	ii iiiis subjeci
NI-PVS	Advanced embedded systems	Z,ZK	4
	ised on ARM processors and microcontrollers and their usage in wide range of applications. The course includes a series of advanced	,	rity support,
working with mass	s storage devices, motor control, system control and industrial communication. The students obtain both theoretical and also practical	experiences with	n embedded
	systems.		
NI-PYT	Advanced Python	KZ	4
-	urse is to learn various advanced techniques and methods in Python. The course indirectly continues where Programming in Python it has only tutorials, everything is demonstrated on examples. Classification is based on work in class as well as semestral coursework. teachers from Red Hat.		
NI-ROZ	Pattern Recognition	Z,ZK	5
- 1	i attorri recoognition		0
ine aim of the m	odule is to give a systematic account of the major topics in pattern recognition with emphasis on problems and applications of the sta	•	to pattern
	nodule is to give a systematic account of the major topics in pattern recognition with emphasis on problems and applications of the standard to give a systematic account of the major topics in pattern recognition, including probability models, parameter estimation, an	atistical approach	-
		atistical approach	-
recognition. Stu NI-RUB	dents will learn the fundamental concepts and methods of pattern recognition, including probability models, parameter estimation, an	atistical approach	l aspects.
recognition. Stu NI-RUB NI-SCE1	Programming in Ruby This course is presented in Czech. Computer Engineering Seminar Master I	atistical approach and their numerica KZ Z	l aspects.
NI-RUB NI-SCE1 The Seminar of Corare approached inc	dents will learn the fundamental concepts and methods of pattern recognition, including probability models, parameter estimation, an Programming in Ruby This course is presented in Czech.	atistical approach ad their numerica KZ Z a failures and atta subject is work v	4 dcks. Students vith scientific
NI-RUB NI-SCE1 The Seminar of Corare approached inc	Programming in Ruby This course is presented in Czech. Computer Engineering Seminar Master I mputer Engineering is a (s)elective course for students who want to deal with deeper topics of digital design, reliability and resistance to dividually within the subject. Each student or group of students solves some interesting topic with the selected supervisor. Part of the professional literature and/or work in K N laboratories. The capacity of the subject is limited by the possibilities of the seminar teacher semester.	atistical approach ad their numerica KZ Z a failures and atta subject is work v	4 deks. Students vith scientific
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NI-TNN.25	Theory of Neural Networks	Z,ZK	4
	works are now the foundation of artificial intelligence and the fastest-growing area of machine learning. This course introduces their the		٠ ١
	eptsstructure, active dynamics, and adaptive dynamics (i.e., learning). Then it covers the theoretical basis of the most common types ron of the 1950s to the transformer of 2017. Finally, using function approximation theory, it rigorously explains the most important theo approximation capability of neural networks.		
NI-TS1	Theoretical Seminar Master I	Z	4
	r is intended for students which want to come in deeper contact with contemporary theoretical computer science. It is mostly a classical		
are treated individu	ally and concern themselves with interesting topics from the latest research in the area. Therefore, an integral part of the course is a v other scholarly literature. The capacity is limited by the the potentials of the teachers of the seminar.	vork with scientific	papers and
NI-TS2	Theoretical Seminar Master II	7	4
	r is intended for students which want to come in deeper contact with contemporary theoretical computer science. It is mostly a classical	al reading group. T	- 1
are treated individu	ally and concern themselves with interesting topics from the latest research in the area. Therefore, an integral part of the course is a v	vork with scientific	papers and
	other scholarly literature. The capacity is limited by the the potentials of the teachers of the seminar.		
