Study plan

Name of study plan: CŽV pro LED bak.prez. v 18/19

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 full-time

Required credits: 180 Elective courses credits: 0 Sum of credits in the plan: 180

Note on the plan:

Name of the block: Compulsory courses Minimal number of credits of the block: 162

The role of the block: Z

Code of the group: 1.S.BP 17/18

Name of the group: 1.sem.bak.prez. od 17/18

Requirement credits in the group: In this group you have to gain 30 credits

Requirement courses in the group: In this group you have to complete 11 courses

Credits in the group: 30 Note on the group:

Note on the (·					
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
11CAL1	Calculus 1 Magdalena Hykšová, Ond ej Navrátil, Bohumil Ková, Tomáš Tasák, Olga Vraštilová Ond ej Navrátil (Gar.)	Z,ZK	7	2P+4C+22E	3 Z	Z
11LA	Linear Algebra Lucie Kárná, Jan P ikryl, Martina Be vá ová, Pavel Provinský Martina Be vá ová (Gar.)	Z,ZK	3	2P+1C+10E	B Z	Z
12ZYDI	Introduction to Transportation Engineering Dagmar Ko árková, Zuzana arská, Jan Kruntorád, Nikol Dousková, Vojt ch Novotný	Z,ZK	2	1P+1C	Z	Z
18MTY	Materials Science and Engineering Michaela Neuhäuserová, Jan Falta, Václav Rada, Michaela Neuhäuserová, Václav Rada, Jaroslav Valach	Z,ZK	3	2P+1C+10E	Z Z	Z
11GIE	Geometry Pavel Provinský, Old ich Hykš, Šárka Vorá ová Šárka Vorá ová (Gar.)	KZ	3	2P+2C+12E	B Z	Z
14ASD	Algorithm and Data Structures Kirill Smirnov, Jan Procházka, Petr Hnyk, Michal Je ábek, Marek Kalika, Zden k Lokaj, Jan Zelenka, Vít Fábera Michal Je ábek (Gar.)	KZ	3	0P+2C+8E	Z Z	Z
14KSP	Constructing with Computer Aid Vladimír Douda, Martin Brumovský, Lukáš Kozel, Radek Kratochvíl, Filip Müller, Lukáš Svoboda, Drahomír Schmidt Lukáš Svoboda (Gar.)	KZ	2	0P+2C+8E	3 Z	Z
18TED	Technical Documentation Jitka ezní ková	KZ	2	1P+1C+8E	B Z	Z
15DPLG	Transportation Psychology Eva Rezlerová, Jana Štikarová	Z	2	2P+0C+6E	B Z	Z
16UDOP	Introduction into Vehicles Zuzana Radová, Josef Mík, Petr Bouchner Petr Bouchner (Gar.)	Z	2	2P+0C+8E	B Z	Z
TV-1	Physical Education	Z	1		Z	Z

Characteristics of the courses of this group of Study Plan: Code=1.S.BP 17/18 Name=1.sem.bak.prez. od 17/18

11CAL1	Calculus 1	Z,ZK	7					
Sequence of real numb	Sequence of real numbers and its limit. Basic properties of mappings. Function of one real variable, its limit and derivative. Geometric properties of n-dimensional Euklidean space and							
Cartesian coordinate s	Cartesian coordinate system. Geometric meaning of the differential of functions several real variables, differential calculus of functions of several real variables.							

Cartesian coordinate system. Geometric meaning of the differential of functions several real variables, differential calculus of functions of several real variables.

11LA Linear Algebra Z,ZK

Vector spaces (linear combinations, linear independence, dimension, basis, coordinates). Matrices and operations. Systems of linear equations and their solvability. Determinants and their applications. Scalar product. Similarity of matrices (eigenvalues and eigenvectors). Quadratic forms and their classification.

12ZYDI	Introduction to Transportation Engineering	Z,ZK	2
Role of transportation	n in land-use planning. Basic terms in transportation engineering. Traffic survey and traffic prognosis. Introduction to topic of r	oads, public mass tra	nsport. Negative
impacts of transport	ation to environment and safety.		
18MTY	Materials Science and Engineering	Z,ZK	3
Basic course of mate	erials science and engineering explains mechanical properties of structural materials based on their bonding forces and micro	structure. However th	e main attentior
is paid to metals as	the most important engineering materials, also other major classes of materials are presented, namely ceramics, polymers a	and composites. Atten	ition is also paid
to degradation proce	esses in materials, to defectoscopy and to main mechanical tests.		
11GIE	Geometry	KZ	3
Orthographic and ob	lique projections, linear perspective. Topographic surfaces and their orthogonal projection. Differential geometry of curves - p	parameterization, arc	of the curve,
torsion and curvatur	e, Frenet's trihedron. Kinematics - a curve as a trajectory of the motion, the velocity and acceleration of a particle moving on	a curved path.	
14ASD	Algorithm and Data Structures	KZ	3
Students will be fami	liarized with selected basic and derived data structures, algorithms, their properties and their design procedure. Students will a	analyze problems, pro	pose theoretica
solutions to the set t	ask and the resulting algorithm write by means of flowcharts, practice in reading algorithms recorded by means of the flowch	art and use the basio	s of Boolean
	ask and the resulting algorithm write by means of flowcharts, practice in reading algorithms recorded by means of the flowch the conditions for the algorithms.	nart and use the basic	s of Boolean
		eart and use the basic	cs of Boolean
algebra with forming	the conditions for the algorithms.	KZ	2
algebra with forming 14KSP "CAD systems" term	the conditions for the algorithms. Constructing with Computer Aid	KZ on work rules in grap	2 hic applications
algebra with forming 14KSP "CAD systems" term and CA systems. Co	the conditions for the algorithms. Constructing with Computer Aid determination. CAD role in projecting system model. Existing CAD systems on Czech market. Project creation, basic comme	KZ on work rules in grap	2 hic applications
algebra with forming 14KSP "CAD systems" term and CA systems. Co	the conditions for the algorithms. Constructing with Computer Aid determination. CAD role in projecting system model. Existing CAD systems on Czech market. Project creation, basic commodinated systems, CAD environment skill (basics of constructing, dimensioning, modifications, user interfaces, projecting p	KZ on work rules in grap	2 hic applications
algebra with forming 14KSP "CAD systems" term and CA systems. Co profiles, drawings with 18TED	the conditions for the algorithms. Constructing with Computer Aid determination. CAD role in projecting system model. Existing CAD systems on Czech market. Project creation, basic commodinated systems, CAD environment skill (basics of constructing, dimensioning, modifications, user interfaces, projecting p th raster foundaments).	KZ on work rules in grap cossibilites, AutoCAD	2 hic applications environment 2
algebra with forming 14KSP "CAD systems" term and CA systems. Co profiles, drawings with 18TED	the conditions for the algorithms. Constructing with Computer Aid determination. CAD role in projecting system model. Existing CAD systems on Czech market. Project creation, basic commodifications, CAD environment skill (basics of constructing, dimensioning, modifications, user interfaces, projecting poster foundaments). Technical Documentation international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensional standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensional standardization.	KZ on work rules in grap cossibilites, AutoCAD	2 hic applications environment 2
algebra with forming 14KSP "CAD systems" term and CA systems. Co profiles, drawings wi 18TED Technical standards	the conditions for the algorithms. Constructing with Computer Aid determination. CAD role in projecting system model. Existing CAD systems on Czech market. Project creation, basic commondated systems, CAD environment skill (basics of constructing, dimensioning, modifications, user interfaces, projecting path raster foundaments). Technical Documentation international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensioning sheets.	KZ on work rules in grap cossibilites, AutoCAD	2 hic applications environment 2
algebra with forming 14KSP "CAD systems" term and CA systems. Co profiles, drawings wi 18TED Technical standards arrangement of draw 15DPLG	the conditions for the algorithms. Constructing with Computer Aid determination. CAD role in projecting system model. Existing CAD systems on Czech market. Project creation, basic commodifications, CAD environment skill (basics of constructing, dimensioning, modifications, user interfaces, projecting poster foundaments). Technical Documentation international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensional standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensional standardization.	KZ on work rules in grap possibilites, AutoCAD KZ sional and geometrics	2 hic applications environment 2 al accuracy,
algebra with forming 14KSP "CAD systems" term and CA systems. Co profiles, drawings wi 18TED Technical standards arrangement of draw 15DPLG Subject of psychology	the conditions for the algorithms. Constructing with Computer Aid determination. CAD role in projecting system model. Existing CAD systems on Czech market. Project creation, basic commondated systems, CAD environment skill (basics of constructing, dimensioning, modifications, user interfaces, projecting put raster foundaments). Technical Documentation international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensioning sheets. Transportation Psychology	KZ on work rules in grap possibilites, AutoCAD KZ sional and geometrica Z le construction. Psych	2 hic applications environment 2 al accuracy,
algebra with forming 14KSP "CAD systems" term and CA systems. Co profiles, drawings wi 18TED Technical standards arrangement of draw 15DPLG Subject of psychology	the conditions for the algorithms. Constructing with Computer Aid determination. CAD role in projecting system model. Existing CAD systems on Czech market. Project creation, basic commondated systems, CAD environment skill (basics of constructing, dimensioning, modifications, user interfaces, projecting put raster foundaments). Technical Documentation international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensional standardization. Transportation Psychology y and its basic concepts. Information intake, decision-making and behaviour. Performance. Engineering psychology and vehicle	KZ on work rules in grap possibilites, AutoCAD KZ sional and geometrica Z le construction. Psych	2 hic applications environment 2 al accuracy,
algebra with forming 14KSP "CAD systems" term and CA systems. Co profiles, drawings wi 18TED Technical standards arrangement of draw 15DPLG Subject of psycholog of travel route and tr	the conditions for the algorithms. Constructing with Computer Aid determination. CAD role in projecting system model. Existing CAD systems on Czech market. Project creation, basic commercional commercial commencial comm	KZ on work rules in grap possibilites, AutoCAD KZ sional and geometrica Z le construction. Psychort operation.	2 hic applications environment 2 al accuracy, 2 nological aspects
algebra with forming 14KSP "CAD systems" term and CA systems. Co profiles, drawings wi 18TED Technical standards arrangement of draw 15DPLG Subject of psycholog of travel route and tr 16UDOP Vehicles and transpo	the conditions for the algorithms. Constructing with Computer Aid determination. CAD role in projecting system model. Existing CAD systems on Czech market. Project creation, basic comme-ordinated systems, CAD environment skill (basics of constructing, dimensioning, modifications, user interfaces, projecting post the raster foundaments). Technical Documentation international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensioning sheets. Transportation Psychology by and its basic concepts. Information intake, decision-making and behaviour. Performance. Engineering psychology and vehicle affic conditions, accidents and traffic incidents. Selection and training of the staff. Work and leisure. Age as a factor in transportant introduction into Vehicles	KZ on work rules in grap possibilites, AutoCAD KZ sional and geometrica Z le construction. Psychort operation.	2 hic applications environment 2 al accuracy, 2 nological aspects

