Recomended pass through the study plan

Name of the pass: Specialization Computer Games anf Graphics - Passage through study

Faculty/Institute/Others: Faculty of Electrical Engineering Department: Pass through the study plan: Open Informatics - Computer Games and Graphics 2018 Branch of study guranteed by the department: Welcome page Guarantor of the study branch: Program of study: Open Informatics Type of study: Bachelor full-time Note on the pass:

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 semes	ster: 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
B4B01DMA	Discrete Mathematics Petr Habala Petr Habala Petr Habala (Gar.)	Z,ZK	5	2P+2S	Z	Ρ
B0B01LAG	Linear Algebra Ji í Velebil, Jakub Rondoš, Natalie Žukovec, Daniel Gromada, Josef Dvo ák, Mat j Dostál Ji í Velebil Ji í Velebil (Gar.)	Z,ZK	8	4P+2S	Z	Ρ
B0B36PRP	Procedural Programming Jan Faigl Jan Faigl (Gar.)	Z,ZK	6	2P+2C	Z	Ρ
B4B33RPH	Solving Problems and other Games Tomáš Svoboda, Petr Pošík Petr Pošík Tomáš Svoboda (Gar.)	KZ	6	2P+3C	Z	Ρ
BEZZ	Basic Health and Occupational Safety Regulations Vladimír K la, Radek Havlí ek, Ivana Nová Radek Havlí ek Vladimír K la (Gar.)	Z	0	2BP+2BC	Z	Ρ
		Min. cours.	Min/Max			N
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Number of semes	ster: 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
B0B35APO	Computer Architectures Pavel Píša, Richard Šusta, Petr Št pán Pavel Píša Pavel Píša (Gar.)	Z,ZK	5	2P+2L	L	Р
BEZB	Safety in Electrical Engineering for a Bachelor's Degree Vladimír K la, Radek Havlí ek, Ivana Nová Radek Havlí ek Vladimír K la (Gar.)	Z	0	2BP+2BC	Z,L	Р
B0B01LGR	Logic and Graphs Natalie Žukovec, Mat j Dostál, Alena Gollová Alena Gollová Marie Demlová (Gar.)	Z,ZK	5	3P+2S	Z,L	Р
B0B01MA1	Mathematical Analysis 1 Josef Dvo ák, Martin K epela, Josef Tkadlec, Veronika Sobotíková Josef Tkadlec Josef Tkadlec (Gar.)	Z,ZK	7	4P+2S	Z,L	Ρ
B4B38PSIA	Computer Networks Ji í Novák, Jan Holub Ji í Novák Ji í Novák (Gar.)	Z,ZK	5	2P+2L	L	Р
B0B36PJV	Programming in Java Martin Mudroch, Ji í Vok ínek, Ladislav Serédi Ji í Vok ínek Ji í Vok ínek (Gar.)	Z,ZK	6	2P+3C+7D	L	Ρ
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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
B4B33ALG	Algorithms Marko Genyk-Berezovskyj, Daniel Pr ša Daniel Pr ša Marko Genyk-Berezovskyj (Gar.)	Z,ZK	6	2P+2C	z	Р
B0B01MA2	Mathematical Analysis 2 Miroslav Korbelá , Petr Hájek, Martin Bohata, Jaroslav Tišer, Karel Pospíšil, Paola Vivi, Hana Tur inová Petr Hájek Jaroslav Tišer (Gar.)	Z,ZK	7	4P+2S	L,Z	Ρ
B4B35OSY	Operating Systems Petr Št pán, Michal Sojka Michal Sojka Michal Sojka (Gar.)	Z,ZK	4	2P+2C	Z	Р
B0B01PST	Probability and Statistics Kate ina Helisová Kate ina Helisová Petr Hájek (Gar.)	Z,ZK	7	4P+2S	Z	Р
B4B39HRY	Computer Games Ji í Bittner, David Sedlá ek David Sedlá ek Ji í Bittner (Gar.)	Z,ZK	6	2P+2C	Z	PZ

Number of semes	ster: 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
B0B36DBS	Database Systems Martin imná , Václav Kratochvíl Martin imná Martin imná (Gar.)	Z,ZK	6	2P+2C+4D	L	Ρ
B0B33OPT	Optimization Tomáš Werner, Petr Olšák, Mirko Navara, Tomáš Kroupa Tomáš Werner Tomáš Werner (Gar.)	Z,ZK	7	4P+2C	Z,L	Ρ
B4B36PDV	Parallel and Distributed Computing Mat j Kafka, Michal Jakob Michal Jakob Michal Jakob (Gar.)	Z,ZK	6	2P+2C	L	Ρ
B0B39PGR	Computer graphics programming Petr Felkel, Jaroslav Sloup Jaroslav Sloup Petr Felkel (Gar.)	Z,ZK	6	2P+2C+8D	L	PZ
B4B36ZUI	Introduction to Artificial Intelligence Viliam Lisý, Branislav Bošanský Branislav Bošanský Michal P chou ek (Gar.)	Z,ZK	6	2P+2C	L	PZ