NI-TS3	Theoretical Seminar Master III	Z	4
	r is intended for students which want to come in deeper contact with contemporary theoretical computer science. It is mostly a classica ally and concern themselves with interesting topics from the latest research in the area. Therefore, an integral part of the course is a v		
	other scholarly literature. The capacity is limited by the the potentials of the teachers of the seminar.		,
NI-TS4	Theoretical Seminar Master IV	Z	4
	r is intended for students which want to come in deeper contact with contemporary theoretical computer science. It is mostly a classical		
are treated individu	ally and concern themselves with interesting topics from the latest research in the area. Therefore, an integral part of the course is a v	vork with scientific	papers and
NI-TSW	other scholarly literature. The capacity is limited by the the potentials of the teachers of the seminar. Software Product Development	KZ	4
INI-10VV	The course is presented in Czech.	IXZ.	7
NI-TVR	Virtual Reality Technology	Z,ZK	3
Students will be in	roduced to the basic concepts of virtual reality. Techniques for displaying virtual worlds (CAVE, HMD,) and the possibilities of contr	olling virtual avata	rs (position
tracking, hand tra	cking, eye tracking) will be discussed. Furthermore, the concepts of mixed and augmented reality will be introduced. Finally, ways of	using virtual and a	ugmented
NII V/ENA	reality will be presented.	1/7	
NI-VEM The objective of t	Scientific thinking he course is to get acquainted with scientific methods and discovery of order and laws of the universe, including the aspects of huma	KZ In life The subject	2 combines
	in natural sciences, mathematics, computer science and humanities. Another aim is to introduce rules and requirements of scientific		
	papers and posters.		
NI-VGA	Video Games Architecture	Z,ZK	5
	a wide range of topics, procedures and methodologies related to the development of computer games - from a technical point of view of view. In the lectures, students will be guided through the history of development, the structure of game engines, component and fu		-
	of view. In the rectures, students will be guided through the history of development, the structure of game engines, component and fu , physics, graphics, artificial intelligence and multiplayer. The exercises will then cover selected technological topics in greater detail, in		
9	some game mechanics, in the form of practical demonstrations.		
NI-VOL	Elections We will cover the basics of (committee) elections and, in general, opinion aggregation.	Z,ZK	5
NI-VPR	Research Project	Z	5
	Student obtains the credits for published scientific outputs. The details are at https://courses.fit.cvut.cz/NI-VPR/en.		
NI-VSM	Selected statistical Methods	Z,ZK	7
	the student through advanced probabilistic and statistical methods used in information technology praxis. Particularly it deals with mu opy in coding theory, hypothesis testing (T-tests, goodness of fit tests, independence test). Second part of the course deals with rand		
application of chi	Markov chains. The high point of the course is the Queuing theory and its application in networks.	iom processes with	110003 011
NI-VYC	Computability	Z,ZK	4
NII 7040	Classical theory of recursive functions and effective computability.	7	40
NI-ZS10	Master internship abroad for 10 credits once within his / her master's degree have a foreign internship at a foreign university or other foreign scientific and/or research institut	Z tion. Before the int	10 ernship the
	he vice-dean for study affairs assesses the professional content. The student must provide evidence of the professional content and ex		
courses MI-ZS10,	MI-ZS20, MI-ZS30 are used used for the evidence and evaluation of the internship in IS KOS. Every 10 credits correspond to 4 weeks	s of full-time emplo	yment with
a foreign institution			1 41
	on. The maximum number of credits a student can earn for one internship is 30 credits. This amount can be divided into two subjects i	if the internship ex	ceeas tne
NI 7020	academic year's dead-line.	·	
NI-ZS20 Each student can	academic year's dead-line. Master internship abroad for 20 credits	Z	20
Each student can	academic year's dead-line.	Z tion. Before the int	20 ernship the
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NIE-PDL	Practical Deep Learning	KZ	5
This course is designed to provide students with a comprehensive understanding of Deep Learning using PyTorch, a popular open-source machine learning framework. Throughout			
the course, students will develop practical skills in building and training deep neural networks, using PyTorch to solve real-world problems in fields such as computer vision and natural			
language processing.			
NIE-PML	Personalized Machine Learning	Z,ZK	5
Personalized machine learning (PML) is a sub-field of machine learning that aims to create models and predictions based on the unique characteristics and behaviors of individual			
entities. While PML is commonly used in applications such as recommender systems, which recommend items to users based on their personal interests, its principles can be applied			
to a wide range of other fields, including education, medicine, and chemical engineering. In this course, we will explore the latest PML methods from theoretical, algorithmic, and practical			
perspectives. Specifically, we will focus on cutting-edge models that are of interest to both the research and commercial communities.			
PI-SCN	Seminars on Digital Design	ZK	4
This subject deals with problems of realization and implementation of digital circuits - both combinational and sequential. Basic means of description of digital circuits and basic logic			
synthesis and optimization algorithms are described. Basics of EDA (Electronic Design Automation) systems are given, together with combinatorial problems emerging in EDA.			

For updated information see http://bilakniha.cvut.cz/en/FF.html Generated: day 2025-11-13, time 16:33.