Code of the group: 2.S.BP 17/18

Name of the group: 2.sem.bak.prez. od 17/18

Requirement credits in the group: In this group you have to gain 30 credits

Requirement courses in the group: In this group you have to complete 9 courses

Credits in the group: 30 Note on the group:

of planar shapes. Fiber polygons and chains.

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
11CAL2	Calculus 2 Magdalena Hykšová Magdalena Hykšová (Gar.)	Z,ZK	5	2P+3C+20B	L	Z
11STAT	Statistics	Z,ZK	4	2P+2C+12B	L	Z
12ZTS	Railway Lines and Stations	Z,ZK	4	2P+2C+10B	L L	Z
18SAT	Structural Analysis	Z,ZK	4	2P+2C+14B	L L	Z
20SYSA	Systems Analysis	Z,ZK	5	2P+2C+14B	L	Z
14PRG	Programming	KZ	2	0P+2C+8B	L L	Z
17TEDL	Transport Technology and Logistics	KZ	3	2P+1C	L	Z
21ZALD	Basics of Air Transport	KZ	2	0P+2C+8B	L L	Z
TV-2	Physical Education	Z	1		L	Z

Characteristics of	f the courses of this group of Study Plan: Code=2.S.BP 17/18 Name=2.sem.bak.prez. od 17/	/18	
11CAL2	Calculus 2	Z,ZK	5
Antiderivative, Newtoni	an integral, Riemannian integral of the function of one variable, improper Riemannian integral, Riemannian integral in Rn. Pa	rametric description	on of regular
k-dimensional surfaces	in Rn, Riemannian integral over regular surfaces. Line and surface integrals of the second type, Stokes theorems, ordinary of	differential equation	ns of the first
order, linear differential	equations with constant coefficients and its systems.		
11STAT	Statistics	Z,ZK	4
Definition of probability,	random variable and its description, known distributions, random vector, function of random variable. Methods of point estimation	on. Testing of statis	tical hypothesis
Regression and correla	tion, linear regression, correlation coefficient, coefficient of determination, the general linear model, statistical inference in line	ar regression, ana	lysis of variance
multiple regression, the	e use of matrices in regression.		
12ZTS	Railway Lines and Stations	Z,ZK	4
Rail transport. Railway	track geometry parameters. Route layout of railway lines. Railway line construction - railway substructure and superstructure.	Spatial layout of r	ailway lines.
Railway control system	s in relation to infrastructure. Operating and carriage points. Railway lines net and category. Traction in rail transport.		
18SAT	Structural Analysis	Z,ZK	4
General system of forc	es in plane and space. Calculation of reactions of bodies and structures. Assessment of internal forces on statically determin	ate beams and sin	nple girders.
Principle of virtual work	Kinematic method for calculation of reactions of statically determinate systems. Determination of axial forces in truss construction	ons. Cross-section	al characteristics

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20SYSA	Systems Analysis	Z,ZK	5
Introduction to syste	n sciences, system viewpoint, terminology, typical system analysis tasks, system identification, system interface and interface ta	sks, processes, s	ystem behaviour
and its analysis, stro	ng functions and processes, genetic code, system identity, system architecture. Tools for system analysis - Petri nets, decision t	ables, algorithms	for structural
tasks. Soft and hard	systems, methods for soft system analysis.		
14PRG	Programming	KZ	2
Algorithm developme	ent, methods of structured programming, high-level programming languages, basics of C programming languages (types, variab	les, conditions, cy	/cles, arrays,
functions), programn	ning techniques, complexity.		
17TEDL	Transport Technology and Logistics	KZ	3
Basic terms in transp	port technology and logistics, particular steps of transport planning, line planning, timetabling, planning in pasanger and freight	transport, organis	ation of traffic in
each transport modu	is, technologic factors of the side of operator and client, organisation of city transport, logistic technologies and their aplication u	using various trans	sport modus.
21ZALD	Basics of Air Transport	KZ	2
History, definitions, to	erminology, basic rules. VFR/IFR. Basics of aerodynamics. Propulsion of aircraft. Aircraft design. Basics of navigation, radio navigat	ion. Weight, balan	ce, performance.
Flight planning, optir	nization of speed and heights, minimum fuel. Limitations of operation, maintenance, service life of aircraft. Traffic management, 🤉	ground handling, s	ecurity. Air crew.
Airlines and econom	ics. Space technologies.		
TV-2	Physical Education	7	1

Code of the group: 3.S.BP 18/19

Name of the group: 3.sem.bak.prez. od 18/19

Requirement credits in the group: In this group you have to gain 30 credits

Requirement courses in the group: In this group you have to complete 8 courses

Credits in the group: 30 Note on the group:

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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
11FYZ	Physics Tomáš Vít , Zuzana Malá, Marek Honc Zuzana Malá Zuzana Malá (Gar.)	Z,ZK	5	2P+2C+18B	Z	Z
12MDE	Transport Models and Transport Excesses Milan Dont, Josef Kocourek	Z,ZK	3	2P+1C+8B	Z	Z
17TGA	Graph Theory and its Applications in Transport Alena Rybi ková, Denisa Mocková, Dušan Teichmann Alena Rybi ková (Gar.)	Z,ZK	4	2P+2C+12B	Z	Z
18PZP	Elasticity and Strength Petr Zlámal, Jan Vy ichl, Tomáš Doktor, Josef Jíra, Petr Koudelka, Jan Šleichrt, Tomáš Doktor, Daniel Kytý, Jan Šleichrt,	Z,ZK	3	2P+1C+10B	Z	Z
20UITS	Introduction to Intelligent Transport Systems Vladimír Faltus, Ji í R ži ka, Pavel Hluska, Kristýna Navrátilová, Pavel Hrubeš, Martin Langr, Patrik Horaž ovský, Tomáš Zelinka, Ji í R ži ka	Z,ZK	7	3P+2C+20B	Z	Z
12PPOK	Designing Roads, Highways and Motorways Petr Šatra, Ji í arský, Jan Gallia, Tomáš Pad lek, Petr Kumpošt	KZ	3	1P+2C+10B	Z	Z
14DATS	Database Systems Martin Šrotý, Jan Kr ál, Jana Kaliková Jana Kaliková (Gar.)	KZ	2	1P+1C+10B	Z	Z
15JZ1A	Foreign Language - English 1 Eva Rezlerová, Dana Boušová, Jitka He manová, Barbora Horá ková, Marie Michlová, Lenka Monková, Markéta Olehlová, Markéta Vojanová, Peter Morpuss,	Z	3	0P+4C+10B	Z	Z

Characteristics of the courses of this group of Study Plan: Code=3.S.BP 18/19 Name=3.sem.bak.prez. od 18/19 11FYZ Z,ZK Kinematics, particle dynamics, dynamics of particle systems and rigid body. Continuum mechanics, thermodynamics. 12MDE Transport Models and Transport Excesses Z,ZK Parameters of the traffic flow and methods for their measurement. Models of the traffic flow, communications load, line and urban systems. Theory of queues, shock waves. Quality of transport and its assessment. Statistical characteristics of transport. Transport excesses, their analysis, the causes, identify and minimize the consequences. Improving of transport safety and fluency. 17TGA Graph Theory and its Applications in Transport Z,ZK Basic terms of graph theory, paths in graphs, flows in networks, location problems, design problems on graphs, optimum routing, use of graphs in other scientific disciplines 18PZP Elasticity and Strength Z,ZK Tension and compression, Bending of beam, Shear stress during bending of beam, Design and analysis of cross section of beam, Design of riveted, bolted and welded joint of structure. Analysis of deflection curve of beam. Torsion of circle cross section. Combined loading. Stability of compressed bar and buckling. Beam on elastic foundation. Strength analysis. **20UITS** Introduction to Intelligent Transport Systems Terminology and legislative framework telematics systems and their architecture. Telematics systems in practice and their operation. Fundamentals of information and telecommunication systems for ITS. Principles and technical support measurement of traffic data, localization and navigation. Practical work with traffic data. Real examples of possible applications of the principles of ITS. Designing Roads, Highways and Motorways Definition, types, ownership, maintenance, management and categorization of roads and highways. Curve and transition curve. Sinuosity and standard speed. Route in rural areas. Range of vision for stopping and overtaking. Road body - shapes and proportions, bottom and superstructure. Drainage and components of roads. Safety device. Crossings, junctions, intersections 14DATS Database Systems Basic concepts of database systems, conceptual model, relational data model, the principles of normal forms, relational database design, security and integrity of data, database

queries, relational algebra, SQL language, client / server, multilayer architectures, distributed database systems. Access to data via the WWW.

15JZ1A Foreign Language - English 1

Z

Grammatical structures and style. Selection of conversation topics relating to transportation sciences. Extending vocabulary, developing perceptive and communicative skills. Elementary stylistics forms. Oral and written presentation of original research. Academic text principles and reading comprehension. Principles of rhetoric.

Code of the group: 4.S.BLED 16/17

Name of the group: 4.sem.LED bak.prez. (od) 16/17

Requirement credits in the group: In this group you have to gain 26 credits

Requirement courses in the group: In this group you have to complete 8 courses

Credits in the group: 26 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
11MSP	Modeling of Systems and Processes Bohumil Ková	Z,ZK	4	2P+2C+12E	L L	Z
21LTN	Air Navigation	Z,ZK	2	2P+1C+12E	B L	Z
21LTTE	Aerodromes	Z,ZK	4	2P+1C+12E	B L	Z
21ZYL1	Principles of Flight 1	Z,ZK	5	2P+2C+16E	B L	Z
21LL1	Aircraft 1 Ladislav Keller	KZ	3	2P+1C+10E	B L	Z
21MRG	Meteorology	KZ	3	1P+1C+10E	B L	Z
21ULCT	Aircraft Maintenance	Z	2	2P+0C+8E	B L	Z
15JZ2A	Foreign Language - English 2	Z,ZK	3	0P+4C+10E	B L	Z

Characteristics of the courses of this group of Study Plan: Code=4.S.BLED 16/17 Name=4.sem.LED bak.prez. (od) 16/17

TTIVISP	Modeling of Systems and Processes	∠,∠ r \	4
Mathematical methods	and algorithms as a basis for system analysis. Methods for modelling and evaluating the systems in continuous and discrete	time domain. Lap	olace transform,
z-transform, and the rec	ursive algorithms in solution of differential and difference equations, as an instrument for system description. Practical use of	i technical compu	ıting environment
(MAATLAD)			

21LTN Air Navigation Z,ZK 2

Earth - its shape, parameters and properties. Aeronautical charts and their use. Measuring time. Dead reckoning. Radionavigation aids. Global navigation satellite systems. Air traffic services routes and their design.

21LTTE Aerodromes Z,ZK 4

Aerodrome reference point and temperature, TORA, TODA, ASDA, LDA. Taxiway and apron. Clearway. Stopway. Obstacle limitation surfaces. Runway marking. Runway zone lights. Environmental conditions. Public traffic.

21ZYL1 Principles of Flight 1 Z,ZK 5

Aerodynamic drag, relation between drag and speed, streamline, boundary layer, formula of continuity, formula of Bernoulli, lift and drag, air flow and pressures around wing, angle of attack, reactions of wing in air flow, lift and drag of a wing and an aircraft, coefficient of lift and drag, critical angle of attack, wing with final span, induced drag, interference, devices for lift and drag increase.

IIIT and drag increase.

21LL1 Aircraft 1 KZ 3

Aircraft structural and conceptual design types - definitions and basic knowledge of the problem. Development of requirements, aircraft definitions and categorisation. Aircraft loadings. Systems of primary and secondary airframe structure. Airframe and propulsion unit. Lectures are devoted to aeroplane topics.

21MRG Meteorology KZ 3

Structure of atmosphere. Vertical stratification. Pressures QNH, QFE, QFF, QME. Instability. Atmospherical fronts. Atmospherical rainfall, origin fission. Turbulence. Powers causing wind. Cyclone and anticyclone. Gradient wind. Geostrofical and geocyklostrofical wind. Visibilities in air transport. Dangerous meteorological aspects. Meteorological maps. Climatology Circulation. Intertropical front. Meteorological informations.

21ULCT Aircraft Maintenance Z 2

Aircraft operations and technical operations. Maintenance and work processes. Defects search methods, status check diagnostic tools. Selection and qualification of aviation personnel. Basic documentation for maintenance. Optimization of time maintenance intervals. Regulation no. 1321/2014 Part 145. Human factors of aircraft maintenance. Regulation of director EASA for aircraft maintenance. Seminars will be focused on practical application.

15JZ2A Foreign Language - English 2 Z,ZK 3

Grammatical structures and style. Selection of conversation topics relating to transportation sciences. Extending vocabulary, developing perceptive and communicative skills. Elementary stylistics forms. Oral and written presentation of original research. Academic text principles and reading comprehension. Principles of rhetoric.

