Recomended pass through the study plan

Name of the pass: Software Engineering and Technology

Faculty/Institute/Others:
Department:
Pass through the study plan: Software Engineering and Technology
Branch of study guranteed by the department: Common courses
Guarantor of the study branch:
Program of study: Welcome page
Type of study: unknown 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
B6B04PRE	**Presentation** *Petra Juna Jennings, Jitka Pinková **Jitka Pinková** Petra Juna Jennings (Gar.)*	KZ	3	1P+1C	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
B6B36ZAL	**Introduction to Programming** ***Jiří Vokřínek***	Z,ZK	5	2P+2C+2D	Z	P
B6B01ZDM	**Introduction to Discrete Mathematics** *Jaroslav Tišer **Jaroslav Tišer** Jaroslav Tišer (Gar.)*	Z,ZK	5	2P+2S+2D	Z	P
B6B39ZMT	**Foundations of Multimedia Production** *Roman Berka, František Rund **Roman Berka** Roman Berka (Gar.)*	KZ	3	4P+4L+2D	Z	P
B6B38ZPS	**Basics of Computer Systems** *Jiří Novák **Jiří Novák** Jiří Novák (Gar.)*	Z,ZK	6	4P+2L+2D	Z	P
B6B36ZPR	**Introduction to Project Management** ***Pavel Náplava***	KZ	3	4P+4C+2D	Z	P
B6B39ZWA	**Foundations of Web Applications** *Martin Klíma, Martin Mudra **Martin Klíma** Martin Klíma (Gar.)*	Z,ZK	5	2P+2C+3D	Z	P

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
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
B0B36DBS	**Database Systems** *Martin Řimnáč **Martin Řimnáč** Martin Řimnáč (Gar.)*	Z,ZK	6	2P+2C+4D	L	P
B6B01LAG	**Linear Algebra** *Jiří Velebil, Jakub Rondoš **Jiří Velebil** Jiří Velebil (Gar.)*	Z,ZK	7	4P+2C+2D	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
B6B36SMP	**Analysis and Modeling of Software Requirements** *Martin Komárek **Martin Komárek** Martin Komárek (Gar.)*	Z,ZK	6	2P+3C+3D	L	P
B6B36TS1	**Software Testing** *Miroslav Bureš **Miroslav Bureš** Miroslav Bureš (Gar.)*	Z,ZK	5	2P+2C+2D	L	P

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
B0B04B2Z	**English language B2 - exam** *Petra Juna Jennings, Markéta Havlíčková, Dana Saláková, Michael Ynsua **Petra Juna Jennings** Petra Juna Jennings (Gar.)*	Z,ZK	0	0C	Z,L	P
B6B36EAR	**Enterprise Architectures** *Petr Křemen, Petr Aubrecht **Petr Křemen** Petr Křemen (Gar.)*	KZ	5	2P+2C+2D	Z	P
B6B01MAA	**Mathematics Analysis** *Natalie Žukovec, Karel Pospíšil **Natalie Žukovec** Natalie Žukovec (Gar.)*	Z,ZK	5	2P+2S+2D	Z	P
B6B36OMO	**Object-oriented design and Modeling** *David Kadleček **David Kadleček** David Kadleček (Gar.)*	Z,ZK	6	2P+2C+4D	Z	P
B6B32PSI	**Computer Networks** *Zbyněk Kocur, Tomáš Vaněk, Leoš Boháč **Ján Kučerák** Leoš Boháč (Gar.)*	Z,ZK	5	2P + 2C + 3D	Z	P
B6B36PJC	**Programming in C/C++** *Radek Havlíček, Ingrid Nagyová, Karel Richta **Karel Richta** Karel Richta (Gar.)*	KZ	4	2P+2C+2D	Z	P
B6B16ZPD	**Business Economics** *Martin Dobiáš, Jiří Vašíček, Martin Horák, Blanka Kučerková **Martin Dobiáš** Martin Dobiáš (Gar.)*	Z,ZK	5	2P+2S+2D	Z	P

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
B6B36DSA	**Data Structures and Algorithms** *Karel Richta, Jan Drchal **Karel Richta** Karel Richta (Gar.)*	Z,ZK	6	2P+3C+3D	L	P
B6B16INS	**Information Systems** *Pavel Náplava, Jan Kočí **Pavel Náplava** Pavel Náplava (Gar.)*	KZ	4	2P+2S+3D	L	P
B6B36NSS	**Design of Software Systems** *Jiří Šebek **Jiří Šebek** Jiří Šebek (Gar.)*	Z,ZK	5	2P+2C+2D	L	P
B6B01PST	**Statistics and Probability**	Z,ZK	4	2P+2S+1D	L	P
B6B36RSP	**Management of Software Projects** ***Miroslav Bureš***	Z,ZK	6	3P+2C+3D	L	P
BSITMPV	**Povinně volitelné předměty** *B6B32DSV,B6B16FIP,..... (see the list of groups below)*	Min. cours. 4	Min/Max 20/78			PV

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
B6B32KAB	**Cryptography and Information Security** *Tomáš Vaněk **Ivan Pravda** Tomáš Vaněk (Gar.)*	Z,ZK	5	2P + 2L + 2D	Z	P
B6B16PIT	**Law for IT** *Martin Dobiáš, Michal Briaský **Martin Dobiáš** Martin Dobiáš (Gar.)*	Z,ZK	4	3P+1S+1D	Z	P
B6B36PRO	**Semestral Project** *Jiří Vokřínek, Jiří Šebek, Ivan Jelínek, Martin Tomášek **Jiří Vokřínek** Jiří Vokřínek (Gar.)*	KZ	6	2s	L,Z	P
BSITMPV	**Povinně volitelné předměty** *B6B32DSV,B6B16FIP,..... (see the list of groups below)*	Min. cours. 4	Min/Max 20/78			PV
BSTMVOLSI	**Volitelné 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
BSITMPV	**Povinně volitelné předměty** *B6B32DSV,B6B16FIP,..... (see the list of groups below)*	Min. cours. 4	Min/Max 20/78			PV

BSTMVOLSI	**Volitelné 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
BSITMPV	**Povinně volitelné předměty**	**Min. cours. 4**	**Min/Max** 20/78			**PV**

B6B32DSV	Distributed Computing	B6B16FIP	Corporate finance	B6B16MPR	Decision Making Methods
B0B39MM1	Multimedia 1	B6B37MM2	Multimedia 2	B6B32ST2	Advanced Networking Technologies
B6B39PDA	Principles of mobile application ...	B6B16ISP	Business Process Management	B0B39PGR	Computer graphics programming
B6B32SOS	Network Operating Systems	B6B36SPS	Computer Networks Administration	B6B32TKS	Telecommunications Networks
B6B39TUR	User Interface Testing	B0B39KAJ	Client applications in JavaScrip ...	B6B16ZMI	Marketing Research
B6B39TDM	3D Modeling				

BSTMVOLSI	**Volitelné předměty**	**Min. cours. 0**	**Min/Max** 0/999			**V**

List of courses of this pass:

Code	Name of the course	Completion	Credits
B0B04B2Z	English language B2 - exam	Z,ZK	0
I) The B2 English Exam is a compulsory subject for all Faculty of Electrical Engineering students at the Czech Technical University. According to the Study and Examination Rules and Regulations for Students at CTU (Part III, Article 4), a compulsory subject is one whose completion is a necessary condition in order to successfully complete the study programme. In addition, this requires the passing of an examination evaluated on the scale A, B, C, D, or E (SERR Part III, Article 6). II) According to the Common European Framework of Reference for Languages (CEFR), an international standard for describing language ability, the definition of an English language learner who has achieved the B2 (Upper-Intermediate) level is one who can understand the main ideas of complex text on both concrete and abstract topics, including technical discussions in his/her field of specialisation. Can interact with a degree of fluency and spontaneity that makes regular interaction with native speakers quite possible without strain for either party. Can produce clear, detailed text on a wide range of subjects and explain a viewpoint on a topical issue giving the advantages and disadvantages of various options. III) Students who have successfully passed an approved international exam within the past five years may present their certificate to the Department of Languages, Faculty of Electrical Engineering.Upon approval, students are then exempt from both the Written Test and the Oral Part. For a list of approved international exams go the department website: http://jazyky.fel.cvut.cz/			
B0B36DBS	Database Systems	Z,ZK	6
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.			
B0B36PJV	Programming in Java	Z,ZK	6
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.			
B0B39KAJ	Client applications in JavaScript	Z,ZK	5
B0B39MM1	Multimedia 1	Z,ZK	6
The course gives students knowledge necessary to produce and edit multimedia content using variety of tools and creative methods. Lectures are focused on presentation of standards, technologies, methods and approaches commonly used in commercial and alternative creation processes. The presented topics include production process of multimedia content, interactive multimedia applications, data formats and compression methods, technical equipment to record video, lighting devices and their control. The course also contain problematics of archivation and distribution of multimedia content. The part of the course is also a project with use of presented technologies and methods.			
B0B39PGR	Computer graphics programming	Z,ZK	6
B6B01LAG	Linear Algebra	Z,ZK	7
B6B01MAA	Mathematics Analysis	Z,ZK	5
This course is an introduction to differential and integral calculus. It covers basic properties of functions, limits of functions, derivative and its applications (graphing, Taylor polynomial) and definite/indefinite integral with its applications, sequences and series.			
B6B01PST	Statistics and Probability	Z,ZK	4
The students will be introduced to the theory of probability and mathematical statistics, namely to the basic computing methods and their applications in practice. The course covers the basic parts of probability and mathematical statistics. The first part is focused on classical probability, including conditional probability. The next part deals with the theory of random variables and their distributions, examples of the most important types of discrete and continuous distributions, numerical characteristics of random variables, their independence, sums and transformations. Probabilistic knowledge is then used in the description of statistical methods for estimating distribution parameters and testing hypotheses.			
B6B01ZDM	Introduction to Discrete Mathematics	Z,ZK	5
No advanced knowleges of mathematics are required at the beginning of this course. Using illustrative examples we build sufficient understanding of combinatorics, set and graph theory. Then we proceed to a brief formal construction of predicate calculus.			
B6B04PRE	Presentation	KZ	3

B6B16FIP	Corporate finance	Z,ZK	5
B6B16INS	Information Systems	KZ	4
The goal of this course is to familiarise students with the information systems topic and information systems implementation principles. During the course, students are introduced to "on the market" existing types of systems and their usage in specific industry segments. Students are familiarised with the CRM, ERP, MRP and other types of information systems. The fundamental part of the course is the introduction to key ideas of an information system selection, evaluation of information system benefits, ways of information systems implementation and information system implementation based on the project management principles. The emphasis is on the initial customer analysis, customer insight and ability to decide whether it is better to implement any existing information system or to develop a new one from scratch. These factors determine the information system implementation success. At the end of the course information systems security, operation, support, maintenance, legislation impacts, and government information systems topics are discussed.			
B6B16ISP	Business Process Management	Z,ZK	5
B6B16MPR	Decision Making Methods	Z,ZK	5
B6B16PIT	Law for IT	Z,ZK	4
B6B16ZMI	Marketing Research	Z,ZK	5
B6B16ZPD	Business Economics	Z,ZK	5
B6B32DSV	Distributed Computing	Z,ZK	5
The course is focused on technologies that support distributed computing: on mechanisms ensuring reliable, efficient and secure connection of application processes, programming interfaces of communication channels and up-to-date middleware technologies. A significant part of lectures is dedicated to distributed algorithms that assure causality, exclusive access, deadlock detection/avoidance, fault-tolerance, mobile computing, and security.			
B6B32KAB	Cryptography and Information Security	Z,ZK	5
The Information Security course provides a complete source of information on the field of security of information systems and information technologies. The most of information in today society is created, transferred, stored in electronic form so information security is very important part of it. Technical background for information security is provided by cryptology.			
B6B32PSI	Computer Networks	Z,ZK	5
B6B32SOS	Network Operating Systems	Z,ZK	5
Network operating systems, Linux, Unix. Administration and network tools, managing and administration of documentation. The graduates will be informed about basic conception and procedures in operating systems administration (UNIX) and gain the basic facility in operating systems configuration based on the x 86 platforms.			
B6B32ST2	Advanced Networking Technologies	Z,ZK	5
B6B32TKS	Telecommunications Networks	Z,ZK	5
B6B36DSA	Data Structures and Algorithms	Z,ZK	6
B6B36EAR	Enterprise Architectures	KZ	5
The course offers an overview of enterprise system architectures, focusing on Spring and Java EE. Students will become familiar with the most common enterprise architectures and related design patterns. In particular, the focus will be put on the principles of inversion control, dependency injection and Java Bean lifecycle. Pairs of students will prepare a simple enterprise application as their semestral work.			
B6B36NSS	Design of Software Systems	Z,ZK	5
B6B36OMO	Object-oriented design and Modeling	Z,ZK	6
B6B36PJC	Programming in C/C++	KZ	4
B6B36PRO	Semestral Project	KZ	6
Individual or team work in form of a project. Student selects the subject of their project from the list of topics relevant to the studied specialization and provided by the specific department/departments. The project's subject can be closely related to the future Bachelor thesis. Further instructions for the selection and resolution of the projects can be found on the web pages of the selected department. Within this course the project is also defended.			
B6B36RSP	Management of Software Projects	Z,ZK	6
B6B36SMP	Analysis and Modeling of Software Requirements	Z,ZK	6
This course covers the topic of requirements engineering. Their gathering, analysis, documentation, management, ... Students also will gain knowledge on using the most widely spread graphic notation - UML.			
B6B36SPS	Computer Networks Administration	Z,ZK	5
B6B36TS1	Software Testing	Z,ZK	5
B6B36ZAL	Introduction to Programming	Z,ZK	5
B6B36ZPR	Introduction to Project Management	KZ	3
The course introduces students to the general (not only IT) basics of project management. In addition to basic project management concepts (planning, organization, etc.) students also get practical experiences from team cooperation (information sharing, communication, etc.). All presented topics are practiced and extended in the consecutive courses.			
B6B37MM2	Multimedia 2	Z,ZK	5
B6B38ZPS	Basics of Computer Systems	Z,ZK	6
The first topic introduces students to the basic concepts of computer technology and computer networks. The following lectures are focused on digital technology, internal structure and function of the processor and its instruction set. Common and special architectures and specialized instruction sets, ways to increase processor performance and their limits will be introduced. The computer architecture description, memories and their categorization in terms of functional principles and application use will be based on this knowledge. The following lectures are focused on getting acquainted with operating systems, multitasking, inter-process communication and synchronization, resource management and virtualization. The next lecture will deal with the computer networks - first in general (OSI model) and then more specifically with an introduction to TCP / IP protocols. Further the disk (mass storage) subsystem will be described in more detail, including disk partitioning, file systems, and access rights. Finally the basics of electronics and optoelectronics, typical problems motivating students to further deepen their knowledge in this area through self-study will be introduced.			
B6B39PDA	Principles of mobile applications	Z,ZK	6
Student who successfully passed the course get overview about properties and about limits of single mobile technologies. The course is focused on specific problems related to limitations and new capabilities of mobile devices. Attention is paid to maximal utilization of environment characteristics in which the mobile application is used. Course is not focused on introduction of basic programming techniques for mobile application development - it is expected that students already have this skills or will be gained by means of self-study.			
B6B39TDM	3D Modeling	KZ	5
B6B39TUR	User Interface Testing	Z,ZK	5
Students will learn the basic principles of user interface testing in the context of User-Centered Design. The course covers the most important topics in this field so that students can run their own (either quantitative or qualitative) user interface tests. Another important part of the course is the topic of disabilities that users can suffer from. The tutorials cover the entire cycle of conducting tests (incl. infrastructure, ethics concerns), running tests and methods for its evaluating.			
B6B39ZMT	Foundations of Multimedia Production	KZ	3
The course familiarizes students with the basic principles of acquisition and processing of multimedia content, with a focus on image processing, video and audio, as well as the principles of graphic design and its implementation in a web environment. The course is organized within the block teaching when, within four days, students gradually pass each			

	section of the course divided into two lectures and two workshops each day. Students will acquire the practical principles in the acquisition and processing of multimedia content while they use several different types of instruments at the application level and at the level of simple code. All students will apply the knowledge gained within the last day dedicated to composition rules within a Web project. After completing the course, students will carry out their own independent project and after its submission will be assessed.		
B6B39ZWA	Foundations of Web Applications	Z,ZK	5
	The subject is focussing on the creation and maintenance of web presentations. It covers the creation of data structures (HTML), graphical design (CSS), and dynamics on the client side (Javascript). The course continues with server-side dynamics programmed in PHP 7 language. The students will learn how to handle forms and how to create a simple web application. The subject ends with an oral and written exam.		
BBAP20	Bachelor thesis	Z	20
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 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.		
BEZZ	Basic Health and Occupational Safety Regulations	Z	0
	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.		

For updated information see http://bilakniha.cvut.cz/en/FF.html
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