# Study plan

## Name of study plan: Aplikovaná informatika

Faculty/Institute/Others:
Department:
Branch of study guaranteed by the department: Welcome page
Garantor of the study branch:
Program of study: Applied Informatics
Type of study: Bachelor full-time
Required credits: 0
Elective courses credits: 180
Sum of credits in the plan: 180
Note on the plan:

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Name of the block: Compulsory courses in the program
Minimal number of credits of the block: 0
The role of the block: P

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Code of the group: BSPAPIN1
Name of the group: BS P_APIN 1st year
Requirement credits in the group:
Requirement courses in the group: In this group you have to complete at least 19 courses
Credits in the group: 0
Note on the group:

| 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 |
|---|---|---|---|---|---|---|
| 02DEF1 | **History of Physics 1** *Igor Jex Igor Jex (Gar.)* | Z | 2 | 2+0 | Z | P |
| 02FY1 | **Physics 1** *Jaroslav Bielčík* ***Jaroslav Bielčík*** *Jaroslav Bielčík (Gar.)* | Z,ZK | 4 | 2P+2C | Z | P |
| 02FY2 | **Physics 2** *Jaroslav Bielčík* ***Jaroslav Bielčík*** *Jaroslav Bielčík (Gar.)* | Z,ZK | 4 | 2P+2C | L | P |
| 01MATZ1 | **Mathematics, Examination 1** *Radek Fučík* ***Radek Fučík*** *Radek Fučík (Gar.)* | ZK | 2 | - | Z | P |
| 01MATZ2 | **Mathematics, Examination 2** *Radek Fučík, Matěj Tušek* ***Matěj Tušek*** *Radek Fučík (Gar.)* | ZK | 2 | - | L | P |
| 01MAT1 | **Mathematics 1** *Radek Fučík* ***Radek Fučík*** *Radek Fučík (Gar.)* | Z | 4 | 3P+3C | Z | P |
| 01MAT2 | **Mathematics 2** *Radek Fučík* ***Radek Fučík*** *Radek Fučík (Gar.)* | Z | 4 | 3P+3C | L | P |
| 00PT | **Preparatory Week** *Petr Ambrož, Milan Krbálek* ***Petr Ambrož*** *Petr Ambrož (Gar.)* | Z | 2 | týden | Z | P |
| 04APKK | **Course in Communication Skills - Examination** *Slavěna Brownová, Nathaniel Patton, Beatriz Vadillo Gonzalo* | ZK | 1 | | L | P |
| 04APK1 | **Course in Communication Skills 1** ***Jana Kovářová*** | Z | 2 | 2S | Z | P |
| 04APK2 | **Course in Communication Skills 2** | Z | 2 | 2S | L | P |
| 04APS1 | **Course in Language Structures 1** ***Jana Kovářová*** | KZ | 3 | 2S | Z | P |
| 04APS2 | **Course in Language Structures 2** *Nathaniel Patton* | KZ | 3 | 2S | L | P |
| 04APUK | **Introduction to English for Specific Purposes - Examination** *Slavěna Brownová, Nathaniel Patton* ***Jana Kovářová*** | ZK | 1 | | L | P |
| 04APU1 | **Introduction to English for Specific Purposes 1** ***Jana Kovářová*** *Jana Kovářová (Gar.)* | Z | 2 | 2S | Z | P |
| 04APU2 | **Introduction to English for Specific Purposes 2** ***Jana Kovářová*** | Z | 2 | 2S | L | P |
| 12UNXAP | **Introduction to UNIX** *Milan Kuchařík* ***Milan Kuchařík*** *Milan Kuchařík (Gar.)* | Z | 2 | 1P+1C | L | P |

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| 18ZALG | **Basics of Algorithmization**<br>*Jan Tomsa, Petr Pauš, Vladimír Jarý, František Voldřich, Miroslav Virius, František Gašpar, Zuzana Petříčková* ***Vladimír Jarý*** *Miroslav Virius (Gar.)* | Z,ZK | 4 | 2+2 | L | P |
| 18ZPRO | **Basics of Programming**<br>*Jan Tomsa, Petr Pauš, Vladimír Jarý, František Voldřich, Miroslav Virius, Zuzana Petříčková, Nichita Vatamaniuc, Jan Vondruška, Maksym Dreval, .....* ***Miroslav Virius*** *Miroslav Virius (Gar.)* | Z | 4 | 4C | Z | P |

**Characteristics of the courses of this group of Study Plan: Code=BSPAPIN1 Name=BS P_APIN 1st year**

| | | | |
|---|---|---|---|
| 02DEF1 | History of Physics 1 | Z | 2 |
| Physics and its place in the system of sciences. The relationship of man and nature. Natural sciences in ancient Orientand Greece, Greek natural philosophers, Aristotle. Physics in Helenistic period, Archimed. Arabic science, European science in Middle Ages. Renaissance - da Vinci, Giordano Bruno. Copernicus, Kepler, Galileo, Huygens. The birth of physics as experimental science. Newton and his work. | | | |
| 02FY1 | Physics 1 | Z,ZK | 4 |
| History, principles and applications of mechanics, waves and thermodynamics ? basic level. The lecture is supplemented with practical investigation and demonstration of selected physical phenomena. | | | |
| 02FY2 | Physics 2 | Z,ZK | 4 |
| Thermodynamics, electricity and magnetism, modern physics. The lecture is supplemented with practical investigation and demonstration of selected physical phenomena. | | | |
| 01MATZ1 | Mathematics, Examination 1 | ZK | 2 |
| 01MATZ2 | Mathematics, Examination 2 | ZK | 2 |
| 01MAT1 | Mathematics 1 | Z | 4 |
| The course is devoted to the study of the basics of calculus of one variable. It includes an introduction to differential and integral calculus, with particular emphasis on applications in practical problems. | | | |
| 01MAT2 | Mathematics 2 | Z | 4 |
| The course, which is the continuation of Mathematics 1, is devoted to the integration techniques, improper Riemann integral, introduction to parametric curves (especially in polar coordinates), the basics of sequences and infinite series, and finally to the Taylor and power series and their applications. | | | |
| 00PT | Preparatory Week | Z | 2 |
| 04APKK | Course in Communication Skills - Examination | ZK | 1 |
| The course content is the examination as given by the study plan. The examination tests how well student has mastered vocabulary and facts of courses 04APK1 and 04APK2. The examination consists of two parts - written (duration 100 minutes), and oral (about 30 minutes). | | | |
| 04APK1 | Course in Communication Skills 1 | Z | 2 |
| The course will develop communication strategy and skills of student acquired at secondary school or elsewhere. Competence at B1 level of CEFR is a prerequisite for registering for the course. It runs for 3 semesters, being a core course of the Applied Information Technology programme. It will develop student´s communication skills in an integral form (e.g., listening and discussion on a topic). The list of topics is similar to that of the State Language Examination. Student will develop their vocabulary for various communication situations and will master their communication strategy. He/she will be trained to express his/her ideas clearly and according to current English usage. | | | |
| 04APK2 | Course in Communication Skills 2 | Z | 2 |
| The course is also concerned with developing speaking skills in English acquired at secondary school and course 04APK1. Speaking skills will be trained alongside listening skills. Topics will concentrate on everyday life and cover topics of the State Language Examination, stressing mastery of speaking strategy in various situations. The course will emphasise developing student´s vocabulary, ability to express thoughts with accuracy in correct English. | | | |
| 04APS1 | Course in Language Structures 1 | KZ | 3 |
| The course is designed to instruct how to correctly use and to revise English grammar structures acquired by student at secondary school, develop them, view them as a system of communication and strengthen them. The required level for registration is B1 of CEFR. The course stresses mainly frequency of structures and those difficult to master by Czech students. | | | |
| 04APS2 | Course in Language Structures 2 | KZ | 3 |
| The course 04APS2 is a sequel to course 04APS1. Its purpose is also to correctly use and revise further English grammar structures as acquired and develop them. | | | |
| 04APUK | Introduction to English for Specific Purposes - Examination | ZK | 1 |
| The course content is the examination as given by the study plan. Examination 04APUK consists of two parts - written part (duration 100 minutes) and oral part (duration about 30 minutes) and covers a 2-semester programme. To be eligible for examination, student will have passed courses 04APU1 and 04APU2 and the examination test in written part. Student has to prove he/she can use the acquired basic knowledge and skills typical of English for Specific Purposes (ESP). | | | |
| 04APU1 | Introduction to English for Specific Purposes 1 | Z | 2 |
| The course will introduce student into English for Specific Purposes (ESP) and acquaint him/her with its functions in subtechnical or easy technical texts. It brings vocabulary and functions typical of ESP and it introduces student to basic mathematics and information technology terms. | | | |
| 04APU2 | Introduction to English for Specific Purposes 2 | Z | 2 |
| The course 04APU2 is a sequel to course 04APU, concentrating more thoroughly on ESP text content, text grammar and vocabulary. It introduces more advanced functions typical of ESP and more advanced information technology terms. | | | |
| 12UNXAP | Introduction to UNIX | Z | 2 |
| Computer and operating systems. Personal computer, workstation and supercomputers. Processor, memory, bus, devices, hard disk, network interface. Hardware and software. Principles of operating systems. Operating system UNIX. Basic principles, kernel, kernel services. Documentation. File system, file atributes, working with files. Text editors: vi, emacs. Command interpreter (shell) bash and its programming (scripts). Controlling processes, process status, computer load a process priorities. Standard tools. Graphical user interface X-windows. Computer networks. Local computer networks. Global computer networks. Addresses and protocols TCP/IP. Network configutation of a computer. Network services: hardware sharing, mail, scp, etc. Network applications | | | |
| 18ZALG | Basics of Algorithmization | Z,ZK | 4 |
| This course is devoted to selected algorithms and methods for algorithm design. This course intruduces selected methods for the determination of the algorithm complexity. | | | |
| 18ZPRO | Basics of Programming | Z | 4 |
| This course is intended mainly for students with little or no experience in programming. It familiarizes the students with the basic concepts in programming and with the Python programming language. | | | |

Code of the group: BSPAPIN2
Name of the group: BS P_APIN 2nd year
Requirement credits in the group:
Requirement courses in the group: In this group you have to complete at least 20 courses

Credits in the group: 0

Note on the group: Zápis do kurzu 04APO1 se důrazně doporučuje až po získání zápočtu z 04APS2.Zápis do kurzu 04APA je podmíněn složením zkoušky z předmětu 04APS3.

| Code | Name of the course / Name of the group of courses<br>*(in case of groups of courses the list of codes of their members)*<br>*Tutors,* ***authors*** *and guarantors (gar.)* | Completion | Credits | Scope | Semester | Role |
|---|---|---|---|---|---|---|
| 04APA | **Course in Applied English Usage** | Z | 1 | 2S | L | P |
| 04APAK | **Course in Applied English Usage - Examination**<br>*Nathaniel Patton* | ZK | 2 | | L | P |
| 01DIM1 | **Discrete Mathematics 1**<br>*Edita Pelantová, Zuzana Masáková, Lubomíra Dvořáková* ***Lubomíra Dvořáková*** *Zuzana Masáková (Gar.)* | Z | 2 | 2P+0C | Z | P |
| 01DIM2 | **Discrete Mathematics 2**<br>*Edita Pelantová, Zuzana Masáková* ***Zuzana Masáková*** *Zuzana Masáková (Gar.)* | Z | 2 | 2P+0C | L | P |
| 04APR1 | **Life and Institutions of English-speaking Countries and the CR 1**<br>***Jana Kovářová*** | Z | 2 | 2S | L | P |
| 01MAT3 | **Mathematics 3**<br>*Miroslav Kolář, David Krejčiřík, Severin Pošta* ***David Krejčiřík*** *David Krejčiřík (Gar.)* | Z,ZK | 4 | 2+2 | Z | P |
| 01MAT4 | **Mathematics 4**<br>*Matěj Tušek* ***Matěj Tušek*** *Matěj Tušek (Gar.)* | Z,ZK | 4 | 2+2 | L | P |
| 12PAS | **Computer Algebra Systems**<br>*Milan Šiňor* ***Milan Šiňor*** *Milan Šiňor (Gar.)* | Z | 2 | 1P+1C | Z | P |
| 04APO1 | **Text Analysis and Comprehension**<br>***Jana Kovářová*** | Z | 2 | 2S | Z | P |
| 04APOK | **Text Analysis and Comprehension - Examination**<br>*Jana Kovářová* ***Jana Kovářová*** | ZK | 1 | | L | P |
| 04APO2 | **Text Analysis and Comprehension 2**<br>***Jana Kovářová*** | Z | 1 | 2S | L | P |
| 18PRC1 | **Programming in C++ 1**<br>*Vladimír Jarý, Miroslav Virius* ***Miroslav Virius*** *Miroslav Virius (Gar.)* | Z | 4 | 2+2 | Z | P |
| 18PRC2 | **Programming in C++ 2**<br>*Vladimír Jarý, Miroslav Virius, Jakub Klinkovský* ***Miroslav Virius*** *Miroslav Virius (Gar.)* | KZ | 4 | 2+2 | L | P |
| 18PJ | **Programming in Java**<br>*Miroslav Virius* ***Miroslav Virius*** *Miroslav Virius (Gar.)* | Z,ZK | 5 | 2P+2C | Z | P |
| 04AP3KK | **Course in Communication Skills - Final Examination**<br>*Nathaniel Patton* ***Jana Kovářová*** | ZK | 2 | | Z | P |
| 04APK3 | **Course in Communication Skills 3**<br>***Jana Kovářová*** | Z | 1 | 2S | Z | P |
| 04APSK | **Course in Language Structures - Final Examination**<br>*Nathaniel Patton* ***Jana Kovářová*** | ZK | 2 | | Z | P |
| 04APS3 | **Course in Language Structures 3**<br>***Jana Kovářová*** | Z | 1 | 2S | Z | P |
| 18INTA | **Development of internet applications**<br>*Jakub Klinkovský, Dana Majerová* ***Dana Majerová*** *Dana Majerová (Gar.)* | KZ | 4 | 2P+2C | L | P |
| 12UVP | **Introduction to Scientific Computing**<br>*Milan Šiňor* ***Milan Šiňor*** *Milan Šiňor (Gar.)* | Z | 2 | 1P+1C | L | P |

**Characteristics of the courses of this group of Study Plan: Code=BSPAPIN2 Name=BS P_APIN 2nd year**

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|---|---|---|---|
| 04APA | Course in Applied English Usage | Z | 1 |
| To sign in for the course, student will have passed final examination in Course in Language Structures (04APSK). The course concludes study of grammar structures and applies them to understanding everyday and ESP language situations, laying stress on choice of exact and adequate language and grammar structures in both English-Czech and Czech-English translations.. | | | |
| 04APAK | Course in Applied English Usage - Examination | ZK | 2 |
| The course content is the examination as given by the study plan. Written and oral parts of the examination test skills and knowledge acquired in course 04APA. Duration: written part - 100 minutes, oral part - ca 30 minutes. | | | |
| 01DIM1 | Discrete Mathematics 1 | Z | 2 |
| The seminar is devoted to elementary number theory and applications. It includes individual problem solving. | | | |
| 01DIM2 | Discrete Mathematics 2 | Z | 2 |
| The seminar is devoted to recurrence relations. It includes individual problem solving. | | | |
| 04APR1 | Life and Institutions of English-speaking Countries and the CR 1 | Z | 2 |
| The course is aimed at preparing the student for the state language examination and is based on topics required for this examination. Great emphasis is placed on training oral presentation of facts about English speaking-countries in comparison with the Czech Republic. The course covers one third of topics for the state language examination. | | | |
| 01MAT3 | Mathematics 3 | Z,ZK | 4 |
| The subject summarises the most important notions and theorems related to the study of finite-dimensional vector spaces. | | | |
| 01MAT4 | Mathematics 4 | Z,ZK | 4 |
| Linear and non-linear differential equations of the first order. Linear differential equations of higher order with constant coefficients. Multivariable calculus and its applications. | | | |
| 12PAS | Computer Algebra Systems | Z | 2 |
| Practically oriented introduction to computer algebra systems (CAS): their main characteristics, ways and means of using them. Constituent part is realized in computer classrooms: students acquire basic skills with CAS by solving relatively simple and basic tasks from mathematics and physics. | | | |

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| 04APO1 | Text Analysis and Comprehension | Z | 2 |
| The course is a sequel to the 04APU1 and 04APU2 courses and students will have successfully passed the 04APS2 course. It focuses on further written functions specific to English for Specific Purposes (ESP). Increasing attention is given to extending subtechnical vocabulary, text grammar and text comprehension. Students are taught how to use formal language in written and oral communication. | | | |
| 04APOK | Text Analysis and Comprehension - Examination | ZK | 1 |
| The course content is the examination as given by the study plan. To be eligible to take the examination students will have successfully completed the 04APO1 and 04APO2.courses The examination consists of two parts: written (duration 100 minutes) and oral (about 30 minutes). Students will prove they can use and apply the knowledge and skills acquired in both courses. | | | |
| 04APO2 | Text Analysis and Comprehension 2 | Z | 1 |
| The course is a sequel to course 04APO1 and focuses on guided writing (e.g., note-taking, précis, abstract). It is intended as preparation for writing the bachelor´s project by developing text grammar practice and acquainting with basics of English punctuation. | | | |
| 18PRC1 | Programming in C++ 1 | Z | 4 |
| This course covers mainly the C programming language and non-object oriented features of the C++ language. | | | |
| 18PRC2 | Programming in C++ 2 | KZ | 4 |
| This course covers the object oriented programming and othesr advanced constructs in the C+;+ programming language and the Standard Template Library. | | | |
| 18PJ | Programming in Java | Z,ZK | 5 |
| This course is devoted to the Java platform and to the development of the basic types of applications for this platform. | | | |
| 04AP3KK | Course in Communication Skills - Final Examination | ZK | 2 |
| The course content is the examination as given by the study plan. Final examination 04AP3KK covers syllabi of all three courses in communication skills. It is usually oral, but a written test may be administered. Examination requirements are similar to those of state examination. Student will be able to engage in communication and discussion on a given topic, using appropriate vocabulary and grammar structures. | | | |
| 04APK3 | Course in Communication Skills 3 | Z | 1 |
| The last semester of conversation course. Student will further develop his/her speaking skills to be able to use English competently, speak about topics covered by previous courses without making mistakes and making use of appropriate vocabulary. | | | |
| 04APSK | Course in Language Structures - Final Examination | ZK | 2 |
| The course content is the examination as given by the study plan. To register for final examination 04APSK student will have passed a 3-semester programme comprising courses 04APS1, 04APS2, and 04APS3. It consists of two parts: written (duration 100 minutes) and oral (duration about 30 minutes). Student will demonstrate he/she has mastered English grammar and can reliably use it in practice as well as explain why a rule applies. | | | |
| 04APS3 | Course in Language Structures 3 | Z | 1 |
| The course 04APS3 is a sequel to course 04APS2. Its purpose is also to correctly use and revise further English grammar structures as acquired by student, to develop them and use in practice. | | | |
| 18INTA | Development of internet applications | KZ | 4 |
| The lectures provide an overview of modern technologies for the development of web applications. Students will learn basic web languages and concepts (HTML, URL, etc.) and they will also be introduced to relational database systems. The tutorials are dedicated to practical examples of building web applications, from the simplest to more advanced. The course is oriented primarily towards backend technologies and using the Python languages, but covers also frontend frameworks and JavaScript. | | | |
| 12UVP | Introduction to Scientific Computing | Z | 2 |
| Practically oriented Introduction to scientific computing. Constituent part of the course is realized in computer classroom.Students get acquinted with some basic tools fort scientific and technicval computing, data analysis, data visualisation and algorithm development. | | | |

Code of the group: BSPAPIN3
Name of the group: BS P_APIN 3rd year
Requirement credits in the group:
Requirement courses in the group: In this group you have to complete at least 18 courses
Credits in the group: 0
Note on the group: Předmět 04APl je důrazně doporučeno zapsat až po splnění zkoušek 04APOK a 04APAK.) Předmět 04APJP lze zapsat až po splnění všech zápočtů a zkoušek pěti semestrů 1.-3. ročníku studia angličtiny.Předmět 01BPAI2 lze zapsat až po složení zkoušky z předmětu 04APSK.

| 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 |
|---|---|---|---|---|---|---|
| 01BPAI1 | **Bachelor's Degree Project 1** *Pavel Strachota, Václav Kůs* ***Pavel Strachota*** *Pavel Strachota (Gar.)* | Z | 5 | 0+5 | | P |
| 01BPAI2 | **Bachelor's Degree Project 2** *Pavel Strachota* ***Pavel Strachota*** *Pavel Strachota (Gar.)* | Z | 10 | 0+10 | | P |
| 01EIG | **Elementary Introduction to Graph Theory** *Petr Ambrož, Zuzana Masáková* ***Petr Ambrož*** *Edita Pelantová (Gar.)* | ZK | 3 | 2P+0C | | P |
| 04JPBP | **Language Support to Bachelor Project** ***Jana Kovářová*** *Jana Kovářová (Gar.)* | Z | 3 | 2S | L | P |
| 04APJP | **Language Support to Bachelor Project** *Nathaniel Patton, Darren Copeland* ***Jana Kovářová*** | Z | 5 | 5S | L | P |
| 04APRK | **Life and Institutions of English-speaking Countries and the CR - Examination** *Nathaniel Patton* ***Jana Kovářová*** | ZK | 3 | | Z | P |
| 04APR2 | **Life and Institutions of English-speaking Countries and the CR 2** ***Jana Kovářová*** | Z | 2 | 4S | Z | P |
| 01PGR1 | **Computer Graphics 1** *Pavel Strachota* ***Pavel Strachota*** *Pavel Strachota (Gar.)* | Z,ZK | 2 | 1P+1C | | P |

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|---|---|---|---|---|---|---|
| 01PGR2 | **Computer Graphics 2**<br>*Pavel Strachota* ***Pavel Strachota*** *Pavel Strachota (Gar.)* | Z,ZK | 2 | 1P+1C | | P |
| 01SITE1 | **Computer Networks 1**<br>*Miroslav Minárik* ***Miroslav Minárik*** *Miroslav Minárik (Gar.)* | Z | 2 | 1+1 | Z | P |
| 01SITE2 | **Computer Networks 2**<br>*Miroslav Minárik* ***Miroslav Minárik*** *Miroslav Minárik (Gar.)* | Z | 2 | 1+1 | L | P |
| 04API | **Presentation Course**<br>***Jana Kovářová*** | Z | 2 | 2S | Z | P |
| 01PW | **Windows Programming**<br>*Zdeněk Čulík* ***Zdeněk Čulík*** *Zdeněk Čulík (Gar.)* | Z | 2 | 2+0 | Z | P |
| 01BASE | **Bachelor Seminar**<br>***Pavel Strachota*** *Pavel Strachota (Gar.)* | Z | 1 | 0P+2S | | P |
| 01UOP | **Introduction to Object Programming**<br>*Zdeněk Čulík* ***Zdeněk Čulík*** *Zdeněk Čulík (Gar.)* | ZK | 2 | 0+2 | | P |
| 01UP1 | **Introduction to Probability 1**<br>*Jan Vybíral* ***Jan Vybíral*** *Jan Vybíral (Gar.)* | Z,ZK | 3 | 1P+1C | | P |
| 01UP2 | **Introduction to Probability 2**<br>*Milan Krbálek, Michaela Krbálková* ***Michaela Krbálková*** *Milan Krbálek (Gar.)* | Z,ZK | 3 | 1P+1C | | P |
| 01UTEI | **Introduction to Theoretical Informatics**<br>*Petr Ambrož* ***Petr Ambrož*** *Petr Ambrož (Gar.)* | ZK | 3 | 2P+0C | | P |
| 01ZAOS | **Introduction to Operating Systems**<br>*Zdeněk Čulík* ***Zdeněk Čulík*** *Zdeněk Čulík (Gar.)* | Z,ZK | 2 | 2+0 | L | P |

**Characteristics of the courses of this group of Study Plan: Code=BSPAPIN3 Name=BS P_APIN 3rd year**

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|---|---|---|---|
| 01BPAI1 | Bachelor's Degree Project 1 | Z | 5 |
| Bachelor's Degree project on the selected topic under the supervision. Supervision and regular checking of the bachalor project under preparation. | | | |
| 01BPAI2 | Bachelor's Degree Project 2 | Z | 10 |
| Bachelor's Degree project on the selected topic under the supervision. Supervision and regular checking of the bachalor project under preparation. | | | |
| 01EIG | Elementary Introduction to Graph Theory | ZK | 3 |
| The course provides an explanation of basics of graph theory, followed by a survey of common graph algorithms. | | | |
| 04JPBP | Language Support to Bachelor Project | Z | 3 |
| To sign in for the course students will have passed all the English courses from the previous 5 semesters. The course instructs students in the strategy of writing, submitting, presenting, and defending the Bachelor Project in English. Their progress is continuously monitored and assessed. To finish the course, students will give a presentation of their Bachelor Project. | | | |
| 04APJP | Language Support to Bachelor Project | Z | 5 |
| To sign in for the course students will have passed all the English courses from the previous 5 semesters. The course instructs students in the strategy of writing, submitting, presenting, and defending the Bachelor Project in English. Their progress is continuously monitored and assessed. To finish the course, students will give a presentation of their Bachelor Project. | | | |
| 04APRK | Life and Institutions of English-speaking Countries and the CR - Examination | ZK | 3 |
| The course content is the examination as given by the study plan. To be eligible to take the examination students will have successfully completed the 04APR1 and 04APR2.courses The examination consists of two parts: written (duration 100 minutes) and oral (about 30 minutes). Students will prove they can use and apply the knowledge and skills acquired in both courses. | | | |
| 04APR2 | Life and Institutions of English-speaking Countries and the CR 2 | Z | 2 |
| The course following the 04APR1 course is again aimed at preparing the student for the state language examination and is based on topics required for this examination. Great emphasis is placed on training oral presentation of facts about English speaking-countries in comparison with the Czech Republic. The course covers two remaining thirds of topics for the state language examination. | | | |
| 01PGR1 | Computer Graphics 1 | Z,ZK | 2 |
| The first part of the two-semester "Computer Graphics" course is devoted to the specifics of digital display devices spanning from history up to the state of the art technologies. Further, a survey of fundamental problems in 2D computer graphics is given together with their solutions. Focus is put on mathematical description of problems and explanation of the corresponding algorithms using knowledge previously obtained in a variety of subjects available at FNSPE. The final part of the course covers the applications of computer graphics approaches in the process of authoring scientific documents and presentations. | | | |
| 01PGR2 | Computer Graphics 2 | Z,ZK | 2 |
| The second part of the two-semester "Computer Graphics" course begins with a brief introduction to signal theory in the context of aliasing - a phenomenon ubiquitous in computer graphics. Further, a well structured survey of fundamental problems in 3D computer graphics is given together with their solutions, from the description of a 3D scene to its realistic rendering. Focus is put on mathematical description of problems and explanation of the corresponding algorithms using knowledge previously obtained in a variety of subjects available at FNSPE. The algorithm implementation aspect such as data structures design etc. is also a matter of concern. In the last lecture, a number of theoretical concepts are demonstrated using Blender, an open-source 3D modeling and rendering software instrument. | | | |
| 01SITE1 | Computer Networks 1 | Z | 2 |
| Understanding the history and present network (LAN, WAN, use the principles and technologies). Architecture of reference model ISO/OSI. Network protocols, practical exercises with TCP/IP communications. Internet services - mail, remote access, www. Secure communication, tunneling. Directory services, certificates, certification authorities, public key infrastructure (PKI). Use in practice. Network security - firewalls (packet filters, proxies, gateways, NAT, DMZ), practical exercises. (According to the interest - the serial control lines, modems) | | | |
| 01SITE2 | Computer Networks 2 | Z | 2 |
| Understanding the history and present network (LAN, WAN, use the principles and technologies). Architecture of reference model ISO/OSI. Network protocols, practical exercises with TCP/IP communications. Internet services - mail, remote access, www. Secure communication, tunneling. Directory services, certificates, certification authorities, public key infrastructure (PKI). Use in practice. Network security - firewalls (packet filters, proxies, gateways, NAT, DMZ), practical exercises. (According to the interest - the serial control lines, modems) | | | |
| 04API | Presentation Course | Z | 2 |
| The course will prepare students for presenting issues in their field by mastering the strategies and techniques of oral presentation. The course includes discussions (expressing views, comments, agreement, disagreement). Students will be able to respond to comments on their presentation and answer questions addressed to them after the presentation, which is a skill required for the defence of the Bachelor Project. Students will learn the basic structure of a Bachelor Project and rules for writing a paper. | | | |
| 01PW | Windows Programming | Z | 2 |
| Simple graphical programs for MS Windows. Basic editing controls. File input and output. User defined components, dynamic type identification and reflection. | | | |
| 01BASE | Bachelor Seminar | Z | 1 |
| In the first part of the seminar, students familiarize themselves with the general principles of publishing and presenting scientific work and the formal requirements for bachelors degree projects at the faculty. The second part is designed as a practical training for the defense of the bachelors degree project. The students give oral presentations of the current state of the research results achieved during the work on their projects. Each presentation is followed by a discussion on scientific matters as well as on the possibilities of improving the students performance. | | | |

| | | | |
|---|---|---|---|
| 01UOP | Introduction to Object Programming | ZK | 2 |
| Object oriented programming languages. Object oriented programming libraries for graphics, databases and distributed systems. | | | |
| 01UP1 | Introduction to Probability 1 | Z,ZK | 3 |
| 1.Random trial with finite set of possible results, classical probability, independent random events 2.Probability and combinatorics 3.Probability and geometry, Bertrands paradox 4.Conditional probability, Bayes theorem, medical diagnosis, Simpsons paradox 5.Random variable with discrete state space, its distribution and mean value 6.Problems involving the calculation of mean value 7.Probabilistic method in graph theory 8.Random algorithms, Morris algorithm and its variants | | | |
| 01UP2 | Introduction to Probability 2 | Z,ZK | 3 |
| 1. One-dimensional continuous random variable and its statistical description. 2. Distribution function and probability density. 3. Axiomatic introduction of probability and connection to measure theory. 4. Numerical characteristics of continuous random variables. 5. Selected variants of continuous distributions and their characteristics. 6. Elementary methods for point estimations. 7. Generating pseudorandom numbers from the selected distribution. | | | |
| 01UTEI | Introduction to Theoretical Informatics | ZK | 3 |
| 01ZAOS | Introduction to Operating Systems | Z,ZK | 2 |
| Introduction to structure of operating systems. Processes, thread, memory management. Synchronization of multi-threaded applications. Memory mapped files. | | | |

Name of the block: Compulsory elective courses
Minimal number of credits of the block: 0
The role of the block: PV

Code of the group: BSSPOLVEDY
Name of the group: BS - Social Sciences
Requirement credits in the group:
Requirement courses in the group: In this group you have to complete at least 1 course
Credits in the group: 0
Note on the group: Only one of these courses is obligatory.

| 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 |
|---|---|---|---|---|---|---|
| 00EKOT | **Economy in Technology** ***Jana Kovářová*** | Z | 1 | 2+0 | | PV |
| 00ETV | **Ethics of Science and Technology** *Jakub Hajíček* ***Jana Kovářová*** | Z | 1 | 0+2 | L | PV |
| 00RET | **Rhetoric** *Jana Kovářová* ***Jana Kovářová*** *Jana Kovářová (Gar.)* | Z | 1 | 0+2 | | PV |
| 00UPRA | **Introduction to Law** *Martin Čech* ***Jana Kovářová*** | Z | 1 | 0+2 | | PV |
| 00UPSY | **Introduction to Psychology** *Jakub Hajíček* ***Jana Kovářová*** | Z | 1 | 0+2 | | PV |

**Characteristics of the courses of this group of Study Plan: Code=BSSPOLVEDY Name=BS - Social Sciences**

| | | | |
|---|---|---|---|
| 00EKOT | Economy in Technology | Z | 1 |
| The course introduces the basics of micro- and macroeconomics. | | | |
| 00ETV | Ethics of Science and Technology | Z | 1 |
| 00RET | Rhetoric | Z | 1 |
| The course is focused on the acquisition of speech and voice techniques and on the rules of correct pronounciation. The course is also devoted to the composition of public speech as well as to its nonverbal aspects. Stylistics exercises, strategies for coping with stage-fright and a short excursion into the history of rhetoric are an integral part of the course. | | | |
| 00UPRA | Introduction to Law | Z | 1 |
| 00UPSY | Introduction to Psychology | Z | 1 |

Code of the group: BSPJAZYKYZK-APIN
Name of the group: BS P languages APIN
Requirement credits in the group:
Requirement courses in the group: In this group you have to complete at least 1 course
Credits in the group: 0
Note on the group:

| 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 |
|---|---|---|---|---|---|---|
| 04XCESMZK | **Czech for Intermediate Students Examination** *Jana Kovářová* ***Jana Kovářová*** *Jana Kovářová (Gar.)* | ZK | 4 | | Z | PV |
| 04XCESPZK | **Czech for Foreign Students - Advanced Examination** *Jana Kovářová* ***Jana Kovářová*** *Jana Kovářová (Gar.)* | ZK | 4 | | Z | PV |
| 04XFMZK | **French for Intermediate Students Examination** *Věra Šlechtová* ***Věra Šlechtová*** *Věra Šlechtová (Gar.)* | ZK | 4 | | Z | PV |

| | | | | | | |
|---|---|---|---|---|---|---|
| 04XFPZK | **French for Advanced Students Examination**<br>*Věra Šlechtová* ***Věra Šlechtová*** *Věra Šlechtová (Gar.)* | ZK | 4 | | Z | PV |
| 04XFZZK | **French for Beginners Examination**<br>*Věra Šlechtová* ***Věra Šlechtová*** *Věra Šlechtová (Gar.)* | ZK | 3 | | L | PV |
| 04XNMZK | **German for Intermediate Students Examination**<br>*Miloslava Čechová* ***Miloslava Čechová*** *Miloslava Čechová (Gar.)* | ZK | 4 | | Z | PV |
| 04XNPZK | **German for Advanced Students Examination**<br>*Miloslava Čechová* ***Miloslava Čechová*** *Miloslava Čechová (Gar.)* | ZK | 4 | | Z | PV |
| 04XRMZK | **Russian for Intermediate Students Examination**<br>*Zhanna Isaeva* ***Zhanna Isaeva*** *Zhanna Isaeva (Gar.)* | ZK | 4 | | Z | PV |
| 04XRPZK | **Russian for Advanced Students Examination**<br>*Zhanna Isaeva* ***Zhanna Isaeva*** *Zhanna Isaeva (Gar.)* | ZK | 4 | | Z | PV |
| 04XRZZK | **Russian for Beginners Examination**<br>*Zhanna Isaeva* ***Zhanna Isaeva*** *Zhanna Isaeva (Gar.)* | ZK | 3 | | L | PV |
| 04XSMZK | **Spanish for Intermediate Students Examination**<br>*Beatriz Vadillo Gonzalo* ***Beatriz Vadillo Gonzalo*** *Beatriz Vadillo Gonzalo (Gar.)* | ZK | 4 | | Z | PV |
| 04XSPZK | **Spanish for Advanced Students Examination**<br>*Beatriz Vadillo Gonzalo* ***Beatriz Vadillo Gonzalo*** *Beatriz Vadillo Gonzalo (Gar.)* | ZK | 4 | | Z | PV |
| 04XSZZK | **Spanish for Beginners Examination**<br>*Beatriz Vadillo Gonzalo* ***Beatriz Vadillo Gonzalo*** *Beatriz Vadillo Gonzalo (Gar.)* | ZK | 3 | | L | PV |