Code of the group: 5.S.BLED 17/18

Name of the group: 5.sem.LED bak.prez. (od) 17/18

Requirement credits in the group: In this group you have to gain 23 credits

Requirement courses in the group: In this group you have to complete 7 courses

Credits in the group: 23

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
21LCM	Aircraft Engines Jakub Kraus, Denisa Kupková, Michal Freigang, František Straka, Roman Matyáš, Pavel Valenta, Kate ina Stuchlíková, Tomáš Parýzek, Denisa Kupková,	Z,ZK	3	2P+1C	Z	Z
21LGP	Legislation and Operational Regulations Jakub Kraus, Adéla Zmeškalová, Peter Vittek, Adéla Zmeškalová, Radoslav Zozu ák, Tomáš Pustina	Z,ZK	5	2P+2C	Z	Z
21LTA2	Aircraft 2 Jakub Kraus, Roman Matyáš, Jakub Hospodka, Tomasz Balcerzak, Anna Ka eriaková, Vladimír Plos, Old ich Štumbauer, Ladislav Keller	Z,ZK	2	2P+1C	Z	Z
21ZT	ATM Systems Jakub Kraus, Tereza Topková, Stanislav Pleninger, Terézia Pilmannová	ZK	2	2P+0C	Z	Z
21ZYL2	Principles of Flight 2 Jakub Kraus, Roman Matyáš, Jakub Hospodka, Vojt ch Svoboda, Vladimír Machula, Václav Brož, P emysl Vávra, Lenka Hanáková, Liana Karapetjan,	Z,ZK	5	2P+2C	Z	Z
21LAG1	English for Aviation 1 Jakub Kraus, Terézia Pilmannová, Václav Brož, Sarah Van Den Bergh, Andrej Lališ, Slobodan Stoji , Max Chopart	KZ	3	0P+2C	Z	Z
21PDLE	Airport Design and Operation Jakub Kraus, Roman Voká, Petr Líka	KZ	3	1P+1C	Z	Z

	of the courses of this group of Study Plan: Code=5.S.BLED 17/18 Name=5.sem.LED bak.pre	` '	
21LCM	Aircraft Engines	Z,ZK	3
Aircraft piston engine	e, theoretical background, operational characteristics and construction schemes. Propellers, operational characterictics. Turbine	engine, theoretical	background,
hermal cycles, cons	truction schemes, operational characteristics. Turbojet and turbofan engines, basic construction modules, and their operational o	characteristics. Eng	gine control.
21LGP	Legislation and Operational Regulations	Z,ZK	5
ntroduction into avia	tion regulations. The scope of international and national organizations in civil aviation. Analysis and interpretation of the ICAO A	nnexes 1-19, ICA	Docs. 4444
7030, 8168. Introduc	tion to the European Parliament and Council Regulation (EC), Commission Regulation (EU) and the Decisions of the Executive	Director of EASA.	
21LTA2	Aircraft 2	Z,ZK	2
Manufacturers respo	nsibility, responsibilities of operator and professional supervising. Legislation in area of airworthiness. International and national	standards. Static s	olidity of aircr
structures. Aeroelas	icity. Inherent and operational reliability of aircraft structure. Fatigue strength. Aircraft structure lifetime presumption.		
21ZT	ATM Systems	ZK	2
The course introduc	es classical and modern facilities, systems and technologies designated for ATS. Student obtains knowledge of technical princip	les and solutions a	as far as
communication, nav	gation and surveillance aviation systems are concerned.		
21ZYL2	Principles of Flight 2	Z,ZK	5
Nays of producing th	rust, propeller, jet propulsion, thrust and momentum, propulsion efficiency, aerodynamics of fixed and variable pitch propeller, pro	opeller operation m	nodes, propel
airstream effect, gyr	oscopic effect, balance of forces in horizontal flight, glide and landing, performances, take off an climb, acceleration, positive loa	d, manoevures, sta	ability and
controllability, transs	onic speeds.		
21LAG1	English for Aviation 1	KZ	3
Familiarity with the to	erminology used in civil aviation in the general context and emphasizing the ability to receive information only in English.	'	
21PDLE	Airport Design and Operation	KZ	3
Methods for the new	airports design. Existing airports development. A closer look at the development of the airports operational areas. Certification of th	ne operating areas	and procedur
ov ICAO Airports Ma	nual. Development planning and project preparation, regulatory basis.		

Code of the group: 6.S.BLED 17/18

Name of the group: 6.sem.LED bak.prez. 17/18

Requirement credits in the group: In this group you have to gain 23 credits

Requirement courses in the group: In this group you have to complete 7 courses

Credits in the group: 23

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
21ELED	Air Transport Economy	Z,ZK	4	2P+2C+14E	L	Z
21LIVO	Human Performance and Limitations	Z,ZK	5	2P+2C+14E	L L	Z
21OBP	Airline Business and Operations	Z,ZK	3	2P+1C+12E	L L	Z
21PAP	Flight Planning and Performance	Z,ZK	4	2P+2C+14E	L	Z
21LAG2	English in Aviation 2	KZ	3	0P+2C+10E	L L	Z
21PJE	Aircraft Instruments	KZ	2	2P+0C+8E	L	Z
21RILP	Air Traffic Control	Z	2	0P+2C+8E	L	Z

Characteristics of the courses of this group of Study Plan: Code=6.S.BLED 17/18 Name=6.sem.LED bak.prez. 17/18

21ELED Air Transport Economy Z.ZK Economic benefits of air transport. Costs of airline. Revenue management. Fuel management. Currencies development. Demand and supply. Rates in air transport. Aircraft selection. Fleet asignment. Aging of aircraft. Airlines bankrupcty. Crew planning. Marketing in Air Transport. Cargo tariff and rates. Air network configuration. 21LIVO **Human Performance and Limitations** Z,ZK Human performace & amp; limitations, aptibility & amp; competence, accident statistics, flight safety, basics of flight physiology, man & amp; environment, breathing & amp; circulation, sensory system, health & amp; hygiene, health preservation, intoxication, incapacitation, basics of flight psychology, human information processing, memory & amp; learning, theory & model of human error, body rhythms & sleep, stress, fatigue, working methods. 210BP Z,ZK Airline Business and Operations Airline business and operation abbreviations and terminology. Civil aviation structure in the Czech republic. Act No. 49/1997 Coll., on civil aviation. Air transport regulations ICAO, EU. IATA, ICAO, ECAC, JAA, EUROCONTROL. Air operators. Air transport distribution. Global distribution and reservation systems. Agreements among air operators. Air traffic manuals and publications. Passenger and cargo air transport. 21PAP Flight Planning and Performance 7.7K

Mass and balance. Load of aircraft. Determination of centre of gravity - loadsheet, trimsheet. Aircraft weighing. Overloading of aircraft. Basic characteristic speeds. Runway characteristics. Take off and landing performance. Drift down. ETOPS. MEL. Flight planning and monitoring. Routing. FL and speeds selection. Charts. ICAO ATC FPL. Aerodrom operation minimums. Fuel plan. Operational flight plan.

21LAG2 | English in Aviation 2

Terminology in the sphere of aircraft construction, principles of flight, aircraft engines, instruments and systems.

21PJE Aircraft Instruments KZ 2

Overview of aircraft instrumentation and its principles and construction, aircraft electrical systems, engine measuring and monitoring systems, air data computer, icing monitoring systems, gyroscopic indicators, inertial and radio navigation means, communication means, data recorders, complex flight and navigation data processing systems.

Air traffic services and their distribution. Organization of air traffic, flow and capacity management. Airspace management. System support for aircraft flying through space. Flight plan, the form, content. Separation of aircraft. Reports of air traffic services, the form, content. Harmonization and integration of ATC. CFMU and its subsystems. Flexible use of airspace - FUA. RVSM, RNP. New trends in the area of ATC.