Number of semester: 5							
Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role	
B4BPROJ6	Unassisted project Tomáš Svoboda, Petr Pošík, Jaroslav Sloup, Ji í Šebek, Ivan Jelínek, Katarína Žmolíková Petr Pošík	Z	6	0+2	Z,L	Ρ	
B4B39IUR	User interfaces implementation Zden k Míkovec, Miroslav Macík Miroslav Macík Zden k Míkovec (Gar.)	Z,ZK	6	2P+2S	Z	ΡZ	
BE4B39VGO	Creating graphic content Ladislav molík Ladislav molík (Gar.)	Z,ZK	6	2P+2C+8D	Z	ΡZ	
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	Volitelné odborné p edm ty	0	0/999			v	

Number of semester: 6

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
BBAP20	Bachelor thesis Roman mejla Roman mejla (Gar.)	Z	20	12S	L,Z	Р
		Min. cours.	Min/Max			
2018_BOIVOL	Volitelné odborné p edm ty	0	0/999			V

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

2018_BOIVOL VoliteIné odborné p edm ty Min. cours. Min/Max v 0 0/999	Kód	Name of the group of courses and codes of members of this group (for specification see here or below the list of courses)	Completion	Credits	Scope	Semester	Role
2018_BOIVOL Voliteine odborne p edm ty 0 0/999			Min. cours.	Min/Max			
	2010_BOIVOL	Volitelné odborné p edm ty	0	0/999			v

List of courses of this pass:

Code	Name of the course	Completion	Credits
B0B01LAG	Linear Algebra	Z,ZK	8
The course covers t	he initial parts of linear algebra. Firstly, the basic notions of a linear space and linear mappings are covered (linear dependence and inde	ependence, basis,	coordinates,
etc). The calculus of	of matrices (determinants, inverse matrices, matrices of a linear map, eigenvalues and eigenvectors, diagonalisation, etc) is covered	next. The application	ons include
	solving systems of linear equations, the geometry of a 3D space (including the scalar product and the vector product) and SV	/D.	
B0B01LGR	Logic and Graphs	Z,ZK	5
This course covers	basics of mathematical logic and graph theory. Syntax and semantics of propositional and predicate logic are introduced. The importance	e of the notion of co	onsequence
	and of the relationship between a formula and its model is stressed. Further, basic notions from graph theory are introduced	d	
B0B01MA1	Mathematical Analysis 1	Z,ZK	7
	The aim of the course is to introduce students to basics of differential and integral calculus of functions of one variable.		
B0B01MA2	Mathematical Analysis 2	Z,ZK	7
The subject cover	s an introduction to the differential and integral calculus in several variables and basic relations between curve and surface integrals.	Other part contain	ns function
	series and power series with application to Taylor and Fourier series.		1
B0B01PST	Probability and Statistics	Z,ZK	7
B0B33OPT	Optimization	Z,ZK	7
The course provide	s an introduction to mathematical optimization, specifically to optimization in real vector spaces of finite dimension. The theory is illustrated	ed with a number of	of examples.
	You will refresh and extend many topics that you know from linear algebra and calculus courses.		
B0B35APO	Computer Architectures	Z,ZK	5
B0B36DBS	Database Systems	Z,ZK	6
The course is desig	ned as a basic database course mainly aimed at the student ability to design a relational data model and to use the SQL language fi	or data definition a	s well as for
data querying and	to choose the appropriate degree of transaction isolation. Students will also get acquainted with the most commonly used indexing t	echniques, databa	ase system
	architecture and their management. They will verify their knowledge during the elaboration of a continuously submitted seminar	task.	
B0B36PJV	Programming in Java	Z,ZK	6
The course builds of	on the basics of algorithms and programming from the first semester and introduces students to the Java environment. The course als	so focus on the ob	ject concept
of the Java languag	e. The topics of the course includes exceptions, event handling, and building a graphical interface. Basic library methods, working with	h files and using g	eneric types
will be introduced. A	An important topic is models of multithreaded applications and their implementation. Practical exercises of practical skills and knowled	ge of Java is tested	d in the form
of solving partial ta	sks and semester work, which will be submitted continuously through the source code version control system. The semester work sc	oring consists of p	oints for the
	correctness and efficiency of the code, as well as points that take into account the quality of the source codes, their readability and i	eusability.	
B0B36PRP	Procedural Programming	Z,ZK	6
The course accomp	anies basic programming emphasizing the data representation in computer memory. Furthermore, the concepts of linked data structure	res and processing	Juser inputs
are developed. S	tudents master the practical implementation of simple individual tasks. The course emphasizes acquiring programming habits for cre-	ating readable and	l reusable
is used that provide	me time, the enon is to build students an overview of the program operation, data model, memory access, and management. Therefore	, the C programmin	
and linking but also	s a unextrink between the program data structures and their representation in the computer memory. Structures will get acquarted to the with debugging and profiling 1, also aim to acquire practical skills of implementing simple individual tasks, emphasizing functionality and	d accuracy of impl	
Student independ	lence is developed by a set of homework with the possibility of optional and bonus assignments. The final task is an integration of a la	arger program usir	na existina
im	plementations. Evaluation of coding style motivated by writing legible, understandable, and maintainable codes is also a part of the su	elected tasks.	ig onloung
B0B39PGR	Computer graphics programming	7 7K	6
B4B01DMA	Discrete Mathematics	2,2K	5
In this course stude	Disorce Wall in Finances Ints meet some important tonics from the field of discrete mathematics. Namely, they will evolve divisibility and calculations modulo n	diophantine equa	tions binary
relations mannin	instruction important topics induction and recurrence equations. The second aim of this course is to teach students the language of math	ematics both pase	sively and
	actively, and introduce them to mathematics as science.	omatioo, both paoe	sivery and
B4B33ALG	Δlaorithms	7 7K	6
In the course the a	loorithms development is constructed with minimum dependency to programming language: nevertheless the lectures and seminars	are based on Java	Basic data
types a data strue	ctures, basic algorithms, recursive functions, abstract data types, stack, queues, trees, searching, sorting, special application algorith	ims. Dynamic proc	aramming.
31	Students are able to design and construct non-trivial algorithms and to evaluate their effectivity.	., ,	5
B4B33RPH	Solving Problems and other Games	K7	6
The main motivat	ion is to let students to deal with real-world problems properly. When working on real problems the student shall learn how to decomp	bose the big proble	em, how to
define interfaces,	how to test and validate individual steps and so on. Many problems will actually be beyond the first-year-student skills. And many pro	blem will not be sc	lved in the
optimal way. The u	insolved parts should motivate the students to study difficult theoretical subjects. They should generate the important questions. Idea	ally, at the end of th	ne subject,
the student should	be eager to study deeper about informatics. The course also explains the basis of the object oriented design, software testing, ways it	for writing readable	and robust
	codes		