**Characteristics of the courses of this group of Study Plan: Code=BSPJAZYKYZK-APIN Name=BS P languages APIN**

| | | | |
|---|---|---|---|
| 04XCESMZK | Czech for Intermediate Students Examination | ZK | 4 |

The course content is the examination as given by the study plan. The examination consisting of a written and oral part covers all the topics of the CESM1,2,3 courses and can only be taken after successful completion of the 3 courses. Detailed information is to be obtained from the teacher.

| | | | |
|---|---|---|---|
| 04XCESPZK | Czech for Foreign Students - Advanced Examination | ZK | 4 |

The course content is the examination as given by the study plan. The examination consisting of a written and oral part covers all the topics of the CESP1,2,3 courses and can only be taken after successful completion of the 3 courses. Detailed information is to be obtained from the teacher.

| | | | |
|---|---|---|---|
| 04XFMZK | French for Intermediate Students Examination | ZK | 4 |

The content is the examination as given by the study programme. The whole French programme is ended with an examination covering the contents of FM1-FM3. The examination consists of a written and oral part and is organized according to Examination Instructions, a document available on the web.

| | | | |
|---|---|---|---|
| 04XFPZK | French for Advanced Students Examination | ZK | 4 |

The whole French program is ended with an examination covering the contents of FP1-FP3. The examination consists of a written and/or an oral part and is organized according to Examination Instructions, a document available on the web. Assessment of the presentation is included into the examination grading.

| | | | |
|---|---|---|---|
| 04XFZZK | French for Beginners Examination | ZK | 3 |

The content is the examination as given by the study plan. The course is terminated with an examination consisting of oral and written part. The examination is ruled by the document Instruction for examination. Its content covers the levels FZ1 - FZ5.

| | | | |
|---|---|---|---|
| 04XNMZK | German for Intermediate Students Examination | ZK | 4 |

The course content is the examination as given by the study plan. The whole German for Intermediate Students Course is completed by an examination consisting of two parts - written and oral, which cover the courses NM1 - NM3. The oral part follows after passing the written part successfully and after obtaining the 04NM3 assessment. More detailed information is to be obtained from the teacher.

| | | | |
|---|---|---|---|
| 04XNPZK | German for Advanced Students Examination | ZK | 4 |

The course content is the examination as given by the study plan. The whole German for Advanced Students Course is completed by an examination consisting of two parts - written and oral, which cover the courses NP1 - NP3. The oral part follows after passing the written part successfully and after obtaining the 04NP3 ungraded assessment. More detailed information is to be obtained from the teacher.

| | | | |
|---|---|---|---|
| 04XRMZK | Russian for Intermediate Students Examination | ZK | 4 |

The course content is the examination as given by the study plan. The course is completed by taking a written and oral examination testing the knowledge and skills acquired in RM1 - RM3. Students are eligible for the oral examination only after a prior pass in RM3 and a successful written examination. Students are given instructions by the teacher.

| | | | |
|---|---|---|---|
| 04XRPZK | Russian for Advanced Students Examination | ZK | 4 |

The course content is the examination as given by the study plan. The course is completed by taking a written and oral examination testing the knowledge and skills acquired in RP1 - RP3. Students are eligible for the oral examination only after a prior pass in RP3 and a successful written examination. Students are given instructions by the teacher.

| | | | |
|---|---|---|---|
| 04XRZZK | Russian for Beginners Examination | ZK | 3 |

The course content is the examination as given by the study plan. The course is completed by taking a written and oral examination testing the knowledge and skills acquired in RZ1 - RZ5. Students are eligible for the oral examination only after a prior pass in RZ5 and a successful written examination. Students are given instructions by the teacher.

| | | | |
|---|---|---|---|
| 04XSMZK | Spanish for Intermediate Students Examination | ZK | 4 |

The course content is the examination as given by the study plan. SMZK examination consists of two parts - written and oral; to be eligible for the written part, students will have obtained non-graded assessment for course SM3.Oral examination follows the written part.

| | | | |
|---|---|---|---|
| 04XSPZK | Spanish for Advanced Students Examination | ZK | 4 |

The course content is the examination as given by the study plan. Examination SPZK consists of two parts, namely oral and written. The prerequisite for admission to oral part is having passed the written test. Examination content is based on syllabi of courses SP1, SP2, and SP3 or on an individual study plan of the student.

| | | | |
|---|---|---|---|
| 04XSZZK | Spanish for Beginners Examination | ZK | 3 |

The course content is the examination as given by the study plan. Examination consists of two parts - written and oral. Student can register for oral examination only if he/she has passed the written examination test.

Name of the block: Elective courses
Minimal number of credits of the block: 0
The role of the block: V

Code of the group: BSPAPINV

Name of the group: BS P_APIN Optional courses
Requirement credits in the group:
Requirement courses in the group:
Credits in the group: 0
Note on the group: Státní jazykovou zkoušku z angličtiny lze absolvovat až po složení zkoušek ze všech kurzů, jejichž obsah je součástí.

| 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 |
|---|---|---|---|---|---|---|
| 04APSZK | **English - State Examination** ***Jana Kovářová*** | ZK | 5 | 2S | L | v |
| 01DEM | **History of Mathematics** *Lubomíra Dvořáková* ***Lubomíra Dvořáková*** *Lubomíra Dvořáková (Gar.)* | Z | 1 | 0+2 | L | v |
| 18EKN | **Econometrics** *Radek Hřebík, Quang Van Tran* ***Quang Van Tran*** *Quang Van Tran (Gar.)* | Z,ZK | 4 | 2P+2C | L | v |
| 01JEPR | **Simple Compilers** *Zdeněk Čulík* ***Zdeněk Čulík*** *Zdeněk Čulík (Gar.)* | Z | 2 | 2 | L | v |
| 18MAK1 | **Macroeconomics 1** *Quang Van Tran* ***Quang Van Tran*** *Quang Van Tran (Gar.)* | Z,ZK | 4 | 2+2 | L | v |
| 18MAK2 | **Macroeconomics 2** *Quang Van Tran* ***Quang Van Tran*** *Quang Van Tran (Gar.)* | Z,ZK | 4 | 2+2 | Z | v |
| 00MAM1 | **Essentials of High School Course 1** *David Břeň* | Z | 1 | 0+1 | | v |
| 00MAM2 | **Essentials of High School Math Course 2** *Lukáš Heriban* ***Severin Pošta*** *Lukáš Heriban (Gar.)* | Z | 1 | 0+1 | | v |
| 18MIK | **Microeconomics** *Quang Van Tran* ***Quang Van Tran*** *Quang Van Tran (Gar.)* | Z,ZK | 4 | 2P+2C | Z | v |
| 12NME1 | **Numerical Methods 1** *Pavel Váchal* ***Pavel Váchal*** *Pavel Váchal (Gar.)* | Z,ZK | 4 | 2+2 | L | v |
| 18PROP | **Practical training in programming** *Jakub Klinkovský* ***Jakub Klinkovský*** *Jakub Klinkovský (Gar.)* | KZ | 3 | 2C | Z | v |
| 01PERI | **Programming of Peripherals Devices** ***Zdeněk Čulík*** *Zdeněk Čulík (Gar.)* | Z | 2 | 2+0 | Z | v |
| 18PMTL | **Programming in MATLAB** *Quang Van Tran, Matěj Pokorný, Jaromír Kukal* ***Quang Van Tran*** *Jaromír Kukal (Gar.)* | KZ | 4 | 4C | Z | v |
| 18PPY1 | **Programming in Python 1** *Jakub Klinkovský, Matej Mojzeš* ***Jakub Klinkovský*** *Jakub Klinkovský (Gar.)* | Z | 2 | 2C | L | v |
| 18PPY2 | **Programming in Python 2** *Jakub Klinkovský* ***Jakub Klinkovský*** *Jakub Klinkovský (Gar.)* | Z | 2 | 2S | Z | v |
| 18PPY3 | **Programming in Python 3** *Rudolf Pecinovský* ***Jakub Klinkovský*** *Jakub Klinkovský (Gar.)* | Z | 2 | 2C | L | v |
| 18PW | **Web environment and markup languages** *Pavel Eichler* ***Dana Majerová*** *Dana Majerová (Gar.)* | KZ | 2 | 2C | Z | v |
| 01PSL | **LaTeX - Publication Instrument** *Petr Ambrož* ***Petr Ambrož*** *Petr Ambrož (Gar.)* | Z | 2 | 0+2 | L | v |
| 01SOS1 | **Software Seminar 1** *Zdeněk Čulík* ***Zdeněk Čulík*** *Zdeněk Čulík (Gar.)* | Z | 2 | 0+2 | Z | v |
| 01SOS2 | **Software Seminar 2** *Zdeněk Čulík* ***Zdeněk Čulík*** *Zdeněk Čulík (Gar.)* | Z | 2 | 0+2 | L | v |
| TV-1 | **Physical Education** | Z | 1 | | Z | v |
| TV-2 | **Physical Education** | Z | 1 | | L | v |
| TV-3 | **Physical education** | Z | 1 | 0+2 | Z | v |
| TV-4 | **Physical education** | Z | 1 | 0+2 | L | v |
| 12ZEL1 | **Basic Electronics 1** *Jaroslav Pavel* ***Jaroslav Pavel*** *Jaroslav Pavel (Gar.)* | Z,ZK | 3 | 2+1 | Z | v |
| 12ZEL2 | **Basic Electronics 2** *Jaroslav Pavel* ***Jaroslav Pavel*** *Jaroslav Pavel (Gar.)* | Z,ZK | 3 | 2+1 | L | v |
| 01ZPB1 | **Introduction to Computer Security 1** *Petr Vokáč* ***Petr Vokáč*** *Petr Vokáč (Gar.)* | Z | 2 | 1+1 | | v |

**Characteristics of the courses of this group of Study Plan: Code=BSPAPINV Name=BS P_APIN Optional courses**

| | | | |
|---|---|---|---|
| 04APSZK | English - State Examination | ZK | 5 |

The course content is the examination as given by the study plan. Student is eligible for the State language examination (level C1 or B2 of CEFR) only if he/she has passed all the respective courses and examinations (04AP3KK, 04APAK, 04API, and 04APRK). From its first semester, part of the APIN programme covers also examination subjects. As required, examination conditions comply with respective rules and regulations for state language examinations.

| | | | |
|---|---|---|---|
| 01DEM | History of Mathematics | Z | 1 |

The subject has the form of regular seminars where the members of the department of mathematics, but also invited speakers - specialists in the field - give their talks on varoius topics from the history of mathematics.

| | | | |
|---|---|---|---|
| 18EKN | Econometrics | Z,ZK | 4 |
| Econometrics is based on economic theory and the relations between economic quantities are expressed by mathematical tools and observed data from economic reality. The course covers basic instruments of econometric analysis as the basic econometric model, the generalized model, the system of simultaneous equations and instruments for econometric model verification. | | | |
| 01JEPR | Simple Compilers | Z | 2 |
| Lexical and syntax analysis, code generation, simple optimizations, development environments, reflection. | | | |
| 18MAK1 | Macroeconomics 1 | Z,ZK | 4 |
| Macroeconomics I provides students with a fundamental theoretical basis for understanding how an economy works. It introduces main macroeconomic indicators, money market, macroeconomic equilibrium theory, fundamentals of open economy theory, inflation, unemployment, economic growth, economic fluctuations, basic macroeconomic models of IS-LM, AS-AD and their implications for economic policies. The learning outcomes of the course is to equip students with ability to analyze macroeconomic phenomena and their interconnections and subsequently to use them under the conditions of modern economic life. | | | |
| 18MAK2 | Macroeconomics 2 | Z,ZK | 4 |
| Macroeconomics II extends theoretical knowledge acquired from Macroeconomics I of its students with the latest knowledge of contemporary macroeconomics. They are models of economic growth, especially those with an emphasis on the role of human capital and technological progress. Furthermore, it introduces students to modern principles of economic modeling, i.e., macroeconomic models derived from microeconomic behavior of subjects and economics and their rational expectations. It also provides students with modern knowledge of labor market modeling. | | | |
| 00MAM1 | Essentials of High School Course 1 | Z | 1 |
| Students are introduced to mathematical concepts and methods used in the introductory physics course. | | | |
| 00MAM2 | Essentials of High School Math Course 2 | Z | 1 |
| Review of basics of high school mathematics. | | | |
| 18MIK | Microeconomics | Z,ZK | 4 |
| Microeconomics is a set of theories, which help us to understand processes by which the scarce resources are allocated among alternative uses. Microeconomics explains the role of prices and markets in these processes and makes more clear behaviour of the economic agents. Lectures and seminars are designed so that the explanation of microeconomic concepts does not require knowledge of calculus. | | | |
| 12NME1 | Numerical Methods 1 | Z,ZK | 4 |
| There are explained the basic principles of numerical mathematics important for numerical solving of problems important for physics and technology. Methods for solution of tasks very important for physicists (ordinary differential equations, random numbers) are included in addition to the basic numerical methods. Integrated computational environment MATLAB is used as a principle programming language as a demonstration tool. The seminars are held in computer laboratory. | | | |
| 18PROP | Practical training in programming | KZ | 3 |
| The goal of this course is to understand advanced topics related to programming, code design and software project development. Students will practice pragmatic techniques and principles on concrete real-world examples. Emphasis is put on the review of freely available software tools that can improve the programmers work efficiency and ensure high quality of the final source code. | | | |
| 01PERI | Programming of Peripherals Devices | Z | 2 |
| Memory organization, input and output ports, computer bus. Software libraries for computer peripherals, 3D graphic libraries. Principles of peripherals device drivers. | | | |
| 18PMTL | Programming in MATLAB | KZ | 4 |
| Introducing Matlab environment as efficient tool for computation in complex arrays and symbolic variables, namely for linear algebra, mathematic analysis, statistics, algorithmization and geometric representation of results. | | | |
| 18PPY1 | Programming in Python 1 | Z | 2 |
| This course introduces students to advanced features of the Python language and common scientific packages. The course covers both object-oriented as well as functional programming paradigms. The following part of the course describes the use of Python in the fields of scientific and technical computing (NumPy and SciPy packages), data processing and visualization. | | | |
| 18PPY2 | Programming in Python 2 | Z | 2 |
| This course introduces students to practical applications of the Python language in scientific as well as commercial fields. The course is a seminar where each presented topic is accompanied by a short demo of a real-world application in the specific field. | | | |
| 18PPY3 | Programming in Python 3 | Z | 2 |
| This advanced course is intended for students who have basic experience with programming in Python and using its libraries. It introduces students to advanced concepts of the Python language and modules they are based on. | | | |
| 18PW | Web environment and markup languages | KZ | 2 |
| The course introduces students to fundamental principles and best practices for web design with respect to technical functionality, informational value, readability and usability. | | | |
| 01PSL | LaTeX - Publication Instrument | Z | 2 |
| The course is devoted to the basics and facilities of computer typography, particularly to the system LaTeX | | | |
| 01SOS1 | Software Seminar 1 | Z | 2 |
| Java, Java Beans, Assembly language programming for microprocessors Intel 80x86 | | | |
| 01SOS2 | Software Seminar 2 | Z | 2 |
| Graphical libraries GTK+ and Qt. Development of graphical user interface using C and C++ programming languages. Portable applications for Unix like operating systems, especially for Linux systems. Portability to Microsoft Windows. | | | |
| TV-1 | Physical Education | Z | 1 |
| TV-2 | Physical Education | Z | 1 |
| TV-3 | Physical education | Z | 1 |
| TV-4 | Physical education | Z | 1 |
| 12ZEL1 | Basic Electronics 1 | Z,ZK | 3 |
| The subject provides primary knowledge of circuit theory concerning principles of electronic circuits in both stationary and harmonic stable state. Circuit analysis methods for linear circuits include symbolic and complex method are explained. Proper circuit analysis is also lectured. The subject's final part deals with transient effects inside linear circuits. | | | |
| 12ZEL2 | Basic Electronics 2 | Z,ZK | 3 |
| The subject follows up with the Basic Electronics 1. Semiconductor elements basic properties are explained. Thecourse's final part deals with basic themes of logical circuits field. | | | |
| 01ZPB1 | Introduction to Computer Security 1 | Z | 2 |

Code of the group: BSPJAZYKYZAP
Name of the group: BS P jazyky zap
Requirement credits in the group:
Requirement courses in the group:

Credits in the group: 0
Note on the group:

| 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 |
|---|---|---|---|---|---|---|
| 04XAM1 | **English for Intermediate Students M1** ***Jana Kovářová*** | Z | 2 | 0+2 | Z | v |
| 04XAM2 | **English for Intermediate Students M2** ***Jana Kovářová*** | Z | 2 | 0+2 | L | v |
| 04XAM3 | **English for Intermediate Students M3** ***Jana Kovářová*** | Z | 2 | 0+2 | Z | v |
| 04XAP1 | **English for Advanced Students P1** ***Jana Kovářová*** | Z | 2 | 0+2 | Z | v |
| 04XAP2 | **English for Advanced Students P2** ***Jana Kovářová*** | Z | 2 | 0+2 | L | v |
| 04XAP3 | **English for Advanced Students P3** ***Jana Kovářová*** | Z | 2 | 0+2 | Z | v |
| 04XCESZ1 | **Czech for Foreigners - Beginners 1** ***Jana Kovářová*** *Jana Kovářová (Gar.)* | Z | 2 | 0+2 | Z | v |
| 04XCESZ2 | **Czech for Foreigners - Beginners 2** ***Jana Kovářová*** *Jana Kovářová (Gar.)* | Z | 2 | 0+2 | L | v |
| 04XCESZ3 | **Czech for Foreigners - Beginners 3** ***Jana Kovářová*** *Jana Kovářová (Gar.)* | Z | 2 | 2S | Z | v |
| 04XCESM1 | **Czech for Foreigners - Intermediate 1** ***Jana Kovářová*** *Jana Kovářová (Gar.)* | Z | 2 | 0+2 | Z | v |
| 04XCESM2 | **Czech for Foreigners - Intermediate 2** ***Jana Kovářová*** *Jana Kovářová (Gar.)* | Z | 2 | 0+2 | L | v |
| 04XCESM3 | **Czech for Foreigners - Intermediate 3** ***Jana Kovářová*** *Jana Kovářová (Gar.)* | Z | 2 | 0+2 | Z | v |
| 04XCESP1 | **Czech for Foreign Students - Advanced 1** ***Jana Kovářová*** *Jana Kovářová (Gar.)* | Z | 2 | 0+2 | Z | v |
| 04XCESP2 | **Czech for Foreigners - Advanced 2** ***Jana Kovářová*** *Jana Kovářová (Gar.)* | Z | 2 | 0+2 | L | v |
| 04XCESP3 | **Czech for Foreigners - Advanced 3** ***Jana Kovářová*** *Jana Kovářová (Gar.)* | Z | 2 | 0+2 | Z | v |
| 04XFM1 | **French for Intermediate Students M1** ***Věra Šlechtová*** *Věra Šlechtová (Gar.)* | Z | 2 | 0+2 | Z | v |
| 04XFM2 | **French for Intermediate Students M2** ***Věra Šlechtová*** *Věra Šlechtová (Gar.)* | Z | 2 | 0+2 | L | v |
| 04XFM3 | **French for Intermediate Students M3** ***Věra Šlechtová*** *Věra Šlechtová (Gar.)* | Z | 2 | 0+2 | Z | v |
| 04XFP1 | **French for Advanced Students P1** ***Věra Šlechtová*** *Věra Šlechtová (Gar.)* | Z | 2 | 0+2 | Z | v |
| 04XFP2 | **French for Advanced Students P2** ***Věra Šlechtová*** *Věra Šlechtová (Gar.)* | Z | 2 | 0+2 | L | v |
| 04XFP3 | **French for Advanded Students P3** ***Věra Šlechtová*** *Věra Šlechtová (Gar.)* | Z | 2 | 0+2 | Z | v |
| 04XFZ1 | **French for Beginners Z1** ***Věra Šlechtová*** *Věra Šlechtová (Gar.)* | Z | 2 | 0+4 | L | v |
| 04XFZ2 | **French for Beginners Z2** ***Věra Šlechtová*** *Věra Šlechtová (Gar.)* | Z | 2 | 0+4 | Z | v |
| 04XFZ3 | **French for Beginners Z3** ***Věra Šlechtová*** *Věra Šlechtová (Gar.)* | Z | 2 | 0+4 | L | v |
| 04XFZ4 | **French for Beginners Z4** ***Věra Šlechtová*** *Věra Šlechtová (Gar.)* | Z | 2 | 0+4 | Z | v |
| 04XFZ5 | **French for Beginners Z5** ***Věra Šlechtová*** *Věra Šlechtová (Gar.)* | Z | 2 | 0+4 | L | v |
| 04XNM2 | **German for Intermediate Students M2** ***Miloslava Čechová*** *Miloslava Čechová (Gar.)* | Z | 2 | 0+2 | L | v |
| 04XNM1 | **German for Intermediate Students M1** ***Miloslava Čechová*** *Miloslava Čechová (Gar.)* | Z | 2 | 0+2 | Z | v |
| 04XNM3 | **German for Intermediate Students M3** ***Miloslava Čechová*** *Miloslava Čechová (Gar.)* | Z | 2 | 0+2 | Z | v |
| 04XNP1 | **German for Advanced Students P1** ***Miloslava Čechová*** *Miloslava Čechová (Gar.)* | Z | 2 | 0+2 | Z | v |
| 04XNP2 | **German for Advanced Students P2** ***Miloslava Čechová*** *Miloslava Čechová (Gar.)* | Z | 2 | 0+2 | L | v |
| 04XNP3 | **German for Advanced Students P3** ***Miloslava Čechová*** *Miloslava Čechová (Gar.)* | Z | 2 | 0+2 | Z | v |
| 04XRM1 | **Russian for Intermediate Students M1** ***Zhanna Isaeva*** *Zhanna Isaeva (Gar.)* | Z | 2 | 0+2 | Z | v |
| 04XRM2 | **Russian for Intermediate Students M2** ***Zhanna Isaeva*** *Zhanna Isaeva (Gar.)* | Z | 2 | 0+2 | L | v |

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| 04XRM3 | **Russian for Intermediate Students M3**<br>***Zhanna Isaeva*** *Zhanna Isaeva (Gar.)* | Z | 2 | 0+2 | Z | v |
| 04XRP1 | **Russian for Advanced Students P1**<br>***Zhanna Isaeva*** *Zhanna Isaeva (Gar.)* | Z | 2 | 0+2 | Z | v |
| 04XRP2 | **Russian for Advanced Students P2**<br>***Zhanna Isaeva*** *Zhanna Isaeva (Gar.)* | Z | 2 | 0+2 | L | v |
| 04XRP3 | **Russian for Advanced Students P3**<br>***Zhanna Isaeva*** *Zhanna Isaeva (Gar.)* | Z | 2 | 0+2 | Z | v |
| 04XRZ1 | **Russian for Beginners Z1**<br>***Zhanna Isaeva*** *Zhanna Isaeva (Gar.)* | Z | 2 | 0+4 | L | v |
| 04XRZ2 | **Russian for Beginners Z2**<br>***Zhanna Isaeva*** *Zhanna Isaeva (Gar.)* | Z | 2 | 0+4 | Z | v |
| 04XRZ3 | **Russian for Beginners Z3**<br>***Zhanna Isaeva*** *Zhanna Isaeva (Gar.)* | Z | 2 | 0+4 | L | v |
| 04XRZ4 | **Russian for Beginners Z4**<br>***Zhanna Isaeva*** *Zhanna Isaeva (Gar.)* | Z | 2 | 0+4 | Z | v |
| 04XRZ5 | **Russian for Beginners Z5**<br>***Zhanna Isaeva*** *Zhanna Isaeva (Gar.)* | Z | 2 | 0+4 | L | v |
| 04XSM1 | **Spanish for Intermediate Students M1**<br>***Beatriz Vadillo Gonzalo*** *Beatriz Vadillo Gonzalo (Gar.)* | Z | 2 | 0+2 | Z | v |
| 04XSM2 | **Spanish for Intermediate Students M3**<br>***Beatriz Vadillo Gonzalo*** *Beatriz Vadillo Gonzalo (Gar.)* | Z | 2 | 0+2 | L | v |
| 04XSM3 | **Spanish for Intermediate Students M3**<br>***Beatriz Vadillo Gonzalo*** *Beatriz Vadillo Gonzalo (Gar.)* | Z | 2 | 0+2 | Z | v |
| 04XSP1 | **Spanish for Advanced Students P1**<br>***Beatriz Vadillo Gonzalo*** *Beatriz Vadillo Gonzalo (Gar.)* | Z | 2 | 0+2 | Z | v |
| 04XSP2 | **Spanish for Advanced Students P2**<br>***Beatriz Vadillo Gonzalo*** *Beatriz Vadillo Gonzalo (Gar.)* | Z | 2 | 0+2 | L | v |
| 04XSP3 | **Spanish for Advanced Students P3**<br>***Beatriz Vadillo Gonzalo*** *Beatriz Vadillo Gonzalo (Gar.)* | Z | 2 | 0+2 | Z | v |
| 04XSZ1 | **Spanish for Beginners Z1**<br>***Beatriz Vadillo Gonzalo*** *Beatriz Vadillo Gonzalo (Gar.)* | Z | 2 | 0+4 | L | v |
| 04XSZ2 | **Spanish for Beginners Students Z2**<br>***Beatriz Vadillo Gonzalo*** *Beatriz Vadillo Gonzalo (Gar.)* | Z | 2 | 0+4 | Z | v |
| 04XSZ3 | **Spanish for Beginners Z3**<br>***Beatriz Vadillo Gonzalo*** *Beatriz Vadillo Gonzalo (Gar.)* | Z | 2 | 0+4 | L | v |
| 04XSZ4 | **Spanish for Beginners Z4**<br>***Beatriz Vadillo Gonzalo*** *Beatriz Vadillo Gonzalo (Gar.)* | Z | 2 | 0+4 | Z | v |
| 04XSZ5 | **Spanish for Beginners Z5**<br>***Beatriz Vadillo Gonzalo*** *Beatriz Vadillo Gonzalo (Gar.)* | Z | 2 | 0+4 | L | v |

**Characteristics of the courses of this group of Study Plan: Code=BSPJAZYKYZAP Name=BS P jazyky zap**

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|---|---|---|---|
| 04XAM1 | English for Intermediate Students M1 | Z | 2 |

The course is designed for students who have successfully completed the full secondary school English language course at least at the A2 level of the Common European Framework of Reference for Languages (CEFR). It provides an introduction into English for Specific and Academic Purposes (ESP, EAP), i.e., into fundamentals of vocabulary and style typical of professional oral and written communication situations. Thus it covers topics related to the student´s life and needs as well as topics of subtechnical interest. Attention is also paid to extending the knowledge of grammar issues used in EAP.

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| 04XAM2 | English for Intermediate Students M2 | Z | 2 |

The AM2 course expects the student to have completed the AM1 course. It develops their skills for work with subtechnical texts, focusing also more on specific grammar, functions, and lexical items typical of ESP and EAP (e.g., definition, existence and classification of phenomena, object descriptions). Part of the course is also guided writing. If necessary, grammar revision is included.

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|---|---|---|---|
| 04XAM3 | English for Intermediate Students M3 | Z | 2 |

The course develops the skills that enable students to cope with features typical of professional style. Increasing attention is paid to developing subtechnical vocabulary and independent understanding of professional texts. Great emphasis is placed on distinguishing different levels of formal and informal oral and written communication and their appropriate Czech equivalents. The course also includes studying abstracts and rules for writing them as well as basic rules for preparing and giving a short presentation on a chosen topic related to the student´s field.

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|---|---|---|---|
| 04XAP1 | English for Advanced Students P1 | Z | 2 |

The course is designed for students who have successfully completed the full secondary school English language course (at least the B1 level of the Common European Framework of Reference for Languages - CEFR). It provides an introduction into English for Specific and Academic Purposes (ESP, EAP), i.e., into the fundamentals of vocabulary, functions, grammar, and style typical of professional oral and written communication situations (fundamentals of terms in mathematics and physics, definitions, graph descriptions, etc). It also covers professional oral and written communication on topics related to the undergraduate´s life and needs. It develops skills for free professional writing (writing a CV, letter of application, polite request). If necessary, revision of selected grammar topics is included.

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|---|---|---|---|
| 04XAP2 | English for Advanced Students P2 | Z | 2 |

The AP2 course is based on AP1, thus extending the student´s skills for working with subtechnical texts, and even with professional texts of chosen branches of science. According to the students´ needs it concentrates on chosen grammar topics, but mainly intends to develop understanding of syntactic structures and typical rhetorical functions (e.g., various types of descriptions, and, if possible, a case study). Increasing emphasis is placed on the undergraduate´s independent work with and reading of linguistically more demanding materials. The course extends the student´s subtechnical vocabulary, and includes fundamental notions of chosen branches of science. It is focused on formal writing including the sentence and paragraph structure, linking, cohesion and coherence in texts.

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| 04XAP3 | English for Advanced Students P3 | Z | 2 |

The AP3 course is based on AP2 and expects the student to work without any guidance with authentic professional materials and to interpret the text. It includes training oral and written communication skills and functions (e.g., expressing an opinion, agreement, and objections; taking part in discussion, note-taking; summarizing, writing an abstract) and, if possible, also preparing a project on a given or chosen topic and presenting it. The course places emphasis on distinguishing levels of formal and informal language both in oral and written communication.

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|---|---|---|---|
| 04XCESZ1 | Czech for Foreigners - Beginners 1 | Z | 2 |
| The course is designed for students of the English programme. Students will become acquainted with the main characteristics of Czech (phonetic and grammar features) and they will acquire basic language and speaking skills. The course focuses on pronunciation exercises, simple social phrases, and oral and written communication in the most common everyday situations. The course covers roughly lessons 1-3 of Čeština Express (Czech Express) by L. Holá and P. Bořilová. | | | |
| 04XCESZ2 | Czech for Foreigners - Beginners 2 | Z | 2 |
| The language and communication competences acquired in CESZ1 are further developed. Students deepen their knowledge of the declension and conjugation system and practise basic communication topics. The course covers roughly lessons 3-5 in Czech Express by L. Holá and P. Bořilová. | | | |
| 04XCESZ3 | Czech for Foreigners - Beginners 3 | Z | 2 |
| The course further develops the language and communication competences acquired in the XCESZ1 and XCESZ2 courses. The teaching focuses on building up basic vocabulary, fixing correct pronunciation and deepening grammar, features through practice, as well as introducing the Czech culture. Students are asked to produce simple texts and they practise frequent types of dialogue. They also practise understanding texts in terms of main ideas or looking for specific details in texts. The course covers roughly lessons 5-7 in Čeština expres 1. | | | |
| 04XCESM1 | Czech for Foreigners - Intermediate 1 | Z | 2 |
| The course is focused on correct pronunciation, important morphological phenomena, prepositional phrases, and verb forms as well as on extending the student´s vocabulary for various social situations. | | | |
| 04XCESM2 | Czech for Foreigners - Intermediate 2 | Z | 2 |
| The course develops the topics covered in CESM1 and is then focused on more difficult grammar phenomena. It practices writing, speaking, and reading skills and trains the student in understanding common abbreviations, abbreviated words, and mathematical terms and formulas. | | | |
| 04XCESM3 | Czech for Foreigners - Intermediate 3 | Z | 2 |
| The last course revises morphological topics covered earlier and extends the student´s knowledge of more difficult language phenomena. It is especially focused on stylistics and lexicology and on developing the student´s writing skills. | | | |
| 04XCESP1 | Czech for Foreign Students - Advanced 1 | Z | 2 |
| The prerequisite of the course is very good knowledge of the Czech language, i.e., communicative competences at least at level B2 of the Common European Framework of Reference. It is focused partly on revision of standard language structures, but mainly on practising more complex grammatical structures typical of the style of science. Students are taught the basics of functional style of engineering and professional communication, both in spoken and written form. The topics include University Studies and Student Life. Written practice includes communication with teachers and faculty administrators. | | | |
| 04XCESP2 | Czech for Foreigners - Advanced 2 | Z | 2 |
| This course extends the student´s knowledge acquired in CESP1 and focuses on difficult language phenomena. It practises working with technical and specialist texts placing greater emphasis on individual work. | | | |
| 04XCESP3 | Czech for Foreigners - Advanced 3 | Z | 2 |
| The course develops the student´s knowledge from CESP2. It includes working with authentic specialist materials, their interpretation and presentation, and, finally, presentation of the student´s project. Writing skills necessary for professional communication are trained. | | | |
| 04XFM1 | French for Intermediate Students M1 | Z | 2 |
| French - intermediate FM The objective of this three-semester course is to improve and further develop communication in the French language in both written and oral form. Students will be able to communicate in social interaction and in academic, scientific and professional environment. They will be able to use the language to transmit general and technical information and to solve problems. FM1 The course builds on and further develops linguistic competence acquired at secondary school. It revises, systemizes and expands language skills gained in previous study. The following topics are covered: University studies in our country and in France, writing of transactional letters, CV, personal statement, request, answer to an advert, French culture and geography, Paris. Topics of specialization: mathematics, physics. Reading technical and popular science texts, work based on these texts. | | | |
| 04XFM2 | French for Intermediate Students M2 | Z | 2 |
| Course FM2 builds on FM1. Linguistic structures and competence acquired in previous study are systemized and expanded. Reading popular science texts, features typical for technical and scientific language (passives, nominalization, word formation). Topics: physics, power engineering, environment, Internet, success of French science and technology, French scientists, artists and architects. Description of an object, device, shapes, dimensions, material. | | | |
| 04XFM3 | French for Intermediate Students M3 | Z | 2 |
| The course is focused on improvement and further development of linguistic competence acquired during the follow-up courses. Syntactic structures (subordinate and infinitive clauses, participle structures, compound tenses). Text summary. -Students prepare a written paper which will be delivered in form of an oral presentation in-class. The paper is linked to the field of students´ future specialisation or to their interest and generally covers a technical /applied science topic. It is not a translation but a creative work compiled from French articles and one´s own knowledge/experience. -Longer monologues on topics /situations set for the examination are prepared. Text structure, cohesion and coherence. | | | |
| 04XFP1 | French for Advanced Students P1 | Z | 2 |
| FP advanced course The objective of this three-semester course is to improve and further develop communication in the French language in both written and oral form. Students will be able to communicate in social interaction and in academic, scientific and work environment. They will be able to use the language to transmit general and technical information and to solve problems. FP1 The course builds on and further develops linguistic competence acquired at secondary school. Difficult grammar topics are repeated and expanded: subjonctif, passé composé-imparfait, pronouns. The following specific topics are covered: University studies in our country and in France, writing of transactional letters, CV, personal statement, request, answer to an advert, environmental issues, success of French science and technology, chosen topics from French regional culture, Paris. Topics of specialization: mathematics, internet, physics, chemistry. Reading of technical and popular science texts, further work with these texts and interpretation. | | | |
| 04XFP2 | French for Advanced Students P2 | Z | 2 |
| With the link to P1 contents, the course further develops language skills. Focus is put on reading popular science texts and on oral communication on given topics. Features typical of technical and scientific communication are stressed (passive voice, nominalization, word formation). | | | |
| 04XFP3 | French for Advanded Students P3 | Z | 2 |
| The course is focused on systemization and improvement of acquired linguistic competence, skills and knowledge, and their use for communication in engineering environment. Special skill - translation of shorter texts (both from and into the language). Writing of a paper and making oral presentation in-class. The paper generally covers a technical /applied science topic. It is a creative work compiled from 3 French sources. Preparation of several set topics for oral examination. | | | |
| 04XFZ1 | French for Beginners Z1 | Z | 2 |
| French for beginners The objective of this 5-level course is to be able to communicate in French orally and in writing in situations of everyday life , in socializing and in professional life. The course includes French for specific / technical communication and reading of popular science and scientific texts. FZ1 The objective is to be able to communicate at elementary level, actively using the knowledge of chosen elementary language. The contents is roughly outlined by lessons 1 - 7 of the textbook Pravda - Pravdová, French for beginners (Francouzština pro začátečky). It is extended with situations of communication and functions from the textbook Espaces I, lessons 1-4 : introductions, personal information, asking and giving the directions, simple instructions and questions. Special attention is paid to pronunciation. Spelling is explained in connection with pronunciation and grammar. | | | |
| 04XFZ2 | French for Beginners Z2 | Z | 2 |
| The course is linking up with FZ1. Elementary linguistic knowledge and communication skills are expanded. The scope is given by lessons 8 - 13 of the textbook: Pravda - Pravdová : French for Beginners . Additional topics and skills are filled in from the textbook Espaces I, lesson 1 - 5 (introductions, invitation, welcoming, agreement - disagreement, apology, thanking, travelling, map of France, food, expression of will, wish, order, prohibition, pleasure). Correct pronunciation is practiced. Stress on oral communication. Specific topics covered: How does the machine work? A few expressions concerning the study. Name of University and Faculty. | | | |

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| 04XFZ3 | French for Beginners Z3 | Z | 2 |
| The course builts upon FZ2. Basic linguistic knowledge and skills are developed. The contents is given by lessons 14 - 18 of the textbook: Pravda - Pravdová: French for Beginners. Topics, functions and situations are complemented from other materials. Stress is put on oral communication in dialogues and on reading, both for information and loud as part of pronunciation practice. Reading covers short adapted texts of general interest first, and later popular science texts. | | | |
| 04XFZ4 | French for Beginners Z4 | Z | 2 |
| The course builds up on FZ3. Basic linguistic knowledge and skills are further developed. Oral communication and reading skills are practiced. The contents is roughly covered with lessons 19 - 23 of the textbook French for Beginners, and is expanded with topics and functions from other materials. Reading is developed from the lecture notes French for Engineering Students of FJFI. The course covers generals and specific topics: health- illness, sport, free time, environment, study, travelling in France, Paris, shopping, weather, university in our country and in France, how to write CV, application, topics in mathematics, reading physics - mechanics, informatics, internet. | | | |
| 04XFZ5 | French for Beginners Z5 | Z | 2 |
| All four skills acquired in FZ4 are further developed, as well as technical language. Students prepare a paper on a chosen popular science topic. They present it orally in the class. The general contents is covered by lessons 24 - 26 of the textbook: Pravda-Pravdova, French for Beginners, and is complemented from other materials. Topics: on physics from lecture notes, success of French science and technology, information about France. Grammar is systemized and complemented with syntax (subordinate clauses, typical conjunctions, subjunctive clauses, gerund, passive. | | | |
| 04XNM2 | German for Intermediate Students M2 | Z | 2 |
| The course introduces other more complex grammatical structures and their application in communication based on technical texts, such as the relation between technology and society, the world at the beginning of the 21st century, linguistically more demanding texts on the environment, the language of mathematics, computers and car technology etc. Students practise reading for information and reading aloud, and appropriate language for various purposes in oral and written communication. The course systematically revises other grammatical phenomena important for professional discourse (participles, relative clauses). | | | |
| 04XNM1 | German for Intermediate Students M1 | Z | 2 |
| The objective of the course is to level off the students´ skills in the German language. The course focuses on revision of more difficult phenomena and structures (e.g. the passive) and word formation processes (e.g. importance of verb prefixes). In the lexical part, it covers topics referring to higher education in both the Czech Republic and Germany, current environmental issues together with all necessary expressions and phrases, expressions and phrases needed to chemists, mathematicians, physicists, and the fundamentals of IT terminology. It develops communication on related topics and is aimed at correct pronunciation, grammatical correctness and understandability. | | | |
| 04XNM3 | German for Intermediate Students M3 | Z | 2 |
| The course introduces other more complex grammatical structures and their application in communication based on technical texts, such as the relation between technology and society, the world at the beginning of the 21st century, linguistically more demanding texts on the environment, the language of mathematics, computers and car technology etc. Students practise reading for information and reading aloud, and appropriate language for various purposes in oral and written communication. The course systematically revises other grammatical phenomena important for professional discourse (participles, relative clauses). | | | |
| 04XNP1 | German for Advanced Students P1 | Z | 2 |
| This course requires good grammar knowledge, extended general vocabulary, and good communication skills acquired at secondary school to be levelled off at the beginning of the course. The course is then focused on working with technical and scientific texts and practising reading techniques (skimming, scanning, reading for detail). It revises and develops more difficult grammar structures necessary for understanding a subtechnical text (passive voice, participles, participle structures) and it also focuses on practical everyday communication, i.e., telephoning. | | | |
| 04XNP2 | German for Advanced Students P2 | Z | 2 |
| The course develops the students' skills in working with professional scientific texts (understanding, summarising, note-taking, interpreting) while extending their general and subtechnical vocabulary range. It introduces mathematical expressions and texts of nuclear power engineering. Increasing emphasis is placed on understanding and practising formal communication, both written and oral (CV, letter of application, interview, scholarship), and more complex grammatical structures (i.e., subjunctive, indirect speech). | | | |
| 04XNP3 | German for Advanced Students P3 | Z | 2 |
| The course consists of 3 main parts (general communicative situations, grammar and technical topics). Students will develop their vocabulary in a variety of less common situations (traffic problems and car accidents, accident report, filling in a form, complaints). Based on presentations and technical and subtechnical texts, the vocabulary range in fields such as nuclear power engineering, the environment, computer science, and car technology, will also be extended. Only authentic professional texts are used. By means of a presentation, students are trained to process information gained from their reading of complex and difficult texts and present it to the class in a simplified oral form. The course also includes translation practice to and from German. | | | |
| 04XRM1 | Russian for Intermediate Students M1 | Z | 2 |
| The course is designed for students with previous knowledge of Russian from secondary schools. Students are supposed to know the Russian alphabet (both printed and handwritten), basic vocabulary for communication in everyday situations (introductions, socializing, greetings, shopping for food and objects of everyday need, asking the way and giving directions), they can use basic grammar structures (verbal and nominal forms, irregular verbs, pronouns). The initial knowledge corresponds to the achievement level of the RZ2 course. The contents and scope of the course correspond approximately to the RZ3 course, but for half of the time allotted in the timetable. | | | |
| 04XRM2 | Russian for Intermediate Students M2 | Z | 2 |
| The course is based on the RM1 course, its contents and scope correspond roughly to RZ4, however, for half of the time allotted in the timetable. | | | |
| 04XRM3 | Russian for Intermediate Students M3 | Z | 2 |
| The course develops the knowledge and skills acquired in RM1 and RM2 and its contents and scope are roughly at the same level as those of RZ5, however, for half of the time allotted in the timetable. | | | |
| 04XRP1 | Russian for Advanced Students P1 | Z | 2 |
| The entrance requirement for the course is to achieve the B1 CEFR level. The objective of the course is revision of standard language structures, practicing more difficult grammar structures, understanding the fundamentals of technical language and training writing skills. | | | |
| 04XRP2 | Russian for Advanced Students P2 | Z | 2 |
| The course is based on RP1. It expands grammatical structures important for understanding technical texts (verbal adjectives, participles, passives, verb aspects, specific syntactic structures). Stress is put on independent oral and written communication. | | | |
| 04XRP3 | Russian for Advanced Students P3 | Z | 2 |
| The course is based on RP2 and is mainly focused on working with technical and scientific texts (reading comprehension, oral and written paraphrasing, translation). The RP1 - RP3 courses require good previous knowledge of general language at secondary level (listening, reading, correct communication in everyday situations). The courses develop and expand these skills. Further study is aimed at professional and technical skills (reading technical literature according to the students´ specialization, oral and written interpretation). Students develop their subtechnical vocabulary and practice quick and correct communication in professional situations. They will be able to both speak write accurately and with confidence on technical topics. | | | |
| 04XRZ1 | Russian for Beginners Z1 | Z | 2 |
| The course represents the first stage of the five-semester programme, its final aim being reading and understanding professional texts written in Russian. Thus it begins with mastering the Russian alphabet (for both reading and writing skills) and fundamentals of grammar necessary for everyday communication (listening and speaking). Students will be able to read a short text with marked stress, understand its contents and summarize it. | | | |

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| 04XRZ2 | Russian for Beginners Z2 | Z | 2 |
| The second semester of the programme is designed to teach skills for basic communication in everyday situations and for reading easy and short subtechnical texts. Students will be able to communicate using short sentences and appropriate structures, and read aloud with confidence a short text without marked stress. They will also develop their vocabulary and master further grammatical structures. They will have mastered with confidence the Russian alphabet and will be able to use it in writing. | | | |
| 04XRZ3 | Russian for Beginners Z3 | Z | 2 |
| The course is based on RZ2 and includes further everyday topics, develops understanding of short compact texts on new subtechnical topics (for training various forms of reading skills and listening) and introduces new grammar. Students will be trained to distinguish intonation patterns while listening to spoken language. They will be able to respond so as to be understood, and to express their opinion. Writing skills will be trained on guided writing tasks and note-taking. | | | |
| 04XRZ4 | Russian for Beginners Z4 | Z | 2 |
| The course is based on RZ3. It improves and expands the knowledge of general language in all four skills (reading and understanding longer texts with a certain percentage of unfamiliar words, oral communication in everyday situations, writing longer texts). Students are trained to use grammar structures effectively (e.g., irregular verbs, differences in verb patterns from Czech, modality, imperatives, conditionals). They practice and develop communication skills for everyday situations (food, travelling, free time), and practice oral and written communication on more specific topics (environment, addictions, the green movement). They become acquainted with various geographical data (e.g., Siberia), learn how to fill in forms, look up the information from the timetable, learn about Russian holidays and typical meals. | | | |
| 04XRZ5 | Russian for Beginners Z5 | Z | 2 |
| The course expects the student to have completed RZ4. It concentrates predominantly on reading skills (working with professional texts, i.e. understanding, extracting and summarizing information from a specialized text) and speaking, and to a certain extent, writing about the professional information obtained by reading the texts. Communication skills are trained on everyday topics. Studying grammar is based on professional and technical texts and only includes items typically used in professional communication (verbal adjectives, participles, passive voice). Students develop their technical and economic vocabulary, and are also trained in some professional skills (writing a CV, polite request, etc.) | | | |
| 04XSM1 | Spanish for Intermediate Students M1 | Z | 2 |
| The course is designed for students whose competence is at level B1 of CEFR, i.e. those who studied Spanish in the secondary school. The 3-semester course develops standard vocabulary and pays attention to further grammar topics (e.g., perífrasis verbales, futuro imperfecto, direct object and indirect object pronouns, negative form of the imperative, and subjunctive), to written and oral communication on a given everyday or easy subtechnical topic, for which the students are trained by reading texts or listening to them. | | | |
| 04XSM2 | Spanish for Intermediate Students M3 | Z | 2 |
| The course develops the students´ knowledge from the previous course (SM1). Students are gradually acquainted with fundamentals of Spanish for specific purposes in order to be able to work with specialized texts on the Internet. | | | |
| 04XSM3 | Spanish for Intermediate Students M3 | Z | 2 |
| The course books are supplemented with additional subtechnical materials, so the students will be gradually acquainted with the peculiarities of academic style. They will be competent enough to use the Internet in Spanish and search for information of their specialization or field of interest. Students will use the information to write short articles and summaries. The final part of the programme, general Spanish course based on course books, covers presentations and, finally, a written and oral examination. | | | |
| 04XSP1 | Spanish for Advanced Students P1 | Z | 2 |
| Course concentrates on more difficult grammar topics, revision of vocabulary, basics of Spanish for specific purposes as well as written communication. Course prerequisites: level B2 of CEFR. | | | |
| 04XSP2 | Spanish for Advanced Students P2 | Z | 2 |
| Course SP2 is the second part of the advanced Spanish course, extending Spanish for specific purposes topics. It comprises more grammar and syntax and focuses on independent written communication. | | | |
| 04XSP3 | Spanish for Advanced Students P3 | Z | 2 |
| Course SP3 is the final part of the advanced Spanish course. It is based on texts chosen by the students according to their future specialization. It is focused on written communication based on what students will need in their career. | | | |
| 04XSZ1 | Spanish for Beginners Z1 | Z | 2 |
| Course SZ1 is the first stage of the five-semester programme of Spanish studies; during the first stage the students will master phonetics and fundamental grammar structures and will be able to communicate at an elementary level on topics of everyday life. They will acquire and extend fundamental vocabulary of general Spanish and will develop it. | | | |
| 04XSZ2 | Spanish for Beginners Students Z2 | Z | 2 |
| Course SZ2 is based on course SZ1, and expects students to develop and extend the knowledge and skills acquired so far. Grammar structures and lexis will be chosen so as to enable them to understand short adapted written texts and speech. Attention is also paid to cultural differences between Spanish-speaking countries and others such as the Czech Republic. Realia of Spanish-speaking countries are also included. | | | |
| 04XSZ3 | Spanish for Beginners Z3 | Z | 2 |
| The course is based on course SZ2, and develops the student´s vocabulary and grammar structure. The course covers realia (history and culture) of the Spanish-speaking countries, mainly of Spain. It pays attention to further grammar topics (pretérito perfecto, pretérito indefinido, pretérito imperfecto, the gerund and the imperative). It includes written and oral communication on a given general topic, for which the student is trained by reading texts or listening to them. | | | |
| 04XSZ4 | Spanish for Beginners Z4 | Z | 2 |
| The course is based on course SZ3. It develops the student´s vocabulary and extends the knowledge of the culture and social customs of the Spanish speaking countries, mainly of Spain. It pays attention to further grammar topics (perífrasis verbales, futuro imperfecto, direct object and indirect object pronouns, negative form of the imperative, and subjunctive), to written and oral communication on a given general or subtechnical topic, for which the student is trained by reading texts or listening to them. | | | |
| 04XSZ5 | Spanish for Beginners Z5 | Z | 2 |
| The course books are supplemented with additional subtechnical materials, so the students will be gradually acquainted with peculiarities of Spanish for specific purposes. In its final part, the general Spanish course based on the course book will end with presentations and, finally, a written and oral examination. | | | |

## List of courses of this pass:

| Code | Name of the course | Completion | Credits |
|---|---|---|---|
| 00EKOT | Economy in Technology | Z | 1 |
| The course introduces the basics of micro- and macroeconomics. | | | |
| 00ETV | Ethics of Science and Technology | Z | 1 |
| 00MAM1 | Essentials of High School Course 1 | Z | 1 |
| Students are introduced to mathematical concepts and methods used in the introductory physics course. | | | |

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| 00MAM2 | Essentials of High School Math Course 2 | Z | 1 |
| | Review of basics of high school mathematics. | | |
| 00PT | Preparatory Week | Z | 2 |
| 00RET | Rhetoric | Z | 1 |
| | The course is focused on the acquisition of speech and voice techniques and on the rules of correct pronounciation. The course is also devoted to the composition of public speech as well as to its nonverbal aspects. Stylistics exercises, strategies for coping with stage-fright and a short excursion into the history of rhetoric are an integral part of the course. | | |
| 00UPRA | Introduction to Law | Z | 1 |
| 00UPSY | Introduction to Psychology | Z | 1 |
| 01BASE | Bachelor Seminar | Z | 1 |
| | In the first part of the seminar, students familiarize themselves with the general principles of publishing and presenting scientific work and the formal requirements for bachelors degree projects at the faculty. The second part is designed as a practical training for the defense of the bachelors degree project. The students give oral presentations of the current state of the research results achieved during the work on their projects. Each presentation is followed by a discussion on scientific matters as well as on the possibilities of improving the students performance. | | |
| 01BPAI1 | Bachelor's Degree Project 1 | Z | 5 |
| | Bachelor's Degree project on the selected topic under the supervision. Supervision and regular checking of the bachalor project under preparation. | | |
| 01BPAI2 | Bachelor's Degree Project 2 | Z | 10 |
| | Bachelor's Degree project on the selected topic under the supervision. Supervision and regular checking of the bachalor project under preparation. | | |
| 01DEM | History of Mathematics | Z | 1 |
| | The subject has the form of regular seminars where the members of the department of mathematics, but also invited speakers - specialists in the field - give their talks on varoius topics from the history of mathematics. | | |
| 01DIM1 | Discrete Mathematics 1 | Z | 2 |
| | The seminar is devoted to elementary number theory and applications. It includes individual problem solving. | | |
| 01DIM2 | Discrete Mathematics 2 | Z | 2 |
| | The seminar is devoted to recurrence relations. It includes individual problem solving. | | |
| 01EIG | Elementary Introduction to Graph Theory | ZK | 3 |
| | The course provides an explanation of basics of graph theory, followed by a survey of common graph algorithms. | | |
| 01JEPR | Simple Compilers | Z | 2 |
| | Lexical and syntax analysis, code generation, simple optimizations, development environments, reflection. | | |
| 01MAT1 | Mathematics 1 | Z | 4 |
| | The course is devoted to the study of the basics of calculus of one variable. It includes an introduction to differential and integral calculus, with particular emphasis on applications in practical problems. | | |
| 01MAT2 | Mathematics 2 | Z | 4 |
| | The course, which is the continuation of Mathematics 1, is devoted to the integration techniques, improper Riemann integral, introduction to parametric curves (especially in polar coordinates), the basics of sequences and infinite series, and finally to the Taylor and power series and their applications. | | |
| 01MAT3 | Mathematics 3 | Z,ZK | 4 |
| | The subject summarises the most important notions and theorems related to the study of finite-dimensional vector spaces. | | |
| 01MAT4 | Mathematics 4 | Z,ZK | 4 |
| | Linear and non-linear differential equations of the first order. Linear differential equations of higher order with constant coefficients. Multivariable calculus and its applications. | | |
| 01MATZ1 | Mathematics, Examination 1 | ZK | 2 |
| 01MATZ2 | Mathematics, Examination 2 | ZK | 2 |
| 01PERI | Programming of Peripherals Devices | Z | 2 |
| | Memory organization, input and output ports, computer bus. Software libraries for computer peripherals, 3D graphic libraries. Principles of peripherals device drivers. | | |
| 01PGR1 | Computer Graphics 1 | Z,ZK | 2 |
| | The first part of the two-semester "Computer Graphics" course is devoted to the specifics of digital display devices spanning from history up to the state of the art technologies. Further, a survey of fundamental problems in 2D computer graphics is given together with their solutions. Focus is put on mathematical description of problems and explanation of the corresponding algorithms using knowledge previously obtained in a variety of subjects available at FNSPE. The final part of the course covers the applications of computer graphics approaches in the process of authoring scientific documents and presentations. | | |
| 01PGR2 | Computer Graphics 2 | Z,ZK | 2 |
| | The second part of the two-semester "Computer Graphics" course begins with a brief introduction to signal theory in the context of aliasing - a phenomenon ubiquitous in computer graphics. Further, a well structured survey of fundamental problems in 3D computer graphics is given together with their solutions, from the description of a 3D scene to its realistic rendering. Focus is put on mathematical description of problems and explanation of the corresponding algorithms using knowledge previously obtained in a variety of subjects available at FNSPE. The algorithm implementation aspect such as data structures design etc. is also a matter of concern. In the last lecture, a number of theoretical concepts are demonstrated using Blender, an open-source 3D modeling and rendering software instrument. | | |
| 01PSL | LaTeX - Publication Instrument | Z | 2 |
| | The course is devoted to the basics and facilities of computer typography, particularly to the system LaTeX | | |
| 01PW | Windows Programming | Z | 2 |
| | Simple graphical programs for MS Windows. Basic editing controls. File input and output. User defined components, dynamic type identification and reflection. | | |
| 01SITE1 | Computer Networks 1 | Z | 2 |
| | Understanding the history and present network (LAN, WAN, use the principles and technologies). Architecture of reference model ISO/OSI. Network protocols, practical exercises with TCP/IP communications. Internet services - mail, remote access, www. Secure communication, tunneling. Directory services, certificates, certification authorities, public key infrastructure (PKI). Use in practice. Network security - firewalls (packet filters, proxies, gateways, NAT, DMZ), practical exercises. (According to the interest - the serial control lines, modems) | | |
| 01SITE2 | Computer Networks 2 | Z | 2 |
| | Understanding the history and present network (LAN, WAN, use the principles and technologies). Architecture of reference model ISO/OSI. Network protocols, practical exercises with TCP/IP communications. Internet services - mail, remote access, www. Secure communication, tunneling. Directory services, certificates, certification authorities, public key infrastructure (PKI). Use in practice. Network security - firewalls (packet filters, proxies, gateways, NAT, DMZ), practical exercises. (According to the interest - the serial control lines, modems) | | |
| 01SOS1 | Software Seminar 1 | Z | 2 |
| | Java, Java Beans, Assembly language programming for microprocessors Intel 80x86 | | |
| 01SOS2 | Software Seminar 2 | Z | 2 |
| | Graphical libraries GTK+ and Qt. Development of graphical user interface using C and C++ programming languages. Portable applications for Unix like operating systems, especially for Linux systems. Portability to Microsoft Windows. | | |

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| 01UOP | Introduction to Object Programming | ZK | 2 |
| Object oriented programming languages. Object oriented programming libraries for graphics, databases and distributed systems. | | | |
| 01UP1 | Introduction to Probability 1 | Z,ZK | 3 |
| 1.Random trial with finite set of possible results, classical probability, independent random events 2.Probability and combinatorics 3.Probability and geometry, Bertrands paradox 4.Conditional probability, Bayes theorem, medical diagnosis, Simpsons paradox 5.Random variable with discrete state space, its distribution and mean value 6.Problems involving the calculation of mean value 7.Probabilistic method in graph theory 8.Random algorithms, Morris algorithm and its variants | | | |
| 01UP2 | Introduction to Probability 2 | Z,ZK | 3 |
| 1. One-dimensional continuous random variable and its statistical description. 2. Distribution function and probability density. 3. Axiomatic introduction of probability and connection to measure theory. 4. Numerical characteristics of continuous random variables. 5. Selected variants of continuous distributions and their characteristics. 6. Elementary methods for point estimations. 7. Generating pseudorandom numbers from the selected distribution. | | | |
| 01UTEI | Introduction to Theoretical Informatics | ZK | 3 |
| 01ZAOS | Introduction to Operating Systems | Z,ZK | 2 |
| Introduction to structure of operating systems. Processes, thread, memory management. Synchronization of multi-threaded applications. Memory mapped files. | | | |
| 01ZPB1 | Introduction to Computer Security 1 | Z | 2 |
| 02DEF1 | History of Physics 1 | Z | 2 |
| Physics and its place in the system of sciences. The relationship of man and nature. Natural sciences in ancient Orientand Greece, Greek natural philosophers, Aristotle. Physics in Helenistic period, Archimed. Arabic science, European science in Middle Ages. Renaissance - da Vinci, Giordano Bruno. Copernicus, Kepler, Galileo, Huygens. The birth of physics as experimental science. Newton and his work. | | | |
| 02FY1 | Physics 1 | Z,ZK | 4 |
| History, principles and applications of mechanics, waves and thermodynamics ? basic level. The lecture is supplemented with practical investigation and demonstration of selected physical phenomena. | | | |
| 02FY2 | Physics 2 | Z,ZK | 4 |
| Thermodynamics, electricity and magnetism, modern physics. The lecture is supplemented with practical investigation and demonstration of selected physical phenomena. | | | |
| 04AP3KK | Course in Communication Skills - Final Examination | ZK | 2 |
| The course content is the examination as given by the study plan. Final examination 04AP3KK covers syllabi of all three courses in communication skills. It is usually oral, but a written test may be administered. Examination requirements are similar to those of state examination. Student will be able to engage in communication and discussion on a given topic, using appropriate vocabulary and grammar structures. | | | |
| 04APA | Course in Applied English Usage | Z | 1 |
| To sign in for the course, student will have passed final examination in Course in Language Structures (04APSK). The course concludes study of grammar structures and applies them to understanding everyday and ESP language situations, laying stress on choice of exact and adequate language and grammar structures in both English-Czech and Czech-English translations.. | | | |
| 04APAK | Course in Applied English Usage - Examination | ZK | 2 |
| The course content is the examination as given by the study plan. Written and oral parts of the examination test skills and knowledge acquired in course 04APA. Duration: written part - 100 minutes, oral part - ca 30 minutes. | | | |
| 04API | Presentation Course | Z | 2 |
| The course will prepare students for presenting issues in their field by mastering the strategies and techniques of oral presentation. The course includes discussions (expressing views, comments, agreement, disagreement). Students will be able to respond to comments on their presentation and answer questions addressed to them after the presentation, which is a skill required for the defence of the Bachelor Project. Students will learn the basic structure of a Bachelor Project and rules for writing a paper. | | | |
| 04APJP | Language Support to Bachelor Project | Z | 5 |
| To sign in for the course students will have passed all the English courses from the previous 5 semesters. The course instructs students in the strategy of writing, submitting, presenting, and defending the Bachelor Project in English. Their progress is continuously monitored and assessed. To finish the course, students will give a presentation of their Bachelor Project. | | | |
| 04APK1 | Course in Communication Skills 1 | Z | 2 |
| The course will develop communication strategy and skills of student acquired at secondary school or elsewhere. Competence at B1 level of CEFR is a prerequisite for registering for the course. It runs for 3 semesters, being a core course of the Applied Information Technology programme. It will develop student´s communication skills in an integral form (e.g., listening and discussion on a topic). The list of topics is similar to that of the State Language Examination. Student will develop their vocabulary for various communication situations and will master their communication strategy. He/she will be trained to express his/her ideas clearly and according to current English usage. | | | |
| 04APK2 | Course in Communication Skills 2 | Z | 2 |
| The course is also concerned with developing speaking skills in English acquired at secondary school and course 04APK1. Speaking skills will be trained alongside listening skills. Topics will concentrate on everyday life and cover topics of the State Language Examination, stressing mastery of speaking strategy in various situations. The course will emphasise developing student´s vocabulary, ability to express thoughts with accuracy in correct English. | | | |
| 04APK3 | Course in Communication Skills 3 | Z | 1 |
| The last semester of conversation course. Student will further develop his/her speaking skills to be able to use English competently, speak about topics covered by previous courses without making mistakes and making use of appropriate vocabulary. | | | |
| 04APKK | Course in Communication Skills - Examination | ZK | 1 |
| The course content is the examination as given by the study plan. The examination tests how well student has mastered vocabulary and facts of courses 04APK1 and 04APK2. The examination consists of two parts - written (duration 100 minutes), and oral (about 30 minutes). | | | |
| 04APO1 | Text Analysis and Comprehension | Z | 2 |
| The course is a sequel to the 04APU1 and 04APU2 courses and students will have successfully passed the 04APS2 course. It focuses on further written functions specific to English for Specific Purposes (ESP). Increasing attention is given to extending subtechnical vocabulary, text grammar and text comprehension. Students are taught how to use formal language in written and oral communication. | | | |
| 04APO2 | Text Analysis and Comprehension 2 | Z | 1 |
| The course is a sequel to course 04APO1 and focuses on guided writing (e.g., note-taking, précis, abstract). It is intended as preparation for writing the bachelor´s project by developing text grammar practice and acquainting with basics of English punctuation. | | | |
| 04APOK | Text Analysis and Comprehension - Examination | ZK | 1 |
| The course content is the examination as given by the study plan. To be eligible to take the examination students will have successfully completed the 04APO1 and 04APO2.courses The examination consists of two parts: written (duration 100 minutes) and oral (about 30 minutes). Students will prove they can use and apply the knowledge and skills acquired in both courses. | | | |
| 04APR1 | Life and Institutions of English-speaking Countries and the CR 1 | Z | 2 |
| The course is aimed at preparing the student for the state language examination and is based on topics required for this examination. Great emphasis is placed on training oral presentation of facts about English speaking-countries in comparison with the Czech Republic. The course covers one third of topics for the state language examination. | | | |

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| 04APR2 | Life and Institutions of English-speaking Countries and the CR 2 | Z | 2 |
| The course following the 04APR1 course is again aimed at preparing the student for the state language examination and is based on topics required for this examination. Great emphasis is placed on training oral presentation of facts about English speaking-countries in comparison with the Czech Republic. The course covers two remaining thirds of topics for the state language examination. | | | |
| 04APRK | Life and Institutions of English-speaking Countries and the CR - Examination | ZK | 3 |
| The course content is the examination as given by the study plan. To be eligible to take the examination students will have successfully completed the 04APR1 and 04APR2.courses The examination consists of two parts: written (duration 100 minutes) and oral (about 30 minutes). Students will prove they can use and apply the knowledge and skills acquired in both courses. | | | |
| 04APS1 | Course in Language Structures 1 | KZ | 3 |
| The course is designed to instruct how to correctly use and to revise English grammar structures acquired by student at secondary school, develop them, view them as a system of communication and strengthen them. The required level for registration is B1 of CEFR. The course stresses mainly frequency of structures and those difficult to master by Czech students. | | | |
| 04APS2 | Course in Language Structures 2 | KZ | 3 |
| The course 04APS2 is a sequel to course 04APS1. Its purpose is also to correctly use and revise further English grammar structures as acquired and develop them. | | | |
| 04APS3 | Course in Language Structures 3 | Z | 1 |
| The course 04APS3 is a sequel to course 04APS2. Its purpose is also to correctly use and revise further English grammar structures as acquired by student, to develop them and use in practice. | | | |
| 04APSK | Course in Language Structures - Final Examination | ZK | 2 |
| The course content is the examination as given by the study plan. To register for final examination 04APSK student will have passed a 3-semester programme comprising courses 04APS1, 04APS2, and 04APS3. It consists of two parts: written (duration 100 minutes) and oral (duration about 30 minutes). Student will demonstrate he/she has mastered English grammar and can reliably use it in practice as well as explain why a rule applies. | | | |
| 04APSZK | English - State Examination | ZK | 5 |
| The course content is the examination as given by the study plan. Student is eligible for the State language examination (level C1 or B2 of CEFR) only if he/she has passed all the respective courses and examinations (04AP3KK, 04APAK, 04API, and 04APRK). From its first semester, part of the APIN programme covers also examination subjects. As required, examination conditions comply with respective rules and regulations for state language examinations. | | | |
| 04APU1 | Introduction to English for Specific Purposes 1 | Z | 2 |
| The course will introduce student into English for Specific Purposes (ESP) and acquaint him/her with its functions in subtechnical or easy technical texts. It brings vocabulary and functions typical of ESP and it introduces student to basic mathematics and information technology terms. | | | |
| 04APU2 | Introduction to English for Specific Purposes 2 | Z | 2 |
| The course 04APU2 is a sequel to course 04APU, concentrating more thoroughly on ESP text content, text grammar and vocabulary. It introduces more advanced functions typical of ESP and more advanced information technology terms. | | | |
| 04APUK | Introduction to English for Specific Purposes - Examination | ZK | 1 |
| The course content is the examination as given by the study plan. Examination 04APUK consists of two parts - written part (duration 100 minutes) and oral part (duration about 30 minutes) and covers a 2-semester programme. To be eligible for examination, student will have passed courses 04APU1 and 04APU2 and the examination test in written part. Student has to prove he/she can use the acquired basic knowledge and skills typical of English for Specific Purposes (ESP). | | | |
| 04JPBP | Language Support to Bachelor Project | Z | 3 |
| To sign in for the course students will have passed all the English courses from the previous 5 semesters. The course instructs students in the strategy of writing, submitting, presenting, and defending the Bachelor Project in English. Their progress is continuously monitored and assessed. To finish the course, students will give a presentation of their Bachelor Project. | | | |
| 04XAM1 | English for Intermediate Students M1 | Z | 2 |
| The course is designed for students who have successfully completed the full secondary school English language course at least at the A2 level of the Common European Framework of Reference for Languages (CEFR). It provides an introduction into English for Specific and Academic Purposes (ESP, EAP), i.e., into fundamentals of vocabulary and style typical of professional oral and written communication situations. Thus it covers topics related to the student´s life and needs as well as topics of subtechnical interest. Attention is also paid to extending the knowledge of grammar issues used in EAP. | | | |
| 04XAM2 | English for Intermediate Students M2 | Z | 2 |
| The AM2 course expects the student to have completed the AM1 course. It develops their skills for work with subtechnical texts, focusing also more on specific grammar, functions, and lexical items typical of ESP and EAP (e.g., definition, existence and classification of phenomena, object descriptions). Part of the course is also guided writing. If necessary, grammar revision is included. | | | |
| 04XAM3 | English for Intermediate Students M3 | Z | 2 |
| The course develops the skills that enable students to cope with features typical of professional style. Increasing attention is paid to developing subtechnical vocabulary and independent understanding of professional texts. Great emphasis is placed on distinguishing different levels of formal and informal oral and written communication and their appropriate Czech equivalents. The course also includes studying abstracts and rules for writing them as well as basic rules for preparing and giving a short presentation on a chosen topic related to the student´s field. | | | |
| 04XAP1 | English for Advanced Students P1 | Z | 2 |
| The course is designed for students who have successfully completed the full secondary school English language course (at least the B1 level of the Common European Framework of Reference for Languages - CEFR). It provides an introduction into English for Specific and Academic Purposes (ESP, EAP), i.e., into the fundamentals of vocabulary, functions, grammar, and style typical of professional oral and written communication situations (fundamentals of terms in mathematics and physics, definitions, graph descriptions, etc). It also covers professional oral and written communication on topics related to the undergraduate´s life and needs. It develops skills for free professional writing (writing a CV, letter of application, polite request). If necessary, revision of selected grammar topics is included. | | | |
| 04XAP2 | English for Advanced Students P2 | Z | 2 |
| The AP2 course is based on AP1, thus extending the student´s skills for working with subtechnical texts, and even with professional texts of chosen branches of science. According to the students´ needs it concentrates on chosen grammar topics, but mainly intends to develop understanding of syntactic structures and typical rhetorical functions (e.g., various types of descriptions, and, if possible, a case study). Increasing emphasis is placed on the undergraduate´s independent work with and reading of linguistically more demanding materials. The course extends the student´s subtechnical vocabulary, and includes fundamental notions of chosen branches of science. It is focused on formal writing including the sentence and paragraph structure, linking, cohesion and coherence in texts. | | | |
| 04XAP3 | English for Advanced Students P3 | Z | 2 |
| The AP3 course is based on AP2 and expects the student to work without any guidance with authentic professional materials and to interpret the text. It includes training oral and written communication skills and functions (e.g., expressing an opinion, agreement, and objections; taking part in discussion, note-taking; summarizing, writing an abstract) and, if possible, also preparing a project on a given or chosen topic and presenting it. The course places emphasis on distinguishing levels of formal and informal language both in oral and written communication. | | | |
| 04XCESM1 | Czech for Foreigners - Intermediate 1 | Z | 2 |
| The course is focused on correct pronunciation, important morphological phenomena, prepositional phrases, and verb forms as well as on extending the student´s vocabulary for various social situations. | | | |

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| 04XCESM2 | Czech for Foreigners - Intermediate 2 | Z | 2 |
| The course develops the topics covered in CESM1 and is then focused on more difficult grammar phenomena. It practices writing, speaking, and reading skills and trains the student in understanding common abbreviations, abbreviated words, and mathematical terms and formulas. | | | |
| 04XCESM3 | Czech for Foreigners - Intermediate 3 | Z | 2 |
| The last course revises morphological topics covered earlier and extends the student´s knowledge of more difficult language phenomena. It is especially focused on stylistics and lexicology and on developing the student´s writing skills. | | | |
| 04XCESMZK | Czech for Intermediate Students Examination | ZK | 4 |
| The course content is the examination as given by the study plan. The examination consisting of a written and oral part covers all the topics of the CESM1,2,3 courses and can only be taken after successful completion of the 3 courses. Detailed information is to be obtained from the teacher. | | | |
| 04XCESP1 | Czech for Foreign Students - Advanced 1 | Z | 2 |
| The prerequisite of the course is very good knowledge of the Czech language, i.e., communicative competences at least at level B2 of the Common European Framework of Reference. It is focused partly on revision of standard language structures, but mainly on practising more complex grammatical structures typical of the style of science. Students are taught the basics of functional style of engineering and professional communication, both in spoken and written form. The topics include University Studies and Student Life. Written practice includes communication with teachers and faculty administrators. | | | |
| 04XCESP2 | Czech for Foreigners - Advanced 2 | Z | 2 |
| This course extends the student´s knowledge acquired in CESP1 and focuses on difficult language phenomena. It practises working with technical and specialist texts placing greater emphasis on individual work. | | | |
| 04XCESP3 | Czech for Foreigners - Advanced 3 | Z | 2 |
| The course develops the student´s knowledge from CESP2. It includes working with authentic specialist materials, their interpretation and presentation, and, finally, presentation of the student´s project. Writing skills necessary for professional communication are trained. | | | |
| 04XCESPZK | Czech for Foreign Students - Advanced Examination | ZK | 4 |
| The course content is the examination as given by the study plan. The examination consisting of a written and oral part covers all the topics of the CESP1,2,3 courses and can only be taken after successful completion of the 3 courses. Detailed information is to be obtained from the teacher. | | | |
| 04XCESZ1 | Czech for Foreigners - Beginners 1 | Z | 2 |
| The course is designed for students of the English programme. Students will become acquainted with the main characteristics of Czech (phonetic and grammar features) and they will acquire basic language and speaking skills. The course focuses on pronunciation exercises, simple social phrases, and oral and written communication in the most common everyday situations. The course covers roughly lessons 1-3 of Čeština Express (Czech Express) by L. Holá and P. Bořilová. | | | |
| 04XCESZ2 | Czech for Foreigners - Beginners 2 | Z | 2 |
| The language and communication competences acquired in CESZ1 are further developed. Students deepen their knowledge of the declension and conjugation system and practise basic communication topics. The course covers roughly lessons 3-5 in Czech Express by L. Holá and P. Bořilová. | | | |
| 04XCESZ3 | Czech for Foreigners - Beginners 3 | Z | 2 |
| The course further develops the language and communication competences acquired in the XCESZ1 and XCESZ2 courses. The teaching focuses on building up basic vocabulary, fixing correct pronunciation and deepening grammar, features through practice, as well as introducing the Czech culture. Students are asked to produce simple texts and they practise frequent types of dialogue. They also practise understanding texts in terms of main ideas or looking for specific details in texts. The course covers roughly lessons 5-7 in Čeština expres 1. | | | |
| 04XFM1 | French for Intermediate Students M1 | Z | 2 |
| French - intermediate FM The objective of this three-semester course is to improve and further develop communication in the French language in both written and oral form. Students will be able to communicate in social interaction and in academic, scientific and professional environment. They will be able to use the language to transmit general and technical information and to solve problems. FM1 The course builds on and further develops linguistic competence acquired at secondary school. It revises, systemizes and expands language skills gained in previous study. The following topics are covered: University studies in our country and in France, writing of transactional letters, CV, personal statement, request, answer to an advert, French culture and geography, Paris. Topics of specialization: mathematics, physics. Reading technical and popular science texts, work based on these texts. | | | |
| 04XFM2 | French for Intermediate Students M2 | Z | 2 |
| Course FM2 builds on FM1. Linguistic structures and competence acquired in previous study are systemized and expanded. Reading popular science texts, features typical for technical and scientific language (passives, nominalization, word formation). Topics: physics, power engineering, environment, Internet, success of French science and technology, French scientists, artists and architects. Description of an object, device, shapes, dimensions, material. | | | |
| 04XFM3 | French for Intermediate Students M3 | Z | 2 |
| The course is focused on improvement and further development of linguistic competence acquired during the follow-up courses. Syntactic structures (subordinate and infinitive clauses, participle structures, compound tenses). Text summary. -Students prepare a written paper which will be delivered in form of an oral presentation in-class. The paper is linked to the field of students´ future specialisation or to their interest and generally covers a technical /applied science topic. It is not a translation but a creative work compiled from French articles and one´s own knowledge/experience. -Longer monologues on topics /situations set for the examination are prepared. Text structure, cohesion and coherence. | | | |
| 04XFMZK | French for Intermediate Students Examination | ZK | 4 |
| The content is the examination as given by the study programme. The whole French programme is ended with an examination covering the contents of FM1-FM3. The examination consists of a written and oral part and is organized according to Examination Instructions, a document available on the web. | | | |
| 04XFP1 | French for Advanced Students P1 | Z | 2 |
| FP advanced course The objective of this three-semester course is to improve and further develop communication in the French language in both written and oral form. Students will be able to communicate in social interaction and in academic, scientific and work environment. They will be able to use the language to transmit general and technical information and to solve problems. FP1 The course builds on and further develops linguistic competence acquired at secondary school. Difficult grammar topics are repeated and expanded: subjonctif, passé composé-imparfait, pronouns. The following specific topics are covered: University studies in our country and in France, writing of transactional letters, CV, personal statement, request, answer to an advert, environmental issues, success of French science and technology, chosen topics from French regional culture, Paris. Topics of specialization: mathematics, internet, physics, chemistry. Reading of technical and popular science texts, further work with these texts and interpretation. | | | |
| 04XFP2 | French for Advanced Students P2 | Z | 2 |
| With the link to P1 contents, the course further develops language skills. Focus is put on reading popular science texts and on oral communication on given topics. Features typical of technical and scientific communication are stressed (passive voice, nominalization, word formation). | | | |
| 04XFP3 | French for Advanded Students P3 | Z | 2 |
| The course is focused on systemization and improvement of acquired linguistic competence, skills and knowledge, and their use for communication in engineering environment. Special skill - translation of shorter texts (both from and into the language). Writing of a paper and making oral presentation in-class. The paper generally covers a technical /applied science topic. It is a creative work compiled from 3 French sources. Preparation of several set topics for oral examination. | | | |
| 04XFPZK | French for Advanced Students Examination | ZK | 4 |
| The whole French program is ended with an examination covering the contents of FP1-FP3. The examination consists of a written and/or an oral part and is organized according to Examination Instructions, a document available on the web. Assessment of the presentation is included into the examination grading. | | | |

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| 04XFZ1 | French for Beginners Z1 | Z | 2 |
| French for beginners The objective of this 5-level course is to be able to communicate in French orally and in writing in situations of everyday life , in socializing and in professional life. The course includes French for specific / technical communication and reading of popular science and scientific texts. FZ1 The objective is to be able to communicate at elementary level, actively using the knowledge of chosen elementary language. The contents is roughly outlined by lessons 1 - 7 of the textbook Pravda - Pravdová, French for beginners (Francouzština pro začátečky). It is extended with situations of communication and functions from the textbook Espaces I, lessons 1-4 : introductions, personal information, asking and giving the directions, simple instructions and questions. Special attention is paid to pronunciation. Spelling is explained in connection with pronunciation and grammar. | | | |
| 04XFZ2 | French for Beginners Z2 | Z | 2 |
| The course is linking up with FZ1. Elementary linguistic knowledge and communication skills are expanded. The scope is given by lessons 8 - 13 of the textbook: Pravda - Pravdová : French for Beginners . Additional topics and skills are filled in from the textbook Espaces I, lesson 1 - 5 (introductions, invitation, welcoming, agreement - disagreement, apology, thanking, travelling, map of France, food, expression of will, wish, order, prohibition, pleasure). Correct pronunciation is practiced. Stress on oral communication. Specific topics covered: How does the machine work? A few expressions concerning the study. Name of University and Faculty. | | | |
| 04XFZ3 | French for Beginners Z3 | Z | 2 |
| The course builts upon FZ2. Basic linguistic knowledge and skills are developed. The contents is given by lessons 14 - 18 of the textbook: Pravda - Pravdová: French for Beginners. Topics, functions and situations are complemented from other materials. Stress is put on oral communication in dialogues and on reading, both for information and loud as part of pronunciation practice. Reading covers short adapted texts of general interest first, and later popular science texts. | | | |
| 04XFZ4 | French for Beginners Z4 | Z | 2 |
| The course builds up on FZ3. Basic linguistic knowledge and skills are further developed. Oral communication and reading skills are practiced. The contents is roughly covered with lessons 19 - 23 of the textbook French for Beginners, and is expanded with topics and functions from other materials. Reading is developed from the lecture notes French for Engineering Students of FJFI. The course covers generals and specific topics: health- illness, sport, free time, environment, study, travelling in France, Paris, shopping, weather, university in our country and in France, how to write CV, application, topics in mathematics, reading physics - mechanics, informatics, internet. | | | |
| 04XFZ5 | French for Beginners Z5 | Z | 2 |
| All four skills acquired in FZ4 are further developed, as well as technical language. Students prepare a paper on a chosen popular science topic. They present it orally in the class. The general contents is covered by lessons 24 - 26 of the textbook: Pravda-Pravdova, French for Beginners, and is complemented from other materials. Topics: on physics from lecture notes, success of French science and technology, information about France. Grammar is systemized and complemented with syntax (subordinate clauses, typical conjunctions, subjunctive clauses, gerund, passive. | | | |
| 04XFZZK | French for Beginners Examination | ZK | 3 |
| The content is the examination as given by the study plan. The course is terminated with an examination consisting of oral and written part. The examination is ruled by the document Instruction for examination. Its content covers the levels FZ1 - FZ5. | | | |
| 04XNM1 | German for Intermediate Students M1 | Z | 2 |
| The objective of the course is to level off the students´ skills in the German language. The course focuses on revision of more difficult phenomena and structures (e.g. the passive) and word formation processes (e.g. importance of verb prefixes). In the lexical part, it covers topics referring to higher education in both the Czech Republic and Germany, current environmental issues together with all necessary expressions and phrases, expressions and phrases needed to chemists, mathematicians, physicists, and the fundamentals of IT terminology. It develops communication on related topics and is aimed at correct pronunciation, grammatical correctness and understandability. | | | |
| 04XNM2 | German for Intermediate Students M2 | Z | 2 |
| The course introduces other more complex grammatical structures and their application in communication based on technical texts, such as the relation between technology and society, the world at the beginning of the 21st century, linguistically more demanding texts on the environment, the language of mathematics, computers and car technology etc. Students practise reading for information and reading aloud, and appropriate language for various purposes in oral and written communication. The course systematically revises other grammatical phenomena important for professional discourse (participles, relative clauses). | | | |
| 04XNM3 | German for Intermediate Students M3 | Z | 2 |
| The course introduces other more complex grammatical structures and their application in communication based on technical texts, such as the relation between technology and society, the world at the beginning of the 21st century, linguistically more demanding texts on the environment, the language of mathematics, computers and car technology etc. Students practise reading for information and reading aloud, and appropriate language for various purposes in oral and written communication. The course systematically revises other grammatical phenomena important for professional discourse (participles, relative clauses). | | | |
| 04XNMZK | German for Intermediate Students Examination | ZK | 4 |
| The course content is the examination as given by the study plan. The whole German for Intermediate Students Course is completed by an examination consisting of two parts - written and oral, which cover the courses NM1 - NM3. The oral part follows after passing the written part successfully and after obtaining the 04NM3 assessment. More detailed information is to be obtained from the teacher. | | | |
| 04XNP1 | German for Advanced Students P1 | Z | 2 |
| This course requires good grammar knowledge, extended general vocabulary, and good communication skills acquired at secondary school to be levelled off at the beginning of the course. The course is then focused on working with technical and scientific texts and practising reading techniques (skimming, scanning, reading for detail). It revises and develops more difficult grammar structures necessary for understanding a subtechnical text (passive voice, participles, participle structures) and it also focuses on practical everyday communication, i.e., telephoning. | | | |
| 04XNP2 | German for Advanced Students P2 | Z | 2 |
| The course develops the students' skills in working with professional scientific texts (understanding, summarising, note-taking, interpreting) while extending their general and subtechnical vocabulary range. It introduces mathematical expressions and texts of nuclear power engineering. Increasing emphasis is placed on understanding and practising formal communication, both written and oral (CV, letter of application, interview, scholarship), and more complex grammatical structures (i.e., subjunctive, indirect speech). | | | |
| 04XNP3 | German for Advanced Students P3 | Z | 2 |
| The course consists of 3 main parts (general communicative situations, grammar and technical topics). Students will develop their vocabulary in a variety of less common situations (traffic problems and car accidents, accident report, filling in a form, complaints). Based on presentations and technical and subtechnical texts, the vocabulary range in fields such as nuclear power engineering, the environment, computer science, and car technology, will also be extended. Only authentic professional texts are used. By means of a presentation, students are trained to process information gained from their reading of complex and difficult texts and present it to the class in a simplified oral form. The course also includes translation practice to and from German. | | | |
| 04XNPZK | German for Advanced Students Examination | ZK | 4 |
| The course content is the examination as given by the study plan. The whole German for Advanced Students Course is completed by an examination consisting of two parts - written and oral, which cover the courses NP1 - NP3. The oral part follows after passing the written part successfully and after obtaining the 04NP3 ungraded assessment. More detailed information is to be obtained from the teacher. | | | |
| 04XRM1 | Russian for Intermediate Students M1 | Z | 2 |
| The course is designed for students with previous knowledge of Russian from secondary schools. Students are supposed to know the Russian alphabet (both printed and handwritten), basic vocabulary for communication in everyday situations (introductions, socializing, greetings, shopping for food and objects of everyday need, asking the way and giving directions), they can use basic grammar structures (verbal and nominal forms, irregular verbs, pronouns). The initial knowledge corresponds to the achievement level of the RZ2 course. The contents and scope of the course correspond approximately to the RZ3 course, but for half of the time allotted in the timetable. | | | |

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| 04XRM2 | Russian for Intermediate Students M2 | Z | 2 |
| The course is based on the RM1 course, its contents and scope correspond roughly to RZ4, however, for half of the time allotted in the timetable. | | | |
| 04XRM3 | Russian for Intermediate Students M3 | Z | 2 |
| The course develops the knowledge and skills acquired in RM1 and RM2 and its contents and scope are roughly at the same level as those of RZ5, however, for half of the time allotted in the timetable. | | | |
| 04XRMZK | Russian for Intermediate Students Examination | ZK | 4 |
| The course content is the examination as given by the study plan. The course is completed by taking a written and oral examination testing the knowledge and skills acquired in RM1 - RM3. Students are eligible for the oral examination only after a prior pass in RM3 and a successful written examination. Students are given instructions by the teacher. | | | |
| 04XRP1 | Russian for Advanced Students P1 | Z | 2 |
| The entrance requirement for the course is to achieve the B1 CEFR level. The objective of the course is revision of standard language structures, practicing more difficult grammar structures, understanding the fundamentals of technical language and training writing skills. | | | |
| 04XRP2 | Russian for Advanced Students P2 | Z | 2 |
| The course is based on RP1. It expands grammatical structures important for understanding technical texts (verbal adjectives, participles, passives, verb aspects, specific syntactic structures). Stress is put on independent oral and written communication. | | | |
| 04XRP3 | Russian for Advanced Students P3 | Z | 2 |
| The course is based on RP2 and is mainly focused on working with technical and scientific texts (reading comprehension, oral and written paraphrasing, translation). The RP1 - RP3 courses require good previous knowledge of general language at secondary level (listening, reading, correct communication in everyday situations). The courses develop and expand these skills. Further study is aimed at professional and technical skills (reading technical literature according to the students´ specialization, oral and written interpretation). Students develop their subtechnical vocabulary and practice quick and correct communication in professional situations. They will be able to both speak write accurately and with confidence on technical topics. | | | |
| 04XRPZK | Russian for Advanced Students Examination | ZK | 4 |
| The course content is the examination as given by the study plan. The course is completed by taking a written and oral examination testing the knowledge and skills acquired in RP1 - RP3. Students are eligible for the oral examination only after a prior pass in RP3 and a successful written examination. Students are given instructions by the teacher. | | | |
| 04XRZ1 | Russian for Beginners Z1 | Z | 2 |
| The course represents the first stage of the five-semester programme, its final aim being reading and understanding professional texts written in Russian. Thus it begins with mastering the Russian alphabet (for both reading and writing skills) and fundamentals of grammar necessary for everyday communication (listening and speaking). Students will be able to read a short text with marked stress, understand its contents and summarize it. | | | |
| 04XRZ2 | Russian for Beginners Z2 | Z | 2 |
| The second semester of the programme is designed to teach skills for basic communication in everyday situations and for reading easy and short subtechnical texts. Students will be able to communicate using short sentences and appropriate structures, and read aloud with confidence a short text without marked stress. They will also develop their vocabulary and master further grammatical structures. They will have mastered with confidence the Russian alphabet and will be able to use it in writing. | | | |
| 04XRZ3 | Russian for Beginners Z3 | Z | 2 |
| The course is based on RZ2 and includes further everyday topics, develops understanding of short compact texts on new subtechnical topics (for training various forms of reading skills and listening) and introduces new grammar. Students will be trained to distinguish intonation patterns while listening to spoken language. They will be able to respond so as to be understood, and to express their opinion. Writing skills will be trained on guided writing tasks and note-taking. | | | |
| 04XRZ4 | Russian for Beginners Z4 | Z | 2 |
| The course is based on RZ3. It improves and expands the knowledge of general language in all four skills (reading and understanding longer texts with a certain percentage of unfamiliar words, oral communication in everyday situations, writing longer texts). Students are trained to use grammar structures effectively (e.g., irregular verbs, differences in verb patterns from Czech, modality, imperatives, conditionals). They practice and develop communication skills for everyday situations (food, travelling, free time), and practice oral and written communication on more specific topics (environment, addictions, the green movement). They become acquainted with various geographical data (e.g., Siberia), learn how to fill in forms, look up the information from the timetable, learn about Russian holidays and typical meals. | | | |
| 04XRZ5 | Russian for Beginners Z5 | Z | 2 |
| The course expects the student to have completed RZ4. It concentrates predominantly on reading skills (working with professional texts, i.e. understanding, extracting and summarizing information from a specialized text) and speaking, and to a certain extent, writing about the professional information obtained by reading the texts. Communication skills are trained on everyday topics. Studying grammar is based on professional and technical texts and only includes items typically used in professional communication (verbal adjectives, participles, passive voice). Students develop their technical and economic vocabulary, and are also trained in some professional skills (writing a CV, polite request, etc.) | | | |
| 04XRZZK | Russian for Beginners Examination | ZK | 3 |
| The course content is the examination as given by the study plan. The course is completed by taking a written and oral examination testing the knowledge and skills acquired in RZ1 - RZ5. Students are eligible for the oral examination only after a prior pass in RZ5 and a successful written examination. Students are given instructions by the teacher. | | | |
| 04XSM1 | Spanish for Intermediate Students M1 | Z | 2 |
| The course is designed for students whose competence is at level B1 of CEFR, i.e. those who studied Spanish in the secondary school. The 3-semester course develops standard vocabulary and pays attention to further grammar topics (e.g., perífrasis verbales, futuro imperfecto, direct object and indirect object pronouns, negative form of the imperative, and subjunctive), to written and oral communication on a given everyday or easy subtechnical topic, for which the students are trained by reading texts or listening to them. | | | |
| 04XSM2 | Spanish for Intermediate Students M3 | Z | 2 |
| The course develops the students´ knowledge from the previous course (SM1). Students are gradually acquainted with fundamentals of Spanish for specific purposes in order to be able to work with specialized texts on the Internet. | | | |
| 04XSM3 | Spanish for Intermediate Students M3 | Z | 2 |
| The course books are supplemented with additional subtechnical materials, so the students will be gradually acquainted with the peculiarities of academic style. They will be competent enough to use the Internet in Spanish and search for information of their specialization or field of interest. Students will use the information to write short articles and summaries. The final part of the programme, general Spanish course based on course books, covers presentations and, finally, a written and oral examination. | | | |
| 04XSMZK | Spanish for Intermediate Students Examination | ZK | 4 |
| The course content is the examination as given by the study plan. SMZK examination consists of two parts - written and oral; to be eligible for the written part, students will have obtained non-graded assessment for course SM3.Oral examination follows the written part. | | | |
| 04XSP1 | Spanish for Advanced Students P1 | Z | 2 |
| Course concentrates on more difficult grammar topics, revision of vocabulary, basics of Spanish for specific purposes as well as written communication. Course prerequisites: level B2 of CEFR. | | | |
| 04XSP2 | Spanish for Advanced Students P2 | Z | 2 |
| Course SP2 is the second part of the advanced Spanish course, extending Spanish for specific purposes topics. It comprises more grammar and syntax and focuses on independent written communication. | | | |

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| 04XSP3 | Spanish for Advanced Students P3 | Z | 2 |
| Course SP3 is the final part of the advanced Spanish course. It is based on texts chosen by the students according to their future specialization. It is focused on written communication based on what students will need in their career. | | | |
| 04XSPZK | Spanish for Advanced Students Examination | ZK | 4 |
| The course content is the examination as given by the study plan. Examination SPZK consists of two parts, namely oral and written. The prerequisite for admission to oral part is having passed the written test. Examination content is based on syllabi of courses SP1, SP2, and SP3 or on an individual study plan of the student. | | | |
| 04XSZ1 | Spanish for Beginners Z1 | Z | 2 |
| Course SZ1 is the first stage of the five-semester programme of Spanish studies; during the first stage the students will master phonetics and fundamental grammar structures and will be able to communicate at an elementary level on topics of everyday life. They will acquire and extend fundamental vocabulary of general Spanish and will develop it. | | | |
| 04XSZ2 | Spanish for Beginners Students Z2 | Z | 2 |
| Course SZ2 is based on course SZ1, and expects students to develop and extend the knowledge and skills acquired so far. Grammar structures and lexis will be chosen so as to enable them to understand short adapted written texts and speech. Attention is also paid to cultural differences between Spanish-speaking countries and others such as the Czech Republic. Realia of Spanish-speaking countries are also included. | | | |
| 04XSZ3 | Spanish for Beginners Z3 | Z | 2 |
| The course is based on course SZ2, and develops the student´s vocabulary and grammar structure. The course covers realia (history and culture) of the Spanish-speaking countries, mainly of Spain. It pays attention to further grammar topics (pretérito perfecto, pretérito indefinido, pretérito imperfecto, the gerund and the imperative). It includes written and oral communication on a given general topic, for which the student is trained by reading texts or listening to them. | | | |
| 04XSZ4 | Spanish for Beginners Z4 | Z | 2 |
| The course is based on course SZ3. It develops the student´s vocabulary and extends the knowledge of the culture and social customs of the Spanish speaking countries, mainly of Spain. It pays attention to further grammar topics (perífrasis verbales, futuro imperfecto, direct object and indirect object pronouns, negative form of the imperative, and subjunctive), to written and oral communication on a given general or subtechnical topic, for which the student is trained by reading texts or listening to them. | | | |
| 04XSZ5 | Spanish for Beginners Z5 | Z | 2 |
| The course books are supplemented with additional subtechnical materials, so the students will be gradually acquainted with peculiarities of Spanish for specific purposes. In its final part, the general Spanish course based on the course book will end with presentations and, finally, a written and oral examination. | | | |
| 04XSZZK | Spanish for Beginners Examination | ZK | 3 |
| The course content is the examination as given by the study plan. Examination consists of two parts - written and oral. Student can register for oral examination only if he/she has passed the written examination test. | | | |
| 12NME1 | Numerical Methods 1 | Z,ZK | 4 |
| There are explained the basic principles of numerical mathematics important for numerical solving of problems important for physics and technology. Methods for solution of tasks very important for physicists (ordinary differential equations, random numbers) are included in addition to the basic numerical methods. Integrated computational environment MATLAB is used as a principle programming language as a demonstration tool. The seminars are held in computer laboratory. | | | |
| 12PAS | Computer Algebra Systems | Z | 2 |
| Practically oriented introduction to computer algebra systems (CAS): their main characteristics, ways and means of using them. Constituent part is realized in computer classrooms: students acquire basic skills with CAS by solving relatively simple and basic tasks from mathematics and physics. | | | |
| 12UNXAP | Introduction to UNIX | Z | 2 |
| Computer and operating systems. Personal computer, workstation and supercomputers. Processor, memory, bus, devices, hard disk, network interface. Hardware and software. Principles of operating systems. Operating system UNIX. Basic principles, kernel, kernel services. Documentation. File system, file atributes, working with files. Text editors: vi, emacs. Command interpreter (shell) bash and its programming (scripts). Controlling processes, process status, computer load a process priorities. Standard tools. Graphical user interface X-windows. Computer networks. Local computer networks. Global computer networks. Addresses and protocols TCP/IP. Network configutation of a computer. Network services: hardware sharing, mail, scp, etc. Network applications | | | |
| 12UVP | Introduction to Scientific Computing | Z | 2 |
| Practically oriented Introduction to scientific computing. Constituent part of the course is realized in computer classroom.Students get acquinted with some basic tools fort scientific and technicval computing, data analysis, data visualisation and algorithm development. | | | |
| 12ZEL1 | Basic Electronics 1 | Z,ZK | 3 |
| The subject provides primary knowledge of circuit theory concerning principles of electronic circuits in both stationary and harmonic stable state. Circuit analysis methods for linear circuits include symbolic and complex method are explained. Proper circuit analysis is also lectured. The subject's final part deals with transient effects inside linear circuits. | | | |
| 12ZEL2 | Basic Electronics 2 | Z,ZK | 3 |
| The subject follows up with the Basic Electronics 1. Semiconductor elements basic properties are explained. Thecourse's final part deals with basic themes of logical circuits field. | | | |
| 18EKN | Econometrics | Z,ZK | 4 |
| Econometrics is based on economic theory and the relations between economic quantities are expressed by mathematical tools and observed data from economic reality. The course covers basic instruments of econometric analysis as the basic econometric model, the generalized model, the system of simultaneous equations and instruments for econometric model verification. | | | |
| 18INTA | Development of internet applications | KZ | 4 |
| The lectures provide an overview of modern technologies for the development of web applications. Students will learn basic web languages and concepts (HTML, URL, etc.) and they will also be introduced to relational database systems. The tutorials are dedicated to practical examples of building web applications, from the simplest to more advanced. The course is oriented primarily towards backend technologies and using the Python languages, but covers also frontend frameworks and JavaScript. | | | |
| 18MAK1 | Macroeconomics 1 | Z,ZK | 4 |
| Macroeconomics I provides students with a fundamental theoretical basis for understanding how an economy works. It introduces main macroeconomic indicators, money market, macroeconomic equilibrium theory, fundamentals of open economy theory, inflation, unemployment, economic growth, economic fluctuations, basic macroeconomic models of IS-LM, AS-AD and their implications for economic policies. The learning outcomes of the course is to equip students with ability to analyze macroeconomic phenomena and their interconnections and subsequently to use them under the conditions of modern economic life. | | | |
| 18MAK2 | Macroeconomics 2 | Z,ZK | 4 |
| Macroeconomics II extends theoretical knowledge acquired from Macroeconomics I of its students with the latest knowledge of contemporary macroeconomics. They are models of economic growth, especially those with an emphasis on the role of human capital and technological progress. Furthermore, it introduces students to modern principles of economic modeling, i.e., macroeconomic models derived from microeconomic behavior of subjects and economics and their rational expectations. It also provides students with modern knowledge of labor market modeling. | | | |
| 18MIK | Microeconomics | Z,ZK | 4 |
| Microeconomics is a set of theories, which help us to understand processes by which the scarce resources are allocated among alternative uses. Microeconomics explains the role of prices and markets in these processes and makes more clear behaviour of the economic agents. Lectures and seminars are designed so that the explanation of microeconomic concepts does not require knowledge of calculus. | | | |

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| 18PJ | Programming in Java | Z,ZK | 5 |
| | This course is devoted to the Java platform and to the development of the basic types of applications for this platform. | | |
| 18PMTL | Programming in MATLAB | KZ | 4 |
| | Introducing Matlab environment as efficient tool for computation in complex arrays and symbolic variables, namely for linear algebra, mathematic analysis, statistics, algorithmization and geometric representation of results. | | |
| 18PPY1 | Programming in Python 1 | Z | 2 |
| | This course introduces students to advanced features of the Python language and common scientific packages. The course covers both object-oriented as well as functional programming paradigms. The following part of the course describes the use of Python in the fields of scientific and technical computing (NumPy and SciPy packages), data processing and visualization. | | |
| 18PPY2 | Programming in Python 2 | Z | 2 |
| | This course introduces students to practical applications of the Python language in scientific as well as commercial fields. The course is a seminar where each presented topic is accompanied by a short demo of a real-world application in the specific field. | | |
| 18PPY3 | Programming in Python 3 | Z | 2 |
| | This advanced course is intended for students who have basic experience with programming in Python and using its libraries. It introduces students to advanced concepts of the Python language and modules they are based on. | | |
| 18PRC1 | Programming in C++ 1 | Z | 4 |
| | This course covers mainly the C programming language and non-object oriented features of the C++ language. | | |
| 18PRC2 | Programming in C++ 2 | KZ | 4 |
| | This course covers the object oriented programming and othesr advanced constructs in the C+;+ programming language and the Standard Template Library. | | |
| 18PROP | Practical training in programming | KZ | 3 |
| | The goal of this course is to understand advanced topics related to programming, code design and software project development. Students will practice pragmatic techniques and principles on concrete real-world examples. Emphasis is put on the review of freely available software tools that can improve the programmers work efficiency and ensure high quality of the final source code. | | |
| 18PW | Web environment and markup languages | KZ | 2 |
| | The course introduces students to fundamental principles and best practices for web design with respect to technical functionality, informational value, readability and usability. | | |
| 18ZALG | Basics of Algorithmization | Z,ZK | 4 |
| | This course is devoted to selected algorithms and methods for algorithm design. This course intruduces selected methods for the determination of the algorithm complexity. | | |
| 18ZPRO | Basics of Programming | Z | 4 |
| | This course is intended mainly for students with little or no experience in programming. It familiarizes the students with the basic concepts in programming and with the Python programming language. | | |
| TV-1 | Physical Education | Z | 1 |
| TV-2 | Physical Education | Z | 1 |
| TV-3 | Physical education | Z | 1 |
| TV-4 | Physical education | Z | 1 |

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