Name of the block: Semestrální projekt Minimal number of credits of the block: 6

Air Traffic Control

The role of the block: ZP

21RILP

Code of the group: XB 4,5,6 13/14

Name of the group: Projekty bak. 4.5.6.sem. (od) 13/14 - pro B3710 Requirement credits in the group: In this group you have to gain 6 credits

Requirement courses in the group: In this group you have to complete 3 courses

Credits in the group: 6 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
11X31	Project 1	Z	2	0P+1C	L	ZP
12X31	Project 1	Z	2	0P+1C	L	ZP
14X31	Project 1	Z	2	0P+1C	L	ZP
15X31	Project 1	Z	2	0P+1C	L	ZP
16X31	Project 1	Z	2	0P+1C	L	ZP
17X31	Project 1	Z	2	0P+1C	L	ZP
18X31	Project 1	Z	2	0P+1C	L	ZP
20X31	Project 1	Z	2	0P+1C	L	ZP
21X31	Project 1	Z	2	0P+1C	L	ZP
22X31	Project 1	Z	2	0P+1C	L	ZP
23X31	Project 1	Z	2	0P+1C	L	ZP
11X32	Project 2	Z	2	0P+2C	Z	ZP
12X32	Project 2 Dagmar Ko árková, Zuzana arská, Vojt ch Novotný, Josef Kocourek, Roman Dostál, Karolína Moudrá, Ji í arský, Jan Gallia, Tomáš Pad lek,	Z	2	0P+2C	Z	ZP
14X32	Project 2 Zden k Lokaj, Vít Fábera, Tomáš Zelinka, Martin Šrotý , Jan Kr ál, Jana Kaliková, Ota Hajzler	Z	2	0P+2C	Z	ZP
15X32	Project 2 Eva Rezlerová	Z	2	0P+2C	Z	ZP
16X32	Project 2 Josef Mík, Petr Bouchner, Milan Sliacky, Adam Orlický	Z	2	0P+2C	Z	ZP
17X32	Project 2 Alena Rybi ková, Denisa Mocková, Dušan Teichmann, Václav Baroch, Edvard B ezina, Michal Drábek, Alexandra Dvo á ková, Veronika Faifrová, Tomáš Horák,	Z	2	0P+2C	Z	ZP

18X32	Project 2	Z	2	0P+2C	Z	ZP
20X32	Project 2	Z	2	0P+2C	Z	ZP
21X32	Project 2	Z	2	0P+2C	Z	ZP
22X32	Project 2 Michal Frydrýn, Karel Kocián, Luboš Nouzovský, Zden k Svatý, Tomáš Mi unek	Z	2	0P+2C	Z	ZP
23X32	Project 2	Z	2	0P+2C	Z	ZP
11X33	Project 3	Z	2	0P+1C	L	ZP
12X33	Project 3	Z	2	0P+1C	L	ZP
14X33	Project 3	Z	2	0P+1C	L	ZP
15X33	Project 3	Z	2	0P+1C	L	ZP
16X33	Project 3	Z	2	0P+1C	L	ZP
17X33	Project 3	Z	2	0P+1C	L	ZP
18X33	Project 3	Z	2	0P+1C	L	ZP
20X33	Project 3	Z	2	0P+1C	L	ZP
21X33	Project 3	Z	2	0P+1C	L	ZP
22X33	Project 3	Z	2	0P+1C	L	ZP
23X33	Project 3	Z	2	0P+1C	L	ZP

Characteristics of the courses of this group of Study Plan: Code=XB 4,5,6 13/14 Name=Projekty bak. 4.5.6.sem. (od) 13/14 - pro B3710

11X31	Project 1	Z	2
12X31	Project 1	Z	2
14X31	Project 1	Z	2
15X31	Project 1	Z	2
16X31	Project 1	Z	2
17X31	Project 1	Z	2
18X31	Project 1	Z	2
20X31	Project 1	Z	2
21X31	Project 1	Z	2
22X31	Project 1	Z	2
23X31	Project 1	Z	2
11X32	Project 2	Z	2
12X32	Project 2	Z	2
14X32	Project 2	Z	2
15X32	Project 2	Z	2
16X32	Project 2	Z	2
17X32	Project 2	Z	2
18X32	Project 2	Z	2
20X32	Project 2	Z	2
21X32	Project 2	Z	2
22X32	Project 2	Z	2
23X32	Project 2	Z	2
11X33	Project 3	Z	2
12X33	Project 3	Z	2
14X33	Project 3	Z	2
15X33	Project 3	Z	2
16X33	Project 3	Z	2
17X33	Project 3	Z	2
18X33	Project 3	Z	2
20X33	Project 3	Z	2
21X33	Project 3	Z	2
22X33	Project 3	Z	2
23X33	Project 3	Z	2

Name of the block: Compulsory elective courses

Minimal number of credits of the block: 6

The role of the block: PV

Code of the group: Y1-BLED 18/19

Name of the group: PVP bak.prez.LED 18/19

Requirement credits in the group: In this group you have to gain 6 credits

Requirement courses in the group: In this group you have to complete 3 courses Credits in the group: 6 Note on the group:

Note on the g						
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
20Y1AF	Alternative Forms of Transportation Project Financing	KZ	2	2P+0C	Z	PV
18Y1AM	Anatomy, Mobility and Safety of Man Jitka Jirová	KZ	2	2P+0C	Z	PV
14Y1AV	Animation and Visualization	KZ	2	2P+0C	L	PV
20Y1AE	Applied Electronics Tomáš Musil	KZ	2	2P+0C	Z	PV
14Y1BE	Barrierless Transport Jan Kr ál	KZ	2	2P+0C	L	PV
21Y1BC	Aviation safety and security	KZ	2	2P+0C	L	PV
15Y1BO	Work Safety and Health Protection in Transportation	KZ	2	2P+0C	L	PV
21Y1BS	Unmanned aircraft systems 1	KZ	2	2P+0C	L	PV
14Y1BM	Biometric Methods	KZ	2	2P+0C	Z	PV
23Y1DZ	Data and Their Processing for Engineering Fields Needs	KZ	2	2P+0C	Z	PV
12Y1DS	Project Documentation in Practice	KZ	2	2P+0C	Z	PV
15Y1DZ	History of Railway	KZ	2	2P+0C	L	PV
20Y1EK	Qualification in Electrical Engineering	KZ	2	2P+0C	L	PV
16Y1EN	Energy Requirements of Vehicles	KZ	2	2P+0C	L	PV
20Y1EA	Environmental Aspects of Transport	KZ	2	2P+0C	Z	PV
15Y1EH	European Integration within Historical Context Eva Rezlerová, Jan Feit	KZ	2	2P+0C	Z	PV
18Y1EM	Experimental Methods in Mechanics Daniel Kytý	KZ	2	2P+0C	Z	PV
21Y1FN	Factors Affecting the Rate of Accidents in Aviation	KZ	2	2+0	Z	PV
15Y1FD	French Area Studies and Transportation	KZ	2	2P+0C	L	PV
14Y1HW	Computer Hardware Vit Fábera	KZ	2	2P+0C	L	PV
15Y1HL	(History of Civil Aviation)	KZ	2	2P+0C	L	PV
15Y1HD	History of City Mass Transport Eva Rezlerová, Milan Dont	KZ	2	2P+0C	Z	PV
12Y1HD	Traffic Noise	KZ	2	2P+0C	L	PV
15Y1HE	Work Hygiene and Ergonomics in Traffic Eva Rezlerová, Petr Musil	KZ	2	2P+0C	Z	PV
16Y1IS	Interactive Systems and Simulations	KZ	2	2P+0C	L	PV
12Y1KN	Combined Transportation	KZ	2	2P+0C	Z	PV
23Y1KO	Quantum Physics and Optoelectronics	KZ	2	2P+0C	L	PV
21Y1LA	Aerobatics	KZ	2	2+0	L	PV
21Y1LR	Radio Technology in Aviation	KZ	2	2+0	L	PV
17Y1LL	Logistics of Passenger and Freight Air Transport	KZ	2	2P+0C	L	PV
20Y1LN	Location and Navigation	KZ	2	2P+0C	L	PV
21Y1MZ	Managerial Ethics	KZ	2	2+0	Z	PV
17Y1MD	Marketing in Transportation Petra Skolilová	KZ	2	2P+0C	Z	PV
11Y1MM	Mathematical Models in Economy	KZ	2	2P+0C	Z	PV
18Y1MT	Engineering Materials	KZ	2	2P+0C	L	PV
21Y1MP	Matlab for project-oriented study Lenka Hanáková, Vladimír Socha	KZ	2	2P+0C	Z	PV
14Y1MP	Modeling Complex Assemblies and Models in Parametric Modeller	KZ	2	2P+0C	Z	PV
15Y1MK	Modern History in Context: Every Day Life and Transport	KZ	2	2P+0C	L	PV
15Y1NE	German in the Economy and Society	KZ	2	2P+0C	Z	PV
23Y1OK	Protection of Critical Objects and Infrastructures	KZ	2	2P+0C	L	PV
20Y1OI	Fare Collection and Information Systems	KZ	2	2P+0C	L	PV
14Y1OP	Operating System	KZ	2	2P+0C	Z	PV

