Study plan

Name of study plan: 1.blok bak.komb.09/10začátek

Faculty/Institute/Others:
Department:
Branch of study guaranteed by the department: Welcome page
Garantor of the study branch:
Program of study: Welcome page
Type of study: unknown combined
Required credits: 120
Elective courses credits: 0
Sum of credits in the plan: 120
Note on the plan:

Name of the block: Compulsory courses
Minimal number of credits of the block: 112
The role of the block: Z

Code of the group: 1.S.BK 07/08
Name of the group: 1.sem.bak.komb.od07/08
Requirement credits in the group: In this group you have to gain 28 credits
Requirement courses in the group: In this group you have to complete at least 6 courses
Credits in the group: 28
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
11ATGR	**Algebra and Graph Theory**	Z,ZK	5	2+2	Z	z
11GMR	**Geometry**	Z,ZK	5	2+2		z
11MTA1	**Mathematical Analysis 1**	Z,ZK	6	2+3		z
18TECK	**Technical Documentation**	KZ	4	10		z
12ZDIR	**Introduction to Transportation Engineering**	Z,ZK	5	2+2		z
14ZI	**Basic of Informatics**	KZ	3	0+2	Z	z

Characteristics of the courses of this group of Study Plan: Code=1.S.BK 07/08 Name=1.sem.bak.komb.od07/08

11ATGR	Algebra and Graph Theory	Z,ZK	5
Vector spaces, vectors, linear independence, bases. Matrices, rank, trace, linear mapping, special matrices. System of linear equation. Eigenvectors and eigenvalues of matrices, similar matrices, the characteristic matrix and characteristic polynomial of a matrix. Quadratic forms - diagonal form, associated symmetric matrix, signature, Sylvester´s Inertia Law. Basic definitions of Graph Theory (oriented graphs, walk, trail, path, cycle, trees).			
11GMR	Geometry	Z,ZK	5
Topographic surfaces, Orthogonal projection, axonometric projection (orthogonal axonometry, skew projection), perspective projection, curves - conic sections, examples of plane curves, basics of differential geometry of curves: parameterization, arc of the the curve, torsion and curvature, Frenet`s trihedron, surfaces of revolution, quadrics, ruled quadrics, etc.			
11MTA1	Mathematical Analysis 1	Z,ZK	6
Real and complex numbers. Sequences, real function of real variable, composite and inverse functions, limits, continuity, derivatives, differentials, investigation of functions for their properties. Integral calculus of functions of one variable with applications. Solution of ordinary differential equations, separation of variables.			
18TECK	Technical Documentation	KZ	4
12ZDIR	Introduction to Transportation Engineering	Z,ZK	5
Sort of traffic, basic parameter, development traffic system, safety traffic. Relation traffic and territory. Traffic planning. Traffic research and measurement. Prognostication traffic. Regulation and organization traffic. Segregation and integration city traffic. Territorial scheduling.			
14ZI	Basic of Informatics	KZ	3
Introduce to the faculty network and faculty information systems. Theory of information - basic terms. Number systems, conversions, analog / digital representation of the information. Architecture and activity of the numerical computing systems. Algorithms and their graphical flowchart representation. Algorithm development and solution finding by simple program languages. Engineer computation by specialized software - practical tasks. Classified credit examination.			

Code of the group: 2.S.BK 05/06
Name of the group: 2.sem.bak.komb.od05/06
Requirement credits in the group: In this group you have to gain 28 credits

Requirement courses in the group: In this group you have to complete at least 8 courses
Credits in the group: 28
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
11FZ1	**Physics 1**	Z,ZK	5	2+2		z
14KPPK	**Computer Aided Design 1 (AutoCAD Basic Steps)**	KZ	4	10		z
18KKM	**Metals and Metal Materials**	Z,ZK	3	2+1		z
13MT	**Macroeconomic Theory**	ZK	3	2+0		z
11MTA2	**Mathematical Analysis 2**	Z,ZK	4	2+2		z
18S	**Statics**	Z,ZK	4	2+1		z
16UDM	**Introduction to Transportation and Manipulation Technology**	ZK	3	2+0		z
17ZKP	**Introduction to Law**	KZ	2	2+0		z

Characteristics of the courses of this group of Study Plan: Code=2.S.BK 05/06 Name=2.sem.bak.komb.od05/06

11FZ1	Physics 1	Z,ZK	5
Kinematics. Dynamics of Particle, Systems of Particles and Rigid Body. Solids and Fluids. Thermodynamics. Electric Field.			
14KPPK	Computer Aided Design 1 (AutoCAD Basic Steps)	KZ	4
Determination of "CAD Systems" term. CAD task in system projecting model. Concurrent CAD system in Czech market. Basic AutoCAD course in 2D environment, user settings, output options, designs with grid background.			
18KKM	Metals and Metal Materials	Z,ZK	3
13MT	Macroeconomic Theory	ZK	3
The aim of this course is to obtain an understanding of basic macroeconomic relations and to give the orientation in the topics of macroeconomic policy. The analysis of monetary and fiscal instruments of macroeconomic policy in the context of contemporary economic thought is included in the structure of the course. The students also have the occasion to understand the problems of money markets, the banking sector, inflation, unemployment and labour markets, government budget, exchange rates and international trade.			
11MTA2	Mathematical Analysis 2	Z,ZK	4
Metric spaces, sequences in metric spaces, limit of sequence in metric space. Differential calculus of functions of several variables, differential of function, partial derivations, implicitly defined functions, extremes of functions of several variables. Integral calculus of function of several variables, Riemann integral in Rn, integral over curves and surfaces in R3, application of integral calculus in physics.			
18S	Statics	Z,ZK	4
16UDM	Introduction to Transportation and Manipulation Technology	ZK	3
Transportation and handling technology in time continuity. Transportation systems and means of transport, infrastructure and division. Principles, functions and arrangement of overland railway and road means of transportation.\r\nHeat engines and their concept. Electric engines. Power transmission and its characteristics. Non-overland means of transportation. River- and sea- vessels, transporter airplanes and their drive units; principles and methods of solution. Handling and lilfting systems, sorting. Systems for depositing and storing. Basic concepts and terminology. This subject contains excursions as well.			
17ZKP	Introduction to Law	KZ	2
Theoretical foundations of law. The rule of law. Constitutional law. Public law. Substantive and procedural civil law. Commercial law. Trading business. Building permit procedure. Criminal and violation law. Law of nations, European Union and community law.			

Code of the group: 3.S.BK 05/06
Name of the group: 3.sem.bak.komb.od05/06
Requirement credits in the group: In this group you have to gain 28 credits
Requirement courses in the group: In this group you have to complete at least 8 courses
Credits in the group: 28
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
11DADR	**Differential and Difference Equations**	Z,ZK	3	2+1	Z	z
17DSP	**Transportation and Communication Law**	ZK	2	2+0		z
11FZ2	**Physics 2**	Z,ZK	5	2+2	Z	z
18KD	**Kinematics and Dynamics**	Z,ZK	4	2+1		z
14SIAW	**Internet Services and WWW Pages Design**	KZ	3	1+1		z
18SMT	**Special Materials and Technologies**	Z,ZK	3	2+1		z
20ZET	**Foundations of Electrical Engineering**	KZ	3	2+1		z
12ZTRS	**Railway Lines and Stations**	Z,ZK	5	2+2		z

Characteristics of the courses of this group of Study Plan: Code=3.S.BK 05/06 Name=3.sem.bak.komb.od05/06

11DADR	Differential and Difference Equations	Z,ZK	3
Ordinary differential equations of the first order and some methods of their solution. Differential equations of the n-th order, linear differential equations. Systém of the linear differential equations. Difference equations, linear difference equations and their systems. Cauchy and boundary value problem, Fourier series and Fourier transform. equations. Discrete dynamic systems.			
17DSP	Transportation and Communication Law	ZK	2
11FZ2	Physics 2	Z,ZK	5
Electric Current. Magnetic Field. Faraday's Law. Electromagnetic Field. Maxwell's Equations. Light. Geometric and Physical Optics. Quantization of Electromagnetic Radiation. Interaction of Radiation with Matter. Quantization. Hydrogen atom. Many-Electrons Atoms. Properties of Nuclei.			
18KD	Kinematics and Dynamics	Z,ZK	4
14SIAW	Internet Services and WWW Pages Design	KZ	3
Orientation and information searching in Internet environment, ability of communication through Internet and basic knowledge of own WWW presentation by help of WWW sides.			
18SMT	Special Materials and Technologies	Z,ZK	3
20ZET	Foundations of Electrical Engineering	KZ	3
Basic terms of electrical engineering, analysis of linear circuits with resistors, inductors and capacitors supplied with DC/AC sources, including transient phenomena. Basic electrical measurements. Energy sources, transformers, converters, rotary machines (DC, AC, asynchronous, synchronous, step motors). Safety at work with electrical installation (electrical engineering qualification).			
12ZTRS	Railway Lines and Stations	Z,ZK	5
Growth of railway network, railway line velocity's improvement. Railway network's and high-speed railway lines' modernization. Vehicles and tracks, traction. Geometrical setting of tracks, structure clearance. Railway lines' and stations' scheme. Railway lines construction, substructure and permanent way, point switch. Ecological aspects of railway traffic.			

Code of the group: 4.S.BK 05/06
Name of the group: 4.sem.bak.komb.od05/06
Requirement credits in the group: In this group you have to gain 28 credits
Requirement courses in the group: In this group you have to complete at least 9 courses
Credits in the group: 28
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
15BP	**Work Safety and Health Protection in Transportation**	KZ	1	1+0		z
16DPP	**Transport Vehicles**	ZK	3	2+0		z
13MI	**Microeconomic Theory**	Z,ZK	3	2+1		z
11PST	**Probability**	KZ	3	2+1		z
12PK	**Communications Design**	KZ	3	1+2		z
18PP	**Strength and Elasticity**	Z,ZK	4	2+2		z
14UPG	**Introduction into Programming**	KZ	3	0+2		z
14UZS	**Introduction into Interlocking and Communication Technology**	Z,ZK	4	2+1		z
20ZEN	**Foundations of Electronics**	Z,ZK	4	2+1		z

Characteristics of the courses of this group of Study Plan: Code=4.S.BK 05/06 Name=4.sem.bak.komb.od05/06

15BP	Work Safety and Health Protection in Transportation	KZ	1
Fundamental legislature, terms definition, risks and possible health damage, working conditions and health protection - focus on the field of Transportation. Health protection policies and health insurance for foreign business trips, statistics, working practice.			
16DPP	Transport Vehicles	ZK	3
Common parts of means of transport. Transportation and ecology. Characteristics of combustion engines. Track vehicles of railway, city and subway. Leading properties of track behicles and anti-derail safety. Automobiles; udnercarriage, chassis, power transmission, conversion systems, wheel geometry. River- and sea- vessels, stability. Transporter airplanes, devices for buoycancy - and resistance - raise, control. Jet engines. Helicopters. Terminology. This subject contains excursions as well.			
13MI	Microeconomic Theory	Z,ZK	3
The subject contains a complete commentary on one of two parts of the basic economic theory - microeconomics. In the introduction there are explained issues of microeconomics and the basic market categories and their connections. Furthermore there are provided analyses of the behaviour of basic economic subjects on the market of goods and services, later on the market of the factors of production with the following characteristics of individual prerequisite for follow-up studies of applied economics.			
11PST	Probability	KZ	3
Descriptive statistics: introduction to the basic problems of statistics, organizing data, graphical methods of data presentation, numerical presentation of data, measures of location or central tendency. Basic probability concepts: elementary events and events, definitions and interpretation of probability, axioms of probability theory, probability properties, conditional probability and independence, Bayes theorem. Random variable, probability distribution, probability mass and density, moments, some discrete and continuous distributions. Approximations of distributions, independence of variables. Random vectors: joint and marginal distributions, mean vector, covariance matrix. Mixed distributions, mixture of distributions. Law of large numbers, Central limit theorem.			
12PK	Communications Design	KZ	3
Basic requirements transport in traffic ways. Fundamental projection carriage road, directive and high circuit. Air and water transport. Crossing road communication. Railway station. Building city transport. Development traffic infrastructure. Bridges and tunnels.			
18PP	Strength and Elasticity	Z,ZK	4
Simple tension and compression. Plane and space state of stress. Pure shear. Strength theories. Plane bending. Torsion in rods of circular and annual cross - sections. Combined stresses. Stability of pressed bars. Basic theory of fatigue. Dynamic loads.			
14UPG	Introduction into Programming	KZ	3
Introduction to task algorithmization. Acquaintance with basic programming language types. Basic commands, expressions and functions of the C programming language. Practical realization of simple programmes in some of higher programming languages (Turbo C).			

14UZS	Introduction into Interlocking and Communication Technology	Z,ZK	4
Introductory course on: \r\nbasic concepts and knowledge from the areas of interlocking and telecommunication technologies and systems, as well as the basics of the post - office automation.			
20ZEN	Foundations of Electronics	Z,ZK	4
Diodes, transistors (bipolar, unipolar, IGBT), thyristors, problems of switching components, operational amplifiers, harmonic and non-harmonic signals generation, sources, electrical line on higher frequencies and A/D and D/A converters. Digital logical circuits including microprocessors.			

Name of the block: Jazyky
Minimal number of credits of the block: 8
The role of the block: J

Code of the group: J1B-B.OD03/04-P+K.
Name of the group: Jazyk 1.bl.bak.od 03/04-prez.+kombin.
Requirement credits in the group: In this group you have to gain 8 credits
Requirement courses in the group: In this group you have to complete at least 5 courses
Credits in the group: 8
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
15J1A1	**Foreign Language - English 1**	Z	2	0+2		J
15JA1B	**Foreign Language - English (exam 1)**	ZK	0			J
15J1A2	**Foreign Language - English 2**	Z	2	0+2		J
15J1A3	**Foreign Language - English 3**	Z	2	0+2		J
15J1A4	**Foreign Language - English 4**	Z,ZK	2	0+2		J
15J1F1	**Foreign Language - French 1**	Z	2	0+2		J
15JF1B	**Foreign Language - French (exam 1)**	ZK	0			J
15J1F2	**Foreign Language - French 2**	Z	2	0+2		J
15J1F3	**Foreign Language - French 3**	Z	2	0+2		J
15J1F4	**Foreign Language - French 4**	Z,ZK	2	0+2		J
15J1N1	**Foreign Language - German 1**	Z	2	0+2		J
15JN1B	**Foreign Language - German (exam 1)**	ZK	0			J
15J1N2	**Foreign Language - German 2**	Z	2	0+2		J
15J1N3	**Foreign Language - German 3**	Z	2	0+2		J
15J1N4	**Foreign Language - German 4**	Z,ZK	2	0+2		J
15J1R1	**Foreign Language - Russian 1**	Z	2	0+2		J
15JR1B	**Foreign Language - Russian (exam 1)**	ZK	0			J
15J1R2	**Foreign Language - Russian 2**	Z	2	0+2		J
15J1R3	**Foreign Language - Russian 3**	Z	2	0+2		J
15J1R4	**Foreign Language - Russian 4**	Z,ZK	2	0+2		J
15J1S1	**Foreign Language - Spanish 1**	Z	2	0+2		J
15JS1B	**Foreign Language - Spanish (exam 1)**	ZK	0			J
15J1S2	**Foreign Language - Spanish 2**	Z	2	0+2		J
15J1S3	**Foreign Language - Spanish 3**	Z	2	0+2		J
15J1S4	**Foreign Language - Spanish 4**	Z,ZK	2	0+2		J

Characteristics of the courses of this group of Study Plan: Code=J1B-B.OD03/04-P+K. Name=Jazyk 1.bl.bak.od 03/04-prez.+kombin.

15J1A1	Foreign Language - English 1	Z	2
The students of the Faculty of Transportation Sciences study two foreign languages one after another at the Department of Humanities. These courses aim at providing sufficient knowledge to communicate about every-day matters but also to read and write and discuss professional and specialised issues. Both gradually chosen language courses are ended with an exam (at the end of 4th and 8th semester; the TL (Air Traffic Control) specialisation students take an English exam only - at the end of 4th semester; the PP (Professional Pilot) specialisation students take two exams in English - at the end of 4th and 6th semester). Those students who want to apply for the Air Traffic specializations are recommended to enrol "English language" as their first choice. This is, however, not a guarantee for being excepted in the project study. Our department provides courses in English, German, French and Russian at different levels. The courses are also taught in our multimedia laboratory.			
15JA1B	Foreign Language - English (exam 1)	ZK	0

15J1A2	Foreign Language - English 2	Z	2
The students of the Faculty of Transportation Sciences study two foreign languages one after another at the Department of Humanities. These courses aim at providing sufficient knowledge to communicate about every-day matters but also to read and write and discuss professional and specialised issues. Both gradually chosen language courses are ended with an exam (at the end of 4th and 8th semester; the TL (Air Traffic Control) specialisation students take an English exam only - at the end of 4th semester; the PP (Professional Pilot) specialisation students take two exams in English - at the end of 4th and 6th semester). Those students who want to apply for the Air Traffic specializations are recommended to enrol "English language" as their first choice. This is, however, not a guarantee for being excepted in the project study. Our department provides courses in English, German, French and Russian at different levels. The courses are also taught in our multimedia laboratory.			
15J1A3	Foreign Language - English 3	Z	2
The students of the Faculty of Transportation Sciences study two foreign languages one after another at the Department of Humanities. These courses aim at providing sufficient knowledge to communicate about every-day matters but also to read and write and discuss professional and specialised issues. Both gradually chosen language courses are ended with an exam (at the end of 4th and 8th semester; the TL (Air Traffic Control) specialisation students take an English exam only - at the end of 4th semester; the PP (Professional Pilot) specialisation students take two exams in English - at the end of 4th and 6th semester). Those students who want to apply for the Air Traffic specializations are recommended to enrol "English language" as their first choice. This is, however, not a guarantee for being excepted in the project study. Our department provides courses in English, German, French and Russian at different levels. The courses are also taught in our multimedia laboratory.			
15J1A4	Foreign Language - English 4	Z,ZK	2
The students of the Faculty of Transportation Sciences study two foreign languages one after another at the Department of Humanities. These courses aim at providing sufficient knowledge to communicate about every-day matters but also to read and write and discuss professional and specialised issues. Both gradually chosen language courses are ended with an exam (at the end of 4th and 8th semester; the TL (Air Traffic Control) specialisation students take an English exam only - at the end of 4th semester; the PP (Professional Pilot) specialisation students take two exams in English - at the end of 4th and 6th semester). Those students who want to apply for the Air Traffic specializations are recommended to enrol "English language" as their first choice. This is, however, not a guarantee for being excepted in the project study. Our department provides courses in English, German, French and Russian at different levels. The courses are also taught in our multimedia laboratory.			
15J1F1	Foreign Language - French 1	Z	2
The students of the Faculty of Transportation Sciences study two foreign languages one after another at the Department of Humanities. These courses aim at providing sufficient knowledge to communicate about every-day matters but also to read and write and discuss professional and specialised issues. Both gradually chosen language courses are ended with an exam (at the end of 4th and 8th semester; the TL (Air Traffic Control) specialisation students take an English exam only - at the end of 4th semester; the PP (Professional Pilot) specialisation students take two exams in English - at the end of 4th and 6th semester). Those students who want to apply for the Air Traffic specializations are recommended to enrol "English language" as their first choice. This is, however, not a guarantee for being excepted in the project study. Our department provides courses in English, German, French and Russian at different levels. The courses are also taught in our multimedia laboratory.			
15JF1B	Foreign Language - French (exam 1)	ZK	0
15J1F2	Foreign Language - French 2	Z	2
The students of the Faculty of Transportation Sciences study two foreign languages one after another at the Department of Humanities. These courses aim at providing sufficient knowledge to communicate about every-day matters but also to read and write and discuss professional and specialised issues. Both gradually chosen language courses are ended with an exam (at the end of 4th and 8th semester; the TL (Air Traffic Control) specialisation students take an English exam only - at the end of 4th semester; the PP (Professional Pilot) specialisation students take two exams in English - at the end of 4th and 6th semester). Those students who want to apply for the Air Traffic specializations are recommended to enrol "English language" as their first choice. This is, however, not a guarantee for being excepted in the project study. Our department provides courses in English, German, French and Russian at different levels. The courses are also taught in our multimedia laboratory.			
15J1F3	Foreign Language - French 3	Z	2
The students of the Faculty of Transportation Sciences study two foreign languages one after another at the Department of Humanities. These courses aim at providing sufficient knowledge to communicate about every-day matters but also to read and write and discuss professional and specialised issues. Both gradually chosen language courses are ended with an exam (at the end of 4th and 8th semester; the TL (Air Traffic Control) specialisation students take an English exam only - at the end of 4th semester; the PP (Professional Pilot) specialisation students take two exams in English - at the end of 4th and 6th semester). Those students who want to apply for the Air Traffic specializations are recommended to enrol "English language" as their first choice. This is, however, not a guarantee for being excepted in the project study. Our department provides courses in English, German, French and Russian at different levels. The courses are also taught in our multimedia laboratory.			
15J1F4	Foreign Language - French 4	Z,ZK	2
The students of the Faculty of Transportation Sciences study two foreign languages one after another at the Department of Humanities. These courses aim at providing sufficient knowledge to communicate about every-day matters but also to read and write and discuss professional and specialised issues. Both gradually chosen language courses are ended with an exam (at the end of 4th and 8th semester; the TL (Air Traffic Control) specialisation students take an English exam only - at the end of 4th semester; the PP (Professional Pilot) specialisation students take two exams in English - at the end of 4th and 6th semester). Those students who want to apply for the Air Traffic specializations are recommended to enrol "English language" as their first choice. This is, however, not a guarantee for being excepted in the project study. Our department provides courses in English, German, French and Russian at different levels. The courses are also taught in our multimedia laboratory.			
15J1N1	Foreign Language - German 1	Z	2
The students of the Faculty of Transportation Sciences study two foreign languages one after another at the Department of Humanities. These courses aim at providing sufficient knowledge to communicate about every-day matters but also to read and write and discuss professional and specialised issues. Both gradually chosen language courses are ended with an exam (at the end of 4th and 8th semester; the TL (Air Traffic Control) specialisation students take an English exam only - at the end of 4th semester; the PP (Professional Pilot) specialisation students take two exams in English - at the end of 4th and 6th semester). Those students who want to apply for the Air Traffic specializations are recommended to enrol "English language" as their first choice. This is, however, not a guarantee for being excepted in the project study. Our department provides courses in English, German, French and Russian at different levels. The courses are also taught in our multimedia laboratory.			
15JN1B	Foreign Language - German (exam 1)	ZK	0
15J1N2	Foreign Language - German 2	Z	2
The students of the Faculty of Transportation Sciences study two foreign languages one after another at the Department of Humanities. These courses aim at providing sufficient knowledge to communicate about every-day matters but also to read and write and discuss professional and specialised issues. Both gradually chosen language courses are ended with an exam (at the end of 4th and 8th semester; the TL (Air Traffic Control) specialisation students take an English exam only - at the end of 4th semester; the PP (Professional Pilot) specialisation students take two exams in English - at the end of 4th and 6th semester). Those students who want to apply for the Air Traffic specializations are recommended to enrol "English language" as their first choice. This is, however, not a guarantee for being excepted in the project study. Our department provides courses in English, German, French and Russian at different levels. The courses are also taught in our multimedia laboratory.			
15J1N3	Foreign Language - German 3	Z	2
The students of the Faculty of Transportation Sciences study two foreign languages one after another at the Department of Humanities. These courses aim at providing sufficient knowledge to communicate about every-day matters but also to read and write and discuss professional and specialised issues. Both gradually chosen language courses are ended with an exam (at the end of 4th and 8th semester; the TL (Air Traffic Control) specialisation students take an English exam only - at the end of 4th semester; the PP (Professional Pilot) specialisation students take two exams in English - at the end of 4th and 6th semester). Those students who want to apply for the Air Traffic specializations are recommended to enrol "English language" as their first choice. This is, however, not a guarantee for being excepted in the project study. Our department provides courses in English, German, French and Russian at different levels. The courses are also taught in our multimedia laboratory.			

15J1N4	Foreign Language - German 4	Z,ZK	2
The students of the Faculty of Transportation Sciences study two foreign languages one after another at the Department of Humanities. These courses aim at providing sufficient knowledge to communicate about every-day matters but also to read and write and discuss professional and specialised issues. Both gradually chosen language courses are ended with an exam (at the end of 4th and 8th semester; the TL (Air Traffic Control) specialisation students take an English exam only - at the end of 4th semester; the PP (Professional Pilot) specialisation students take two exams in English - at the end of 4th and 6th semester). Those students who want to apply for the Air Traffic specializations are recommended to enrol "English language" as their first choice. This is, however, not a guarantee for being excepted in the project study. Our department provides courses in English, German, French and Russian at different levels. The courses are also taught in our multimedia laboratory.			
15J1R1	Foreign Language - Russian 1	Z	2
The students of the Faculty of Transportation Sciences study two foreign languages one after another at the Department of Humanities. These courses aim at providing sufficient knowledge to communicate about every-day matters but also to read and write and discuss professional and specialised issues. Both gradually chosen language courses are ended with an exam (at the end of 4th and 8th semester; the TL (Air Traffic Control) specialisation students take an English exam only - at the end of 4th semester; the PP (Professional Pilot) specialisation students take two exams in English - at the end of 4th and 6th semester). Those students who want to apply for the Air Traffic specializations are recommended to enrol "English language" as their first choice. This is, however, not a guarantee for being excepted in the project study. Our department provides courses in English, German, French and Russian at different levels. The courses are also taught in our multimedia laboratory.			
15JR1B	Foreign Language - Russian (exam 1)	ZK	0
15J1R2	Foreign Language - Russian 2	Z	2
The students of the Faculty of Transportation Sciences study two foreign languages one after another at the Department of Humanities. These courses aim at providing sufficient knowledge to communicate about every-day matters but also to read and write and discuss professional and specialised issues. Both gradually chosen language courses are ended with an exam (at the end of 4th and 8th semester; the TL (Air Traffic Control) specialisation students take an English exam only - at the end of 4th semester; the PP (Professional Pilot) specialisation students take two exams in English - at the end of 4th and 6th semester). Those students who want to apply for the Air Traffic specializations are recommended to enrol "English language" as their first choice. This is, however, not a guarantee for being excepted in the project study. Our department provides courses in English, German, French and Russian at different levels. The courses are also taught in our multimedia laboratory.			
15J1R3	Foreign Language - Russian 3	Z	2
The students of the Faculty of Transportation Sciences study two foreign languages one after another at the Department of Humanities. These courses aim at providing sufficient knowledge to communicate about every-day matters but also to read and write and discuss professional and specialised issues. Both gradually chosen language courses are ended with an exam (at the end of 4th and 8th semester; the TL (Air Traffic Control) specialisation students take an English exam only - at the end of 4th semester; the PP (Professional Pilot) specialisation students take two exams in English - at the end of 4th and 6th semester). Those students who want to apply for the Air Traffic specializations are recommended to enrol "English language" as their first choice. This is, however, not a guarantee for being excepted in the project study. Our department provides courses in English, German, French and Russian at different levels. The courses are also taught in our multimedia laboratory.			
15J1R4	Foreign Language - Russian 4	Z,ZK	2
The students of the Faculty of Transportation Sciences study two foreign languages one after another at the Department of Humanities. These courses aim at providing sufficient knowledge to communicate about every-day matters but also to read and write and discuss professional and specialised issues. Both gradually chosen language courses are ended with an exam (at the end of 4th and 8th semester; the TL (Air Traffic Control) specialisation students take an English exam only - at the end of 4th semester; the PP (Professional Pilot) specialisation students take two exams in English - at the end of 4th and 6th semester). Those students who want to apply for the Air Traffic specializations are recommended to enrol "English language" as their first choice. This is, however, not a guarantee for being excepted in the project study. Our department provides courses in English, German, French and Russian at different levels. The courses are also taught in our multimedia laboratory.			
15J1S1	Foreign Language - Spanish 1	Z	2
The students of the Faculty of Transportation Sciences study two foreign languages one after another at the Department of Humanities. These courses aim at providing sufficient knowledge to communicate about every-day matters but also to read and write and discuss professional and specialised issues. Both gradually chosen language courses are ended with an exam (at the end of 4th and 8th semester; the TL (Air Traffic Control) specialisation students take an English exam only - at the end of 4th semester; the PP (Professional Pilot) specialisation students take two exams in English - at the end of 4th and 6th semester). Those students who want to apply for the Air Traffic specializations are recommended to enrol "English language" as their first choice. This is, however, not a guarantee for being excepted in the project study. Our department provides courses in English, German, French and Russian at different levels. The courses are also taught in our multimedia laboratory.			
15JS1B	Foreign Language - Spanish (exam 1)	ZK	0
15J1S2	Foreign Language - Spanish 2	Z	2

The students of the Faculty of Transportation Sciences study two foreign languages one after another at the Department of Humanities. These courses aim at providing sufficient knowledge to communicate about every-day matters but also to read and write and discuss professional and specialised issues.
     Both gradually chosen language courses are ended with an exam (at the end of 4th and 8th semester; the TL (Air Traffic Control) specialisation students take an English exam only - at the end of 4th semester; the PP (Professional Pilot) specialisation students take two exams in English - at the end of 4th and 6th semester). Those students who want to apply for the Air Traffic specializations are recommended to enrol "English language" as their first choice. This is, however, not a guarantee for being excepted in the project study.
     Our department provides courses in English, German, French and Russian at different levels. The courses are also taught in our multimedia laboratory.			

15J1S3	Foreign Language - Spanish 3	Z	2

The students of the Faculty of Transportation Sciences study two foreign languages one after another at the Department of Humanities. These courses aim at providing sufficient knowledge to communicate about every-day matters but also to read and write and discuss professional and specialised issues.
     Both gradually chosen language courses are ended with an exam (at the end of 4th and 8th semester; the TL (Air Traffic Control) specialisation students take an English exam only - at the end of 4th semester; the PP (Professional Pilot) specialisation students take two exams in English - at the end of 4th and 6th semester). Those students who want to apply for the Air Traffic specializations are recommended to enrol "English language" as their first choice. This is, however, not a guarantee for being excepted in the project study.
     Our department provides courses in English, German, French and Russian at different levels. The courses are also taught in our multimedia laboratory.			

15J1S4	Foreign Language - Spanish 4	Z,ZK	2

The students of the Faculty of Transportation Sciences study two foreign languages one after another at the Department of Humanities. These courses aim at providing sufficient knowledge to communicate about every-day matters but also to read and write and discuss professional and specialised issues.
     Both gradually chosen language courses are ended with an exam (at the end of 4th and 8th semester; the TL (Air Traffic Control) specialisation students take an English exam only - at the end of 4th semester; the PP (Professional Pilot) specialisation students take two exams in English - at the end of 4th and 6th semester). Those students who want to apply for the Air Traffic specializations are recommended to enrol "English language" as their first choice. This is, however, not a guarantee for being excepted in the project study.
     Our department provides courses in English, German, French and Russian at different levels. The courses are also taught in our multimedia laboratory.			

List of courses of this pass:

Code	Name of the course	Completion	Credits
11ATGR	Algebra and Graph Theory	Z,ZK	5
Vector spaces, vectors, linear independence, bases. Matrices, rank, trace, linear mapping, special matrices. System of linear equation. Eigenvectors and eigenvalues of matrices, similar matrices, the characteristic matrix and characteristic polynomial of a matrix. Quadratic forms - diagonal form, associated symmetric matrix, signature, Sylvester´s Inertia Law. Basic definitions of Graph Theory (oriented graphs, walk, trail, path, cycle, trees).			
11DADR	Differential and Difference Equations	Z,ZK	3
Ordinary differential equations of the first order and some methods of their solution. Differential equations of the n-th order, linear differential equations. Systém of the linear differential equations. Difference equations, linear difference equations and their systems. Cauchy and boundary value problem, Fourier series and Fourier transform. equations. Discrete dynamic systems.			
11FZ1	Physics 1	Z,ZK	5
Kinematics. Dynamics of Particle, Systems of Particles and Rigid Body. Solids and Fluids. Thermodynamics. Electric Field.			
11FZ2	Physics 2	Z,ZK	5
Electric Current. Magnetic Field. Faraday's Law. Electromagnetic Field. Maxwell's Equations. Light. Geometric and Physical Optics. Quantization of Electromagnetic Radiation. Interaction of Radiation with Matter. Quantization. Hydrogen atom. Many-Electrons Atoms. Properties of Nuclei.			
11GMR	Geometry	Z,ZK	5
Topographic surfaces, Orthogonal projection, axonometric projection (orthogonal axonometry, skew projection), perspective projection, curves - conic sections, examples of plane curves, basics of differential geometry of curves: parameterization, arc of the the curve, torsion and curvature, Frenet`s trihedron, surfaces of revolution, quadrics, ruled quadrics, etc.			
11MTA1	Mathematical Analysis 1	Z,ZK	6
Real and complex numbers. Sequences, real function of real variable, composite and inverse functions, limits, continuity, derivatives, differentials, investigation of functions for their properties. Integral calculus of functions of one variable with applications. Solution of ordinary differential equations, separation of variables.			
11MTA2	Mathematical Analysis 2	Z,ZK	4
Metric spaces, sequences in metric spaces, limit of sequence in metric space. Differential calculus of functions of several variables, differential of function, partial derivations, implicitly defined functions, extremes of functions of several variables. Integral calculus of function of several variables, Riemann integral in Rn, integral over curves and surfaces in R3, application of integral calculus in physics.			
11PST	Probability	KZ	3
Descriptive statistics: introduction to the basic problems of statistics, organizing data, graphical methods of data presentation, numerical presentation of data, measures of location or central tendency. Basic probability concepts: elementary events and events, definitions and interpretation of probability, axioms of probability theory, probability properties, conditional probability and independence, Bayes theorem. Random variable, probability distribution, probability mass and density, moments, some discrete and continuous distributions. Approximations of distributions, independence of variables. Random vectors: joint and marginal distributions, mean vector, covariance matrix. Mixed distributions, mixture of distributions. Law of large numbers, Central limit theorem.			
12PK	Communications Design	KZ	3
Basic requirements transport in traffic ways. Fundamental projection carriage road, directive and high circuit. Air and water transport. Crossing road communication. Railway station. Building city transport. Development traffic infrastructure. Bridges and tunnels.			
12ZDIR	Introduction to Transportation Engineering	Z,ZK	5
Sort of traffic, basic parameter, development traffic system, safety traffic. Relation traffic and territory. Traffic planning. Traffic research and measurement. Prognostication traffic. Regulation and organization traffic. Segregation and integration city traffic. Territorial scheduling.			
12ZTRS	Railway Lines and Stations	Z,ZK	5
Growth of railway network, railway line velocity's improvement. Railway network's and high-speed railway lines' modernization. Vehicles and tracks, traction. Geometrical setting of tracks, structure clearance. Railway lines' and stations' scheme. Railway lines construction, substructure and permanent way, point switch. Ecological aspects of railway traffic.			
13MI	Microeconomic Theory	Z,ZK	3
The subject contains a complete commentary on one of two parts of the basic economic theory - microeconomics. In the introduction there are explained issues of microeconomics and the basic market categories and their connections. Furthermore there are provided analyses of the behaviour of basic economic subjects on the market of goods and services, later on the market of the factors of production with the following characteristics of individual prerequisite for follow-up studies of applied economics.			
13MT	Macroeconomic Theory	ZK	3
The aim of this course is to obtain an understanding of basic macroeconomic relations and to give the orientation in the topics of macroeconomic policy. The analysis of monetary and fiscal instruments of macroeconomic policy in the context of contemporary economic thought is included in the structure of the course. The students also have the occasion to understand the problems of money markets, the banking sector, inflation, unemployment and labour markets, government budget, exchange rates and international trade.			
14KPPK	Computer Aided Design 1 (AutoCAD Basic Steps)	KZ	4
Determination of "CAD Systems" term. CAD task in system projecting model. Concurrent CAD system in Czech market. Basic AutoCAD course in 2D environment, user settings, output options, designs with grid background.			
14SIAW	Internet Services and WWW Pages Design	KZ	3
Orientation and information searching in Internet environment, ability of communication through Internet and basic knowledge of own WWW presentation by help of WWW sides.			
14UPG	Introduction into Programming	KZ	3
Introduction to task algorithmization. Acquaintance with basic programming language types. Basic commands, expressions and functions of the C programming language. Practical realization of simple programmes in some of higher programming languages (Turbo C).			
14UZS	Introduction into Interlocking and Communication Technology	Z,ZK	4
Introductory course on: \r\nbasic concepts and knowledge from the areas of interlocking and telecommunication technologies and systems, as well as the basics of the post - office automation.			
14ZI	Basic of Informatics	KZ	3
Introduce to the faculty network and faculty information systems. Theory of information - basic terms. Number systems, conversions, analog / digital representation of the information. Architecture and activity of the numerical computing systems. Algorithms and their graphical flowchart representation. Algorithm development and solution finding by simple program languages. Engineer computation by specialized software - practical tasks. Classified credit examination.			
15BP	Work Safety and Health Protection in Transportation	KZ	1
Fundamental legislature, terms definition, risks and possible health damage, working conditions and health protection - focus on the field of Transportation. Health protection policies and health insurance for foreign business trips, statistics, working practice.			

15J1A1	Foreign Language - English 1	Z	2
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15J1A2	Foreign Language - English 2	Z	2
The students of the Faculty of Transportation Sciences study two foreign languages one after another at the Department of Humanities. These courses aim at providing sufficient knowledge to communicate about every-day matters but also to read and write and discuss professional and specialised issues. Both gradually chosen language courses are ended with an exam (at the end of 4th and 8th semester; the TL (Air Traffic Control) specialisation students take an English exam only - at the end of 4th semester; the PP (Professional Pilot) specialisation students take two exams in English - at the end of 4th and 6th semester). Those students who want to apply for the Air Traffic specializations are recommended to enrol "English language" as their first choice. This is, however, not a guarantee for being excepted in the project study. Our department provides courses in English, German, French and Russian at different levels. The courses are also taught in our multimedia laboratory.			
15J1A3	Foreign Language - English 3	Z	2
The students of the Faculty of Transportation Sciences study two foreign languages one after another at the Department of Humanities. These courses aim at providing sufficient knowledge to communicate about every-day matters but also to read and write and discuss professional and specialised issues. Both gradually chosen language courses are ended with an exam (at the end of 4th and 8th semester; the TL (Air Traffic Control) specialisation students take an English exam only - at the end of 4th semester; the PP (Professional Pilot) specialisation students take two exams in English - at the end of 4th and 6th semester). Those students who want to apply for the Air Traffic specializations are recommended to enrol "English language" as their first choice. This is, however, not a guarantee for being excepted in the project study. Our department provides courses in English, German, French and Russian at different levels. The courses are also taught in our multimedia laboratory.			
15J1A4	Foreign Language - English 4	Z,ZK	2
The students of the Faculty of Transportation Sciences study two foreign languages one after another at the Department of Humanities. These courses aim at providing sufficient knowledge to communicate about every-day matters but also to read and write and discuss professional and specialised issues. Both gradually chosen language courses are ended with an exam (at the end of 4th and 8th semester; the TL (Air Traffic Control) specialisation students take an English exam only - at the end of 4th semester; the PP (Professional Pilot) specialisation students take two exams in English - at the end of 4th and 6th semester). Those students who want to apply for the Air Traffic specializations are recommended to enrol "English language" as their first choice. This is, however, not a guarantee for being excepted in the project study. Our department provides courses in English, German, French and Russian at different levels. The courses are also taught in our multimedia laboratory.			
15J1F1	Foreign Language - French 1	Z	2
The students of the Faculty of Transportation Sciences study two foreign languages one after another at the Department of Humanities. These courses aim at providing sufficient knowledge to communicate about every-day matters but also to read and write and discuss professional and specialised issues. Both gradually chosen language courses are ended with an exam (at the end of 4th and 8th semester; the TL (Air Traffic Control) specialisation students take an English exam only - at the end of 4th semester; the PP (Professional Pilot) specialisation students take two exams in English - at the end of 4th and 6th semester). Those students who want to apply for the Air Traffic specializations are recommended to enrol "English language" as their first choice. This is, however, not a guarantee for being excepted in the project study. Our department provides courses in English, German, French and Russian at different levels. The courses are also taught in our multimedia laboratory.			
15J1F2	Foreign Language - French 2	Z	2
The students of the Faculty of Transportation Sciences study two foreign languages one after another at the Department of Humanities. These courses aim at providing sufficient knowledge to communicate about every-day matters but also to read and write and discuss professional and specialised issues. Both gradually chosen language courses are ended with an exam (at the end of 4th and 8th semester; the TL (Air Traffic Control) specialisation students take an English exam only - at the end of 4th semester; the PP (Professional Pilot) specialisation students take two exams in English - at the end of 4th and 6th semester). Those students who want to apply for the Air Traffic specializations are recommended to enrol "English language" as their first choice. This is, however, not a guarantee for being excepted in the project study. Our department provides courses in English, German, French and Russian at different levels. The courses are also taught in our multimedia laboratory.			
15J1F3	Foreign Language - French 3	Z	2
The students of the Faculty of Transportation Sciences study two foreign languages one after another at the Department of Humanities. These courses aim at providing sufficient knowledge to communicate about every-day matters but also to read and write and discuss professional and specialised issues. Both gradually chosen language courses are ended with an exam (at the end of 4th and 8th semester; the TL (Air Traffic Control) specialisation students take an English exam only - at the end of 4th semester; the PP (Professional Pilot) specialisation students take two exams in English - at the end of 4th and 6th semester). Those students who want to apply for the Air Traffic specializations are recommended to enrol "English language" as their first choice. This is, however, not a guarantee for being excepted in the project study. Our department provides courses in English, German, French and Russian at different levels. The courses are also taught in our multimedia laboratory.			
15J1F4	Foreign Language - French 4	Z,ZK	2
The students of the Faculty of Transportation Sciences study two foreign languages one after another at the Department of Humanities. These courses aim at providing sufficient knowledge to communicate about every-day matters but also to read and write and discuss professional and specialised issues. Both gradually chosen language courses are ended with an exam (at the end of 4th and 8th semester; the TL (Air Traffic Control) specialisation students take an English exam only - at the end of 4th semester; the PP (Professional Pilot) specialisation students take two exams in English - at the end of 4th and 6th semester). Those students who want to apply for the Air Traffic specializations are recommended to enrol "English language" as their first choice. This is, however, not a guarantee for being excepted in the project study. Our department provides courses in English, German, French and Russian at different levels. The courses are also taught in our multimedia laboratory.			
15J1N1	Foreign Language - German 1	Z	2
The students of the Faculty of Transportation Sciences study two foreign languages one after another at the Department of Humanities. These courses aim at providing sufficient knowledge to communicate about every-day matters but also to read and write and discuss professional and specialised issues. Both gradually chosen language courses are ended with an exam (at the end of 4th and 8th semester; the TL (Air Traffic Control) specialisation students take an English exam only - at the end of 4th semester; the PP (Professional Pilot) specialisation students take two exams in English - at the end of 4th and 6th semester). Those students who want to apply for the Air Traffic specializations are recommended to enrol "English language" as their first choice. This is, however, not a guarantee for being excepted in the project study. Our department provides courses in English, German, French and Russian at different levels. The courses are also taught in our multimedia laboratory.			
15J1N2	Foreign Language - German 2	Z	2
The students of the Faculty of Transportation Sciences study two foreign languages one after another at the Department of Humanities. These courses aim at providing sufficient knowledge to communicate about every-day matters but also to read and write and discuss professional and specialised issues. Both gradually chosen language courses are ended with an exam (at the end of 4th and 8th semester; the TL (Air Traffic Control) specialisation students take an English exam only - at the end of 4th semester; the PP (Professional Pilot) specialisation students take two exams in English - at the end of 4th and 6th semester). Those students who want to apply for the Air Traffic specializations are recommended to enrol "English language" as their first choice. This is, however, not a guarantee for being excepted in the project study. Our department provides courses in English, German, French and Russian at different levels. The courses are also taught in our multimedia laboratory.			
15J1N3	Foreign Language - German 3	Z	2
The students of the Faculty of Transportation Sciences study two foreign languages one after another at the Department of Humanities. These courses aim at providing sufficient knowledge to communicate about every-day matters but also to read and write and discuss professional and specialised issues. Both gradually chosen language courses			

	are ended with an exam (at the end of 4th and 8th semester; the TL (Air Traffic Control) specialisation students take an English exam only - at the end of 4th semester; the PP (Professional Pilot) specialisation students take two exams in English - at the end of 4th and 6th semester). Those students who want to apply for the Air Traffic specializations are recommended to enrol "English language" as their first choice. This is, however, not a guarantee for being excepted in the project study. Our department provides courses in English, German, French and Russian at different levels. The courses are also taught in our multimedia laboratory.		
15J1N4	Foreign Language - German 4	Z,ZK	2
	The students of the Faculty of Transportation Sciences study two foreign languages one after another at the Department of Humanities. These courses aim at providing sufficient knowledge to communicate about every-day matters but also to read and write and discuss professional and specialised issues. Both gradually chosen language courses are ended with an exam (at the end of 4th and 8th semester; the TL (Air Traffic Control) specialisation students take an English exam only - at the end of 4th semester; the PP (Professional Pilot) specialisation students take two exams in English - at the end of 4th and 6th semester). Those students who want to apply for the Air Traffic specializations are recommended to enrol "English language" as their first choice. This is, however, not a guarantee for being excepted in the project study. Our department provides courses in English, German, French and Russian at different levels. The courses are also taught in our multimedia laboratory.		
15J1R1	Foreign Language - Russian 1	Z	2
	The students of the Faculty of Transportation Sciences study two foreign languages one after another at the Department of Humanities. These courses aim at providing sufficient knowledge to communicate about every-day matters but also to read and write and discuss professional and specialised issues. Both gradually chosen language courses are ended with an exam (at the end of 4th and 8th semester; the TL (Air Traffic Control) specialisation students take an English exam only - at the end of 4th semester; the PP (Professional Pilot) specialisation students take two exams in English - at the end of 4th and 6th semester). Those students who want to apply for the Air Traffic specializations are recommended to enrol "English language" as their first choice. This is, however, not a guarantee for being excepted in the project study. Our department provides courses in English, German, French and Russian at different levels. The courses are also taught in our multimedia laboratory.		
15J1R2	Foreign Language - Russian 2	Z	2
	The students of the Faculty of Transportation Sciences study two foreign languages one after another at the Department of Humanities. These courses aim at providing sufficient knowledge to communicate about every-day matters but also to read and write and discuss professional and specialised issues. Both gradually chosen language courses are ended with an exam (at the end of 4th and 8th semester; the TL (Air Traffic Control) specialisation students take an English exam only - at the end of 4th semester; the PP (Professional Pilot) specialisation students take two exams in English - at the end of 4th and 6th semester). Those students who want to apply for the Air Traffic specializations are recommended to enrol "English language" as their first choice. This is, however, not a guarantee for being excepted in the project study. Our department provides courses in English, German, French and Russian at different levels. The courses are also taught in our multimedia laboratory.		
15J1R3	Foreign Language - Russian 3	Z	2
	The students of the Faculty of Transportation Sciences study two foreign languages one after another at the Department of Humanities. These courses aim at providing sufficient knowledge to communicate about every-day matters but also to read and write and discuss professional and specialised issues. Both gradually chosen language courses are ended with an exam (at the end of 4th and 8th semester; the TL (Air Traffic Control) specialisation students take an English exam only - at the end of 4th semester; the PP (Professional Pilot) specialisation students take two exams in English - at the end of 4th and 6th semester). Those students who want to apply for the Air Traffic specializations are recommended to enrol "English language" as their first choice. This is, however, not a guarantee for being excepted in the project study. Our department provides courses in English, German, French and Russian at different levels. The courses are also taught in our multimedia laboratory.		
15J1R4	Foreign Language - Russian 4	Z,ZK	2
	The students of the Faculty of Transportation Sciences study two foreign languages one after another at the Department of Humanities. These courses aim at providing sufficient knowledge to communicate about every-day matters but also to read and write and discuss professional and specialised issues. Both gradually chosen language courses are ended with an exam (at the end of 4th and 8th semester; the TL (Air Traffic Control) specialisation students take an English exam only - at the end of 4th semester; the PP (Professional Pilot) specialisation students take two exams in English - at the end of 4th and 6th semester). Those students who want to apply for the Air Traffic specializations are recommended to enrol "English language" as their first choice. This is, however, not a guarantee for being excepted in the project study. Our department provides courses in English, German, French and Russian at different levels. The courses are also taught in our multimedia laboratory.		
15J1S1	Foreign Language - Spanish 1	Z	2
	The students of the Faculty of Transportation Sciences study two foreign languages one after another at the Department of Humanities. These courses aim at providing sufficient knowledge to communicate about every-day matters but also to read and write and discuss professional and specialised issues. Both gradually chosen language courses are ended with an exam (at the end of 4th and 8th semester; the TL (Air Traffic Control) specialisation students take an English exam only - at the end of 4th semester; the PP (Professional Pilot) specialisation students take two exams in English - at the end of 4th and 6th semester). Those students who want to apply for the Air Traffic specializations are recommended to enrol "English language" as their first choice. This is, however, not a guarantee for being excepted in the project study. Our department provides courses in English, German, French and Russian at different levels. The courses are also taught in our multimedia laboratory.		
15J1S2	Foreign Language - Spanish 2	Z	2

	The students of the Faculty of Transportation Sciences study two foreign languages one after another at the Department of Humanities. These courses aim at providing sufficient knowledge to communicate about every-day matters but also to read and write and discuss professional and specialised issues.
	     Both gradually chosen language courses are ended with an exam (at the end of 4th and 8th semester; the TL (Air Traffic Control) specialisation students take an English exam only - at the end of 4th semester; the PP (Professional Pilot) specialisation students take two exams in English - at the end of 4th and 6th semester). Those students who want to apply for the Air Traffic specializations are recommended to enrol "English language" as their first choice. This is, however, not a guarantee for being excepted in the project study.
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15J1S3	Foreign Language - Spanish 3	Z	2

	The students of the Faculty of Transportation Sciences study two foreign languages one after another at the Department of Humanities. These courses aim at providing sufficient knowledge to communicate about every-day matters but also to read and write and discuss professional and specialised issues.
	     Both gradually chosen language courses are ended with an exam (at the end of 4th and 8th semester; the TL (Air Traffic Control) specialisation students take an English exam only - at the end of 4th semester; the PP (Professional Pilot) specialisation students take two exams in English - at the end of 4th and 6th semester). Those students who want to apply for the Air Traffic specializations are recommended to enrol "English language" as their first choice. This is, however, not a guarantee for being excepted in the project study.
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15J1S4	Foreign Language - Spanish 4	Z,ZK	2

	The students of the Faculty of Transportation Sciences study two foreign languages one after another at the Department of Humanities. These courses aim at providing sufficient knowledge to communicate about every-day matters but also to read and write and discuss professional and specialised issues.
	     Both gradually chosen language courses are ended with an exam (at the end of 4th and 8th semester; the TL (Air Traffic Control) specialisation students take an English exam only - at the end of 4th semester; the PP (Professional Pilot) specialisation students take two exams in English - at the end of 4th and 6th semester). Those students who want to apply for the Air Traffic specializations are recommended to enrol "English language" as their first choice. This is, however, not a guarantee for being excepted in the project study.
	      Our department provides courses in English, German, French and Russian at different levels. The courses are also taught in our multimedia laboratory.		

15JA1B	Foreign Language - English (exam 1)	ZK	0
15JF1B	Foreign Language - French (exam 1)	ZK	0
15JN1B	Foreign Language - German (exam 1)	ZK	0

15JR1B	Foreign Language - Russian (exam 1)	ZK	0
15JS1B	Foreign Language - Spanish (exam 1)	ZK	0
16DPP	Transport Vehicles	ZK	3
Common parts of means of transport. Transportation and ecology. Characteristics of combustion engines. Track vehicles of railway, city and subway. Leading properties of track behicles and anti-derail safety. Automobiles; udnercarriage, chassis, power transmission, conversion systems, wheel geometry. River- and sea- vessels, stability. Transporter airplanes, devices for buoycancy - and resistance - raise, control. Jet engines. Helicopters. Terminology. This subject contains excursions as well.			
16UDM	Introduction to Transportation and Manipulation Technology	ZK	3
Transportation and handling technology in time continuity. Transportation systems and means of transport, infrastructure and division. Principles, functions and arrangement of overland railway and road means of transportation.\r\nHeat engines and their concept. Electric engines. Power transmission and its characteristics. Non-overland means of transportation. River- and sea- vessels, transporter airplanes and their drive units; principles and methods of solution. Handling and lilfting systems, sorting. Systems for depositing and storing. Basic concepts and terminology. This subject contains excursions as well.			
17DSP	Transportation and Communication Law	ZK	2
17ZKP	Introduction to Law	KZ	2
Theoretical foundations of law. The rule of law. Constitutional law. Public law. Substantive and procedural civil law. Commercial law. Trading business. Building permit procedure. Criminal and violation law. Law of nations, European Union and community law.			
18KD	Kinematics and Dynamics	Z,ZK	4
18KKM	Metals and Metal Materials	Z,ZK	3
18PP	Strength and Elasticity	Z,ZK	4
Simple tension and compression. Plane and space state of stress. Pure shear. Strength theories. Plane bending. Torsion in rods of circular and annual cross - sections. Combined stresses. Stability of pressed bars. Basic theory of fatigue. Dynamic loads.			
18S	Statics	Z,ZK	4
18SMT	Special Materials and Technologies	Z,ZK	3
18TECK	Technical Documentation	KZ	4
20ZEN	Foundations of Electronics	Z,ZK	4
Diodes, transistors (bipolar, unipolar, IGBT), thyristors, problems of switching components, operational amplifiers, harmonic and non-harmonic signals generation, sources, electrical line on higher frequencies and A/D and D/A converters. Digital logical circuits including microprocessors.			
20ZET	Foundations of Electrical Engineering	KZ	3
Basic terms of electrical engineering, analysis of linear circuits with resistors, inductors and capacitors supplied with DC/AC sources, including transient phenomena. Basic electrical measurements. Energy sources, transformers, converters, rotary machines (DC, AC, asynchronous, synchronous, step motors). Safety at work with electrical installation (electrical engineering qualification).			

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