B4B35OSY	Operating Systems	Z,ZK	4			
Lecture introduces	operation system's basic concepts and principles as processes, threads, communication and synchronization, virtual memory, driver	s, file systems, bas	sic security			
aspects. These top	ics are theoretically described and demonstrated on Linux and Windows OS with multi-core systems. Practical exercises from OS in (C programming lar	iguage will			
	be solved on labs. Students will work with Linux OS and micro-kernel NOVA.					
B4B36PDV	Parallel and Distributed Computing	Z,ZK	6			
B4B36ZUI	Introduction to Artificial Intelligence	Z,ZK	6			
The aim of the cou	rse is to cover the basics of symbolic artificial intelligence. We will focus on algorithms of informed and uninformed state space search	i, problem represe	ntation and			
solving, representation of knowledge using formal logic, methods of automated reasoning, and an introduction to Markov decision making, and to two-player games. This course is						
also part of the i	nter-university programme prg.ai Minor. It pools the best of AI education in Prague to provide students with a deeper and broader insi	ght into the field of	artificial			
	intelligence. More information is available at https://prg.ai/minor.					
B4B38PSIA	Computer Networks	Z,ZK	5			
B4B39HRY	Computer Games	Z,ZK	6			
Students familiarize	themselves with the issues encountered during programming computer games. They learn topics such as 3D model representation, a	nimations, collision	n detection,			
physical simulation	, and real-time rendering in the context of computer games development. During exercises they will develop a computer game in team	s: from the game c	oncept and			
design	document, through programming game mechanics to the presentation in front of a jury of experts. The exercises are build around the	Unity framework.				
B4B39IUR	User interfaces implementation	Z,ZK	6			
Based on the user	nterface specification (created by design team), the student will be able to implement user interface and communicate efficiently with	other stakeholders	taking part			
	in the whole process of design, testing, and implementation of the user interface.					
B4BPROJ6	Unassisted project	Z	6			
BBAP20	Bachelor thesis	Z	20			
BE4B39VGO	Creating graphic content	Z,ZK	6			
The aim of this co	urse is to provide theory behind geometric modeling and modeling of materials, give students an overview of methods used in the pro-	ocess of creating 2	D and 3D			
graphics and how to	o apply those methods in praxis. At the seminars, students will learn how to design and create three-dimensional scene, create and app	oly textures imitatin	g materials			
	(e.g., wall finishes, wood, sky) and geometrical details, and position and set-up lights in the scene.					
BEZB	Safety in Electrical Engineering for a Bachelor's Degree	Z	0			
The purpose of the	safety course is to give the students basic knowledge of electrical equipment and installation as to avoid danger arising from operation	of it. This introduc	tory course			
contains funda	amentals of Safety Electrical Engineering. In this way the students receive qualification of instructed person that enables them to work	on electrical equip	oment.			
BEZZ	Basic Health and Occupational Safety Regulations	Z	0			
The guidelines wer	e worked out based on The Training Scheme for Health and Occupational Safety designed for employees and students of the Czech T	echnical University	/ in Prague,			
which was provided by the Rector's Office of the CTU. Safety is considered one of the basic duties of all employees and students. The knowledge of Health and Occupational Safety						
	regulations forms an integral and permanent part of qualification requirements. This program is obligatory.					

For updated information see <u>http://bilakniha.cvut.cz/en/f3.html</u> Generated: day 2025-07-13, time 09:51.