Recomended pass through the study plan

Name of the pass: Branch Computer Engineering - Passage through study

Faculty/Institute/Others: Faculty of Electrical Engineering
Department:
Pass through the study plan: Open Informatics - Computer Engineering
Branch of study guranteed by the department: Welcome page
Guarantor of the study branch:
Program of study: Open Informatics
Type of study: Follow-up master 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
BE4M33PAL	**Advanced Algorithms** *Ondřej Drbohlav, Marko Genyk-Berezovskyj, Daniel Průša **Daniel Průša** Daniel Průša (Gar.)*	Z,ZK	6	2P+2C	Z	P
BEEZM	**Safety in Electrical Engineering for a master´s degree** *Vladimír Kůla, Ivana Nová, Josef Černohous, Radek Havlíček **Radek Havlíček** Vladimír Kůla (Gar.)*	Z	0	2BP+2BC	Z	P
BE4M35PAG	**Parallel algorithms** *Přemysl Šůcha **Přemysl Šůcha** Přemysl Šůcha (Gar.)*	Z,ZK	6	2P+2S	Z	PO
BE4M34ISC	**Systems on Chip** *Jiří Jakovenko, Vladimír Janíček **Jiří Jakovenko** Jiří Jakovenko (Gar.)*	Z,ZK	6	2P+2L	Z	PO
2018_MOIEVOL	**Elective subjects**	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
BE4M35KO	**Combinatorial Optimization** *Zdeněk Hanzálek **Zdeněk Hanzálek** Zdeněk Hanzálek (Gar.)*	Z,ZK	6	3P+2C	L	P
BE4M01TAL	**Theory of Algorithms** *Marie Demlová, Natalie Žukovec **Marie Demlová** Marie Demlová (Gar.)*	Z,ZK	6	3P+2S	L	P
BE4M36ESW	**Effective Software** *Michal Sojka, David Šišlák **David Šišlák** David Šišlák (Gar.)*	Z,ZK	6	2P+2C	L	PO
2018_MOIEVOL	**Elective subjects**	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
BE4MSVP	**Software or Research Project** *Jiří Šebek, Petr Pošík, Jaroslav Šloup, Katarína Žmolíková, Tomáš Drábek **Petr Pošík***	KZ	6		Z,L	P
BE4M35PAP	**Advanced Computer Architectures** *Pavel Píša, Karel Kočí **Pavel Píša** Pavel Píša (Gar.)*	Z,ZK	6	2P+2C	Z	PO
BE4M38KRP	**Computer Interfaces** *Jiří Novák **Jiří Novák** Jiří Novák (Gar.)*	Z,ZK	6	2P+2L	Z	PO

2018_MOIEVOL	**Elective subjects**	Min. cours. 0	Min/Max 0/999			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**
BDIP25	**Diploma Thesis**	Z	25	22s	L	P
BE4M38AVS	**Application of Embedded Systems**	Z,ZK	6	2P+2L	L	PO

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_MOIEVOL	**Elective subjects**	**Min. cours.** **0**	**Min/Max** 0/999			**v**

List of courses of this pass:

Code	**Name of the course**	**Completion**	**Credits**
BDIP25	Diploma Thesis	Z	25
Independent final comprehensive work for the Master's degree study programme. A student will choose a topic from a range of topics related to his or her branch of study, which will be specified by branch department or branch departments. The diploma thesis will be defended in front of the board of examiners for the comprehensive final examination.			
BE4M01TAL	Theory of Algorithms	Z,ZK	6
The course brings theoretical background of the theory of algorithms with the focus at first on the time and space complexity of algorithms and problems, secondly on the correctness of algorithms. Further it is dealt with the theory of complexity; the classes P, NP, NP-complete, PSPACE and NPSPACE are treated and properties of them investigated. Probabilistic algorithms are studied and the classes RP and ZZP introduced.			
BE4M33PAL	Advanced Algorithms	Z,ZK	6
Basic graph algorithms and graph representation. Combinatorial algorithms. Application of formal languages theory in computer science - pattern matching.			
BE4M34ISC	Systems on Chip	Z,ZK	6
Main responsibilities of integrated circuits designer; design abstraction levels - Y chart. Specification designation, feasibility study, criteria for technology and design kits selection. Analogue and digital integrated systems design and simulation methodologies. Main features of application specific ICs - full custom design, gate arrays, standard cells, programmable array logic. Design aspects mobile and low power systems. Hardware Description languages (HDL). Logic and physical synthesis. Frond End and Back End design. Floorplanning, place and route, layout, parasitic extraction, time analysis, testbenche construction and verification.			
BE4M35KO	Combinatorial Optimization	Z,ZK	6
The goal is to show the problems and algorithms of combinatorial optimization (often called discrete optimization; there is a strong overlap with the term operations research). Following the courses on linear algebra, graph theory, and basics of optimization, we show optimization techniques based on graphs, integer linear programming, heuristics, approximation algorithms and state space search methods. We focus on application of optimization in stores, ground transportation, flight transportation, logistics, planning of human resources, scheduling in production lines, message routing, scheduling in parallel computers.			
BE4M35PAG	Parallel algorithms	Z,ZK	6
In the introductory lectures, we will focus on general approaches to design of parallel algorithms and their properties important for understanding the fundamental principles of parallel and distributed algorithms. Subsequently we will talk about fundamental parallel algorithms; typically, constituting cornerstones of algorithms for real-world problems. The laboratory exercise will be aimed at hardware platform commonly used in practice.			
BE4M35PAP	Advanced Computer Architectures	Z,ZK	6
BE4M36ESW	Effective Software	Z,ZK	6
Within the course of Efficient software you will get familiar with the area of software and algorithm optimization under limited resources. The course is focused on the efficient usage of modern hardware architectures - multi-core and multi-processor systems with shared memory. Students will practically implmenet and use presented techniques in C and Java. Main topics are: code optimization, effective data structures and processor cache usage, data structures in multi-threaded applications and implementation of efficient network servers.			
BE4M38AVS	Application of Embedded Systems	Z,ZK	6
This course presents applications of embedded systems and their specifics. It is expected that the students have had a programming course, and thus the course is more oriented on explaining and describing the blocks and functions of embedded systems and their use in signal processing, rather than writing code. After completing this course, students should have an overview of usability and power of available processors, and their peripherals, on the basis of which, they should be able to independently design embedded systems for a wide spectrum of applications.			
BE4M38KRP	Computer Interfaces	Z,ZK	6
Students are acquainted with functional principles of computers and embedded systems communication interfaces and with a design of typical peripherals. Technologies like USB, PCI, and PCI Express, wired and wireless computer and sensor networks as well as industrial distributed systems like CAN and LIN are introduced. Project oriented laboratories will allow students to become familiar with implementation of communication hardware and software into the real devices, including their support in operating systems.			

BE4MSVP	Software or Research Project	KZ	6
Independent work on a problem under the guidance of an advisor. Usually but not mandatory, the problem being solved is a subproblem of approaching diploma thesis and the project advisor is the diploma thesis supervisor too. Therefore, we recommend choosing the topic of the diploma thesis at the beginning of the 3rd semester and not underestimating its timely selection. The topic of the project should be relevant to the major branch of the study. The software and research project course must have a clearly defined output, such as a technical report or a computer program. The output is defended, evaluated and graded. Important note: - By default, it is not possible to complete more than one subject of this type. - An exception may be granted by the guarantor of the major branch of the study. A possible reason for granting an exemption is that the work-project has a different topic and is led by another supervisor. A typical example is working on a project abroad. Note: The student enrolls in the course of SVP at the department of the supervisor. If the course does not list the course, then at the department 13139 (variant A4M39SVP). The contact email in case of further questions: oi@fel.cvut.cz. More instructions for entering and elaborating the project can be found on the website of the Department of Computer Graphics and Interaction http: //dcgi.felk. cvut.cz/cs/study/predmetprojekt.			
BEEZM	Safety in Electrical Engineering for a master´s degree	Z	0
The course provides for students of all programs periodic training guidelines for health and occupational safety and gives knowledge of electrical hazard of given branch of study. Students receive indispensable qualification according to the current Directive of the Dean.			

For updated information see http://bilakniha.cvut.cz/en/f3.html
Generated: day 2025-07-20, time 09:33.