17Y1OF	Personal Finance	KZ	2	2P+0C	Z	PV
11Y1PV	Parametrical and Multicriterial Programming Olga Vraštilová	KZ	2	2P+0C	Z	PV
17Y1PM	Personnel Management	KZ	2	2P+0C	L	PV
14Y1PI	Corporate Information System	KZ	2	2P+0C	Z	PV
14Y1PZ	Advanced Data Processing in Spreadsheets	KZ	2	2P+0C	Z	PV
12Y1PD	Assessment of Transport Structures Kristýna Neubergová	KZ	2	2P+0C	Z	PV
14Y1PG	Computer Graphics	KZ	2	2P+0C	L	PV
14Y1P2	Computer Aid of Transportation Projecting 2	KZ	2	2P+0C	Z	PV
18Y1PS	Computer Simulations in Mechanics	KZ	2	2P+0C	L	PV
20Y1PK	Product Quality Management Processes Martin Leso	KZ	2	2P+0C	Z	PV
14Y1PJ	C Programming Language Vit Fábera	KZ	2	2P+0C	Z	PV
12Y1C1	Designing Roads in Civil 3D I	KZ	2	2P+0C	L	PV
12Y1C2	Designing Roads in Civil 3D II	KZ	2	2P+0C		PV
	Tomáš Honc					
14Y1PA	3D Modeling in AutoCAD	KZ	2	2P+0C	Z	PV
16Y1PV	Operation, Construction and Maintenance of Vehicles	KZ	2	2P+0C	L	PV
12Y1PU	Organization Disposition of Railway Stations	KZ	2	2P+0C	L	PV
12Y1PC	Pedestrian and Cycling Transport	KZ	2	2P+0C	L .	PV
17Y1ST	Titan Simulation	KZ	2	2P+0C	L .	PV
20Y1SC	Sensors and Actuators	KZ	2	2P+0C	L	PV
17Y1SL	Sociology of Human Resources	KZ	2	2P+0C	Z	PV
11Y1SI	Transportation Software Engineering	KZ	2	2P+0C	Z	PV
22Y1SZ	Forensic Expertise	KZ	2	2P+0C	L	PV
16Y1KS	Quality and Reliability of Vehicles Jaroslav Machan	KZ	2	2P+0C	Z	PV
12Y1SU	Road Management and Maintenance	KZ	2	2P+0C	L	PV
21Y1TH	Aircraft Technical Handling Jakub Kraus, Anna Polánecká	KZ	2	2P+0C	Z	PV
11Y1TG	Graph Theory	KZ	2	2P+0C	L	PV
14Y1TI	Creating Interactive Internet Applications	KZ	2	2P+0C	L	PV
12Y1VC	Waterways and Shipping	KZ	2	2P+0C	Z	PV
23Y1VS	Negotiation and Cooperation	KZ	2	2P+0C	Z	PV
14Y1VM	Development of Applications for Mobile Devices	KZ	2	2P+0C	Z	PV
16Y1VT	Development in Railroad Vehicles	KZ	2	2P+0C	L	PV
14Y1W1	Webdesign 1	KZ	2	2P+0C	Z	PV
14Y1W2	Webdesign 2	KZ	2	2P+0C	L	PV
16Y1ZL	Vehicle Testing, Legislation and Construction Josef Mik	KZ	2	2P+0C	Z	PV
16Y1ZG	Introduction into Applied Computer Graphics	KZ	2	2P+0C	L	PV
14Y1ZM	Fundamentals of Parametric and Adaptive Programming	KZ	2	2P+0C	L	PV
11Y1ZM	Foundation of MATLAB Programming	KZ	2	2P+0C	L	PV
12Y1ZU	Principles of Urbanism Karel Hájek	KZ	2	2P+0C	Z	PV
15Y1ZV	East-West dichotomy: Prelude to the Cold War Eva Rezlerová, Marie Michlová	KZ	2	2P+0C	Z	PV
21Y1UT	Airports Maintenance	KZ	2	2+0	L	PV
14Y1UP	Editing of Theses in MS Word	KZ	2	2P+0C	L	PV
18Y1UK	Introduction of Rail Vehicles	KZ	2	2P+0C	L	PV
16Y1RE	Control and Electronic Vehicle Systems Josef Mík, Ji í First	KZ	2	2P+0C	Z	PV
21Y1RZ	Human Resources Management	KZ	2	2P+0C	L	PV

Characteristics of the courses of this group of Study Plan: Code=Y1-BLED 18/19 Name=PVP bak.prez.LED 18/19

20Y1AF Alternative Forms of Transportation Project Financing KZ 2
In will be specifed such forms of financing in transportation and telecomunications, where the public sector body perform the final debtor, i. e. debt payments come from its budget but the final debtor is not a direct participant of the transaction and it is not the counterparty of the financial institute which provides the funding. Issue of securities as an alternative source of transportation and telecomunication projects.

18Y1AM Anatomy, Mobility and Safety of Man	KZ	2
Survey of tissues. Anatomical structure and growth of bones. Articular joint. Remodelling of bone tissue. Anatomical structure of muscles. Blood ci	irculation and nervous s	ystem. Structure
and biomechanics of muscular-skeletal system. Injury of human organs and musculo-skeletal system during traffic accidents. Mobility of ill and	injured man and his tre	eatment. Human
joint prostheses. Protective means and traffic safety regulations.		
14Y1AV Animation and Visualization	KZ	2
Introducing and basic 3D primitives and their basic modifications and transformations. Creating 3D scenes. Transformations of 3D primitives, co		
3D primitives, creating 3D bodies as non-primitives. Using of surfaces. Working with materials and material editors. Lightnings. Setting of light and	a material parameters.	scene capturing.
Camera settings, moving in the scene. Rendering and making animation.	V7	2
20Y1AE Applied Electronics	KZ	2
Basic electronic semiconductor components, their principles, characteristics and typical connection diagrams. Semiconductor PN junction diod amplifiers, basic logic gates. Functions of basic electronic circuits and methods for their designs (rectifiers, voltage regulator with Zener diode,		•
amplifier as an inverting and noninverting amplifier).	transistor as arrampiint	or, operational
14Y1BE Barrierless Transport	KZ	2
The issue of barrierless accessible public transportation in terms of architectural barriers and also for transportation-technological point of view.	1	
of barrierless environment roads, railway stations, public transport stops, terminal buildings, vehicles, public transport, information and orientation	-	_
Theoretical knowledge will be supplemented by practical examples.	,	0,7
21Y1BC Aviation safety and security	KZ	2
History of safety and security development in aviation. Modern tools for safety and security management. Research and development of safe a		
15Y1BO Work Safety and Health Protection in Transportation	KZ	2
Fundamental legislative, definition of terms, risks and possible health damage, working conditions and health protection with focus on transpor		
health insurance of home and foreign business trips, statistics, working practice.	•	-
21Y1BS Unmanned aircraft systems 1	KZ	2
Unmanned Aviation Development. Aircraft design. Legislation in force in the Czech Republic. Planning and execution of the flight. Airspace division	sion. Operational risks	and operational
procedures. Practical flights.		
14Y1BM Biometric Methods	KZ	2
Basic biometric terms, authentication methods, principles and performance measurement of biometric systems, overview of biometric technologies.	ogies, hand geometry, it	is recognition,
retina recognition method, 2D and 3D face recognition, vein patterns on the wrist, ear biometrics, fingerprint recognition, skin spectroscopy, be	havioral methods, the ι	ise of biometrics
in transport applications, safety and risks of biometric technologies.		
23Y1DZ Data and Their Processing for Engineering Fields Needs	KZ	2
Courses of risk, basic terms, data collection, data sets, data random uncertainty and data epistemic uncertainty, data processing, hazard, risk,	value scales, analytica	l, empirical and
heuristic methods, hazard determination and risk determination, methods for variants' creation, decision support systems.		
12Y1DS Project Documentation in Practice	KZ	2
Project documentation creating. Project documentation types. Support materials for project documentation creating. Building permit obtaining p	process. Budget and pri	cing. Practical
creation of some project documentation parts.		
15Y1DZ History of Railway	KZ	2
Horse-drawn railways, steam railways, railway network development in the 2nd half of 19th century, regional railways epoch, railways of the "Fi		
War II railways, railway development in the 2nd half of 20th century, high-speed railway origins, railway lines closing, important long-distance train	connections, railway lir	nes construction,
railway accidents, railway junctions. Excursions and projections.	1/7	-
20Y1EK Qualification in Electrical Engineering	KZ	2
Practical experience with measurements in laboratories, electrical equipment, power supply, electrical installation of low voltage, electric shock		_
voltage, maximum allowed currents, electrical equipment protection against short circuit and overload protection, control and revision, first aid, in relation to health and safety and electrical engineering.	legisiation, standards a	ind regulations
	KZ	2
16Y1EN Energy Requirements of Vehicles Dynamics and the driving inertial of the vehicles. Types of energy - kinetic, static, heat, chemical and others. Ways of energy change into kinetic		
drive, steam engine, air engine. Energy accumulation means, accumulator, flywheel, fuel cell. Energy recuperation. WTW analysis.	c energy. Combustion e	rigirie, electric
20Y1EA Environmental Aspects of Transport	KZ	2
State of the atmosphere, weather observation network, weather in transportation, road meteorology. Weather forecasting, data assimilation, pro		
Air quality, main pollutants and their effects, atmospheric chemistry, traffic emissions. Greenhouse gasses, carbon cycle, a role of energy and t		
15Y1EH European Integration within Historical Context	KZ	2
Versailles system, formation of new states. Europe and the powers, League of Nations. European policy in the 1920s. Fascism, nacism, communications of the states and the powers of Nations.	1	
goals. Europe after Hitler's getting to power, system of bilateral agreements. Decline of the LN. Rearrangement of powers during WWII. Cold was		
New quality of French-German relationship - a driving power of starting European integration.	·	•
18Y1EM Experimental Methods in Mechanics	KZ	2
The purpose and role of experimental mechanics. Sensors for mechanical testing. Overview of experimental methods. Destructive and non-des		
experimental procedures and sample preparation. Tensile and bending tests. Electrical resistance strain gages. Optical based strain measurem	-	-
Instrumented hardness testing. Introduction to electron microscopy. Errors in measurement.		
21Y1FN Factors Affecting the Rate of Accidents in Aviation	KZ	2
Introduction. The scope of international and national organizations in civil aviation. The scope of the investigation organisations within the state	and international comr	nittees. Analysis
and interpretation of ICAO Annexes 13 and 19. Analysis and interpretation of the Regulation (EC), Regulation (EU). Human factor. Utilization of	f information from the in	nvestigation
reports.		
15Y1FD French Area Studies and Transportation	KZ	2
France - geography and regions, transport infrastructure. Paris and its sights, city public transport. Road traffic, motorways, railway traffic, TGV,	=	erminology.
French society and culture. Current political system. System of education, studying in France. Selected authors of French literature. French gas		
14Y1HW Computer Hardware	KZ	2
Design combinational and sequential logical circuits and their implementation on FPGA, VHDL language. Computer architecture, structures of or	computer components -	controller, ALU,
memories, I/O subsystem, typical interfaces and buses (PCI Express, I2C, SPI, USB).		
15Y1HL (History of Civil Aviation)	KZ	2
Aeronautics. Beginnings of aircrafts heavier than air. Czechoslovak aviation pioneers. Development of airports in the Czech Republic. World air		orld. Helicopters.
CSA airplanes. Famous aviators. Classic era of aviation. Golden era of civil aviation. Supersonic flying. Modern era of civil aviation. Flying in the		_
15Y1HD History of City Mass Transport	KZ	2
History of city mass transport in the world, development of tram, bus and trolley-bus systems. History of transport networks in the world, currer clearance systems. History of city transport in Prague and Brno. History of tram, bus and trolley-bus operation systems in the Czech Republic a		ents of tariff and
DEGRAPOS SYSTEMS, FISION OF OR REPORT IN FRAUDE AND DITIO, FISION OF RAIL, DUS AND HOUSEV-DUS ODERATION SYSTEMS IN THE CZECH KEDUDIIC A	anu oluvakla.	

12Y1HD	Traffic Noise	KZ	2
	pasic terms, quantities. Basics of physiological acoustic, noise impacts on human body. Acoustic legislation, standarts, regulation		
	in acoustic, noise transmission, soundproofing. Types of noise sources in area. Determination of acoustic situation in the area rement of transport noise. Acoustic studies, measuring protocol.	of interest. Metho	dology of
15Y1HE	Work Hygiene and Ergonomics in Traffic	KZ	2
	cupational hygiene and ergonomics, and their application in transport. Working environment factors, and the influence of these		
Creation and protection	n of working conditions that do not damage public health. Mutual links: man-machine-environment. Adaptation of technology to	o possibilities and	skills of a man.
	n the field of transportation; relevant legislature.		
16Y1IS	Interactive Systems and Simulations	KZ	2
	ovement. Forces in moving vehicle, origin, classification, assesment. Adhesion. Traction output. Drives, source systems, classi ty. Sources of energy. Calculations to assess output quantities and energetic intensity. Auxiliary systems energy consumption.		, operational
12Y1KN	Combined Transportation	KZ	2
	rategy and legislation. Load units. Means of transport in combined transport. Combined transport systems. Transshipping area		
23Y1KO	Quantum Physics and Optoelectronics	KZ	2
Ground of quantum ph	ysics. Application of quantum physics in practice. Optoelectronics. Production of optoelectronics components.	'	
21Y1LA	Aerobatics	KZ	2
1	erobatic figures. Aerodynamics and flight mechanics of aerobatic figures. Aerobatic training syllabi and aerobatic competitions	_	
1	ccidents related to aerobatics. Physiological aspects of flying aerobatics. Aircraft structure loads and construction fatigue strer	igth of aerobatic a	ircraft. Upset
21Y1LR	T) for commercial pilots and related accidents.	KZ	2
	Radio Technology in Aviation wave spectrum. Analog and digital modulations. Noises. Filters. Resonance circuits. Electromagnetic field. Electromagnetic v	l .	
_	nd reception of electromagnetic field. Antennas in aviation, receivers and transmitters.	.a.o p.opagao	rare ranges
17Y1LL	Logistics of Passenger and Freight Air Transport	KZ	2
Logistics airline passer	nger and cargo. Aircraft and airport terminals for passenger and cargo transport. Airlines in terms of logistics systems. Aerial t		passengers and
	ystems in air transport. Global distribution systems.		
20Y1LN	Location and Navigation	KZ	2
1 '	eles of road networks, localization on the network. Routing algorithms, their properties and implementation. Description and expertises also interest and implementation and expertises are discontinuous to the contract of t	camples of datase	ts for finding
21Y1MZ	routing algorithms, their properties and implementation.	KZ	2
	Managerial Ethics of managerial ethics. Basics of etiquette and rules of social contact. Social events. Etiquette of working contacts. The art of pres		
	proced. Managerial ethics. Business ethics.	ontation and noge	adion: 1 ordonar
17Y1MD	Marketing in Transportation	KZ	2
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14Y1PI Corporate Information System	KZ	2
Data-information-knowledge, components of information system, syntatic and semantic sense of data, structure of corporate information system,	-	· · · · ·
(personalistic, production, storage, etc.), corporate information politic and information control, risks of information system operation, legal environs state information system, information system security, data protection, safety politics.	nent of information s	ystem operation,
14Y1PZ Advanced Data Processing in Spreadsheets	KZ	2
Students will be familiar with principles of working in a spreadsheet. Graphic layout of the table appearance, formatting of numbers, insertion of for	ormulas and function	s, including
addressing, error detection. Working with large spreadsheets, filters, advanced filters, database functions. Pivot tables and charts, conditional formation of the condition	ıtting, solution finding	g, solver, macros,
data analysis. Examples and questions from various companies and training. 12Y1PD Assessment of Transport Structures	KZ	2
12Y1PD Assessment of Transport Structures Assessment of transport structures, the EIA process. Multicriteria assessment methods, risk analysis, SWOT analysis. Landscape character, possibi	1	1
transport structures on the landscape. Rating fragmentation and landscape connectivity in the preparation of linear structures. Practical examples		
the environment.		
14Y1PG Computer Graphics	KZ	2
Basic formats of graphic and possibilities of their editing and mutual conversion. Use of individual types according to character of work. Work with level scope) using layers, DPI, colors. Basics of digital photography, scanning and computer technology like monitors and graphics cards.	editing programs (w	ithin the user
14Y1P2 Computer Aid of Transportation Projecting 2	KZ	2
Overview of CAx application for transportation projecting aid. AutoCAD environment possibilities of basic tasks automatizing (programming, scripting)	1	1
modification (attributes, relation to databases). Work in projecting group, external references. Basic tasks for cummunication projecting (clotoidic transferences)	ansition curve, cross	-and longitudinal
section). Basics of 3D modelling.		
18Y1PS Computer Simulations in Mechanics Principles and overview of programs for stress analysis of structures. Numerical methods in mechanics, finite element method. Geometric model	KZ	2
geometry from other CAE systems. Assignment of material properties. The types of elements and their use. Discretization of solid model. Bounda	· · · · · · · · · · · · · · · · · · ·	•
load. Basic tasks of structural and modal analysis. Introduction to complex nonlinear problems.	,	,
20Y1PK Product Quality Management Processes	KZ	2
General principles of organization management. Management systems and international standards; quality management systems. Quality produc		
of standards for systems management, management principles. Principles of process management, monitoring and measurement systems manager for systems management. Process management principles. Metrology and testing. Product cartification.	nent. Uniform framev	vork of standards
for systems management. Process management principles. Metrology and testing. Product certification. 14Y1PJ C Programming Language	KZ	2
C programming language. Preprocessor, basics of the C language (data types, syntax, commands), functions, pointes, dynamical memory allocations.		1
Implementations of abstract data types (FIFO, LIFO, list), programming techniques (sorting, searching, recursion), using bitwise operators.	,	
12Y1C1 Designing Roads in Civil 3D I	KZ	2
The course is devoted to the traffic buildings design field, specifically the design of roads as such, by the means of a 3D software. Students go the		
particular linear building, from the initial situation, over the longitudinal section, to the model and work sections and the cubic capacity calculation	. The course also inc	cludes a basic
explanation of the traffic building design in the real-life profession. 12Y1C2 Designing Roads in Civil 3D II	KZ	2
The course is devoted to the traffic buildings design field, specifically the design of roads as such, by the means of a 3D software. Students go the		1
particular linear building, from the initial situation, over the longitudinal section, to the model and work sections and the cubic capacity calculation		-
improved and developed. Students learn to design intersections.		
14Y1PA 3D Modeling in AutoCAD	KZ	2
Work in 3D non-parametric modeller (AutoCAD) environment, scenes rendering, creation of planar and volumetric objects, user setup creation, o connected with external database. Basic definition of work with lights, materials and reflexes. Models presentation.	bject data creation, v	work with data
16Y1PV Operation, Construction and Maintenance of Vehicles	KZ	2
Methods of vehicle production. Vehicle maintenance. Vehicle diagnostics. Maintenance and repair plans. Engine maintenance and emission meas		_
General principles of engine diagnostics.		
12Y1PU Organization Disposition of Railway Stations	KZ	2
Connecting station. Passenger transport equipment. Freight transport equipment. Branch lines and railway traffic inside industrial company areas		nation yards.
Reserve stations. Technology of work in railway station with regard to its disposition. Railway station documentations in the Czech Republic railway 12Y1PC Pedestrian and Cycling Transport	KZ	2
Routes for pedestrians. Pedestrian crossings. Modifications for blind, dim-sighted and disabled people. Design of cycle routes network. Ways of cycle		1
for cyclists. Separation of cyclists from other transport modes. Cycle tracks and its design - one way streets, reserved traffic lanes, bus stops, cross-	-	
crossroads. Traffic signs and road marking for cyclists.		
17Y1ST Titan Simulation	KZ	2
Titan is a management game simulating the business decisions. Lets 2-8 student groups to produce and compete in the market with the same predetermine the quantity and capacity of production, plan budgets for marketing, research and development. They become familiar with the consequence of the cons		-
of financial corporate reports and they use this information for other business decisions.	defices of their decis	sions by the lonn
20Y1SC Sensors and Actuators	KZ	2
Principles of sensors and actuators. Basics of measuring theory and actuating influence. The respective technologies and construction principles. Sen	1	electro-magnetic,
state (temperature, humidity), chemical and particle flow values. Electrical, pneumatic and hydraulic actuators and solid phase elements.		,
17Y1SL Sociology of Human Resources	KZ	2
Human resources and their importance, work group as a special kind of social group, communication, personal management, modern managemer of the organization.	it, numan resources	planning, culture
11Y1SI Transportation Software Engineering	KZ	2
Basic concepts of software engineering, ranging from domain analysis, requirement analysis and software architectures to analyses, design and imp	1	_
and practical usuage.		
22Y1SZ Forensic Expertise	KZ	2
Historical evolution of forensic engineering, forensic activity, current legislature in the Czech Republic, different disciplines, notion of forensic, forensic methodology, Notion of the evidence, general principles of evidence obtaining methodology, protocol, evidence obtaining methodology, evidence obtain	-	
expert role in the obtaining proofs, forensic methodology. Notion of the evidence, general principles of evidence obtaining, metrology, protocol, ev forensic report, elements. Finding, expert testimony / report.	idences conection, S	ne mopernon,
16Y1KS Quality and Reliability of Vehicles	KZ	2
Quality and reliability theory in design, development, production and operation of vehicles. Definition and possible approach to quality and reliabil	1	I
Mode and Effects Analysis), QFD (Quality Function Deployment), DFx (Design for Assamly, Manufacturying, Quality, Services) and other meth	ods used in industria	al applications.
Knowledge-based systems of quality and reliability, data collection.		

12Y1SU Road Management and Maintenance	KZ	2
Getting familiar with ownership of roads in the Czech Republic and the administration of the road at the state and county level. It is presented devel	-	
medium and long-term strategy of the Ministry of Transport. Maintenance of roads winter and summer, its requirements, specifics, possibilities and r	epair methods are	discussed in the
classroom as well as investment activity in highway engineering.	1/7	
21Y1TH Aircraft Technical Handling Aircraft towing and pushing tractors. GPU. Air conditioning and heating units. Aircraft fuel equipment. De-acing and anti-icing units. Loading and unl	KZ	2 ment for
passangers onboarding and offboarding. Operational processes of aircraft technical handling and regulations. Modernization and technical progres		inentioi
11Y1TG Graph Theory	KZ	2
Directed and undirected graphs, weighted graphs, matrices descripting graphs, minimal spanning tree, minimal path, Eulerian paths, graph traversi	1	-
flow networks. Algorithms for problems of existence and optimization. Solving of NP-hard problems, heuristic approach.	3, 3 . 1	3 -1 -7
14Y1TI Creating Interactive Internet Applications	KZ	2
Possibilities of scripting language PHP. Overview of PHP language syntax, and functions. Analysis of finished scripts and demonstration of solutions	. Your own applicati	ion programmed
in PