Recomended pass through the study plan

Name of the pass: Specialization Software - Passage through study

Faculty/Institute/Others: Faculty of Electrical Engineering
Department:
Pass through the study plan: Open Informatics - Software 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 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**
B4B01DMA	**Discrete Mathematics** *Petr Habala* ***Petr Habala*** *Petr Habala (Gar.)*	Z,ZK	5	2P+2S	Z	P
B0B01LAG	**Linear Algebra** *Jiří Velebil, Jakub Rondoš, Natalie Žukovec, Daniel Gromada, Josef Dvořák, Matěj Dostál* ***Jiří Velebil*** *Jiří Velebil (Gar.)*	Z,ZK	8	4P+2S	Z	P
B0B36PRP	**Procedural Programming** *Jan Faigl* ***Jan Faigl*** *Jan Faigl (Gar.)*	Z,ZK	6	2P+2C	Z	P
B4B33RPH	**Solving Problems and other Games** *Tomáš Svoboda, Petr Pošík* ***Petr Pošík*** *Tomáš Svoboda (Gar.)*	KZ	6	2P+3C	Z	P
BEZZ	**Basic Health and Occupational Safety Regulations** *Vladimír Kůla, Radek Havlíček, Ivana Nová* ***Radek Havlíček*** *Vladimír Kůla (Gar.)*	Z	0	2BP+2BC	Z	P
2018_BOIVOL	**Volitelné odborné předměty**	Min. cours. 0	Min/Max 0/999			V

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**
B0B35APO	**Computer Architectures** *Pavel Píša, Richard Šusta, Petr Štěpán* ***Pavel Píša*** *Pavel Píša (Gar.)*	Z,ZK	5	2P+2L	L	P
BEZB	**Safety in Electrical Engineering for a Bachelor´s Degree** *Vladimír Kůla, Radek Havlíček, Ivana Nová* ***Radek Havlíček*** *Vladimír Kůla (Gar.)*	Z	0	2BP+2BC	Z,L	P
B0B01LGR	**Logic and Graphs** *Natalie Žukovec, Matěj Dostál, Alena Gollová* ***Alena Gollová*** *Marie Demlová (Gar.)*	Z,ZK	5	3P+2S	Z,L	P
B0B01MA1	**Mathematical Analysis 1** *Josef Dvořák, Martin Křepela, Josef Tkadlec, Veronika Sobotíková* ***Josef Tkadlec*** *Josef Tkadlec (Gar.)*	Z,ZK	7	4P+2S	Z,L	P
B4B38PSIA	**Computer Networks** *Jiří Novák, Jan Holub* ***Jiří Novák*** *Jiří Novák (Gar.)*	Z,ZK	5	2P+2L	L	P
B0B36PJV	**Programming in Java** *Martin Mudroch, Jiří Vokřínek, Ladislav Serédi* ***Jiří Vokřínek*** *Jiří Vokřínek (Gar.)*	Z,ZK	6	2P+3C+7D	L	P
2018_BOIVOL	**Volitelné odborné předměty**	Min. cours. 0	Min/Max 0/999			V

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 Průša* ***Daniel Průša*** *Marko Genyk-Berezovskyj (Gar.)*	Z,ZK	6	2P+2C	Z	P
B0B01MA2	**Mathematical Analysis 2** *Miroslav Korbelář, Petr Hájek, Martin Bohata, Jaroslav Tišer, Karel Pospíšil, Paola Vivi, Hana Turčinová* ***Petr Hájek*** *Jaroslav Tišer (Gar.)*	Z,ZK	7	4P+2S	L,Z	P
B4B35OSY	**Operating Systems** *Petr Štěpán, Michal Sojka* ***Michal Sojka*** *Michal Sojka (Gar.)*	Z,ZK	4	2P+2C	Z	P
B0B01PST	**Probability and Statistics** *Kateřina Helisová* ***Kateřina Helisová*** *Petr Hájek (Gar.)*	Z,ZK	7	4P+2S	Z	P
B6B36OMO	**Object-oriented design and Modeling** *David Kadleček* ***David Kadleček*** *David Kadleček (Gar.)*	Z,ZK	6	2P+2C+4D	Z	PZ

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**
B0B36DBS	**Database Systems** *Martin Řimnáč, Václav Kratochvíl* ***Martin Řimnáč*** *Martin Řimnáč (Gar.)*	Z,ZK	6	2P+2C+4D	L	P
B0B33OPT	**Optimization** *Tomáš Werner, Petr Olšák, Mirko Navara, Tomáš Kroupa* ***Tomáš Werner*** *Tomáš Werner (Gar.)*	Z,ZK	7	4P+2C	Z,L	P
B4B36PDV	**Parallel and Distributed Computing** *Matěj Kafka, Michal Jakob* ***Michal Jakob*** *Michal Jakob (Gar.)*	Z,ZK	6	2P+2C	L	P
B4B36FUP	**Functional Programming** *Rostislav Horčík, Tomáš Votroubek* ***Rostislav Horčík*** *Michal Pěchouček (Gar.)*	Z,ZK	6	2P+2C	L	PZ
B6B36TS1	**Software Testing** *Miroslav Bureš, Avetis Mkrtchian* ***Miroslav Bureš*** *Miroslav Bureš (Gar.)*	Z,ZK	5	2P+2C+2D	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, Jiří Šebek, Jaroslav Sloup, Ivan Jelínek, Katarína Žmolíková* ***Petr Pošík***	Z	6	0+2	Z,L	P
B4B01JAG	**Languages, Automats and Gramatics** *Marie Demlová, Jiří Demel* ***Marie Demlová*** *Marie Demlová (Gar.)*	Z,ZK	6	2P+2S	Z	PZ
B4B36SIN	**Software Engineering** *Jiří Šebek, Martin Komárek* ***Martin Komárek*** *Martin Komárek (Gar.)*	Z,ZK	6	3P+2S	Z	PZ
2018_BOIVOL	**Volitelné odborné předměty**	Min. cours. 0	Min/Max 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 Čmejla Roman Čmejla (Gar.)*	Z	20	12S	L,Z	P
2018_BOIVOL	**Volitelné odborné předměty**	Min. cours. 0	Min/Max 0/999			V

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

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	Volitelné odborné předměty	Min. cours.	Min/Max			v
		0	0/999			

List of courses of this pass:

<table>
<tr><th>Code</th><th>Name of the course</th><th>Completion</th><th>Credits</th></tr>
<tr><td>B0B01LAG</td><td>Linear Algebra</td><td>Z,ZK</td><td>8</td></tr>
<tr><td colspan="4">The course covers the initial parts of linear algebra. Firstly, the basic notions of a linear space and linear mappings are covered (linear dependence and independence, basis, coordinates, etc). The calculus of matrices (determinants, inverse matrices, matrices of a linear map, eigenvalues and eigenvectors, diagonalisation, etc) is covered next. The applications include solving systems of linear equations, the geometry of a 3D space (including the scalar product and the vector product) and SVD.</td></tr>
<tr><td>B0B01LGR</td><td>Logic and Graphs</td><td>Z,ZK</td><td>5</td></tr>
<tr><td colspan="4">This course covers basics of mathematical logic and graph theory. Syntax and semantics of propositional and predicate logic are introduced. The importance of the notion of consequence and of the relationship between a formula and its model is stressed. Further, basic notions from graph theory are introduced.</td></tr>
<tr><td>B0B01MA1</td><td>Mathematical Analysis 1</td><td>Z,ZK</td><td>7</td></tr>
<tr><td colspan="4">The aim of the course is to introduce students to basics of differential and integral calculus of functions of one variable.</td></tr>
<tr><td>B0B01MA2</td><td>Mathematical Analysis 2</td><td>Z,ZK</td><td>7</td></tr>
<tr><td colspan="4">The subject covers an introduction to the differential and integral calculus in several variables and basic relations between curve and surface integrals. Other part contains function series and power series with application to Taylor and Fourier series.</td></tr>
<tr><td>B0B01PST</td><td>Probability and Statistics</td><td>Z,ZK</td><td>7</td></tr>
<tr><td>B0B33OPT</td><td>Optimization</td><td>Z,ZK</td><td>7</td></tr>
<tr><td colspan="4">The course provides an introduction to mathematical optimization, specifically to optimization in real vector spaces of finite dimension. The theory is illustrated with a number of examples. You will refresh and extend many topics that you know from linear algebra and calculus courses.</td></tr>
<tr><td>B0B35APO</td><td>Computer Architectures</td><td>Z,ZK</td><td>5</td></tr>
<tr><td>B0B36DBS</td><td>Database Systems</td><td>Z,ZK</td><td>6</td></tr>
<tr><td colspan="4">The course is designed as a basic database course mainly aimed at the student ability to design a relational data model and to use the SQL language for data definition as 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 techniques, database system architecture and their management. They will verify their knowledge during the elaboration of a continuously submitted seminar task.</td></tr>
<tr><td>B0B36PJV</td><td>Programming in Java</td><td>Z,ZK</td><td>6</td></tr>
<tr><td colspan="4">The course builds on the basics of algorithms and programming from the first semester and introduces students to the Java environment. The course also focus on the object concept of the Java language. The topics of the course includes exceptions, event handling, and building a graphical interface. Basic library methods, working with files and using generic types will be introduced. An important topic is models of multithreaded applications and their implementation. Practical exercises of practical skills and knowledge of Java is tested in the form of solving partial tasks and semester work, which will be submitted continuously through the source code version control system. The semester work scoring consists of points 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 reusability.</td></tr>
<tr><td>B0B36PRP</td><td>Procedural Programming</td><td>Z,ZK</td><td>6</td></tr>
<tr><td colspan="4">The course accompanies basic programming emphasizing the data representation in computer memory. Furthermore, the concepts of linked data structures and processing user inputs are developed. Students master the practical implementation of simple individual tasks. The course emphasizes acquiring programming habits for creating readable and reusable programs. At the same time, the effort is to build students an overview of the program operation, data model, memory access, and management. Therefore, the C programming language is used that provides a direct link between the program data structures and their representation in the computer memory. Students will get acquainted not only with program compilation and linking but also with debugging and profiling. Labs aim to acquire practical skills of implementing simple individual tasks, emphasizing functionality and accuracy of implementation. Student independence is developed by a set of homework with the possibility of optional and bonus assignments. The final task is an integration of a larger program using existing implementations. Evaluation of coding style motivated by writing legible, understandable, and maintainable codes is also a part of the selected tasks.</td></tr>
<tr><td>B4B01DMA</td><td>Discrete Mathematics</td><td>Z,ZK</td><td>5</td></tr>
<tr><td colspan="4">In this course students meet some important topics from the field of discrete mathematics. Namely, they will explore divisibility and calculations modulo n, diophantine equations, binary relations, mappings, cardinality of sets, induction, and recurrence equations. The second aim of this course is to teach students the language of mathematics, both passively and actively, and introduce them to mathematics as science.</td></tr>
<tr><td>B4B01JAG</td><td>Languages, Automats and Gramatics</td><td>Z,ZK</td><td>6</td></tr>
<tr><td colspan="4">Basic notions of the theory of finite automata and grammars: deterministic and non deterministic finite automata, languages accepted by finite automata, regular expressions. Grammars and languages generated by grammars with emphasis to context free grammars. A very brief introduction of Turing machines.</td></tr>
<tr><td>B4B33ALG</td><td>Algorithms</td><td>Z,ZK</td><td>6</td></tr>
<tr><td colspan="4">In the course, the algorithms development is constructed with minimum dependency to programming language; nevertheless the lectures and seminars are based on Java. Basic data types a data structures, basic algorithms, recursive functions, abstract data types, stack, queues, trees, searching, sorting, special application algorithms, Dynamic programming. Students are able to design and construct non-trivial algorithms and to evaluate their effectivity.</td></tr>
<tr><td>B4B33RPH</td><td>Solving Problems and other Games</td><td>KZ</td><td>6</td></tr>
<tr><td colspan="4">The main motivation is to let students to deal with real-world problems properly. When working on real problems the student shall learn how to decompose the big problem, 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 problem will not be solved in the optimal way. The unsolved parts should motivate the students to study difficult theoretical subjects. They should generate the important questions. Ideally, at the end of the 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 for writing readable and robust codes.</td></tr>
</table>

<table>
<tr><td>B4B35OSY</td><td>Operating Systems</td><td>Z,ZK</td><td>4</td></tr>
<tr><td colspan="4">Lecture introduces operation system's basic concepts and principles as processes, threads, communication and synchronization, virtual memory, drivers, file systems, basic security aspects. These topics are theoretically described and demonstrated on Linux and Windows OS with multi-core systems. Practical exercises from OS in C programming language will be solved on labs. Students will work with Linux OS and micro-kernel NOVA.</td></tr>
<tr><td>B4B36FUP</td><td>Functional Programming</td><td>Z,ZK</td><td>6</td></tr>
<tr><td colspan="4">This course introduces students into the techniques of functional programming, the advantages and disadvantages of this programming paradigm, and its use in practice. This approach is declarative in the sense that the programmer symbolically describes the problem to be solved, rather than specifying the exact sequence of operations required to solve it. It allows focusing on the essence of the solved problem and implementing even more complex algorithms compactly. Functional programming has notable advantages for parallelization and automated verification of algorithms, and the most useful functional programming concepts are increasingly often introduced to standard programming languages. Because of the focus of functional programming on symbols, rather than numbers, functional programming has been heavily used in in artificial intelligence fields, such as agent systems or symbolic machine learning. This course is also part of the inter-university programme prg.ai Minor. It pools the best of AI education in Prague to provide students with a deeper and broader insight into the field of artificial intelligence. More information is available at https://prg.ai/minor.</td></tr>
<tr><td>B4B36PDV</td><td>Parallel and Distributed Computing</td><td>Z,ZK</td><td>6</td></tr>
<tr><td>B4B36SIN</td><td>Software Engineering</td><td>Z,ZK</td><td>6</td></tr>
<tr><td>B4B38PSIA</td><td>Computer Networks</td><td>Z,ZK</td><td>5</td></tr>
<tr><td>B4BPROJ6</td><td>Unassisted project</td><td>Z</td><td>6</td></tr>
<tr><td>B6B36OMO</td><td>Object-oriented design and Modeling</td><td>Z,ZK</td><td>6</td></tr>
<tr><td>B6B36TS1</td><td>Software Testing</td><td>Z,ZK</td><td>5</td></tr>
<tr><td>BBAP20</td><td>Bachelor thesis</td><td>Z</td><td>20</td></tr>
<tr><td>BEZB</td><td>Safety in Electrical Engineering for a Bachelor´s Degree</td><td>Z</td><td>0</td></tr>
<tr><td colspan="4">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 introductory course contains fundamentals of Safety Electrical Engineering. In this way the students receive qualification of instructed person that enables them to work on electrical equipment.</td></tr>
<tr><td>BEZZ</td><td>Basic Health and Occupational Safety Regulations</td><td>Z</td><td>0</td></tr>
<tr><td colspan="4">The guidelines were worked out based on The Training Scheme for Health and Occupational Safety designed for employees and students of the Czech Technical 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.</td></tr>
</table>

For updated information see http://bilakniha.cvut.cz/en/f3.html
Generated: day 2025-07-31, time 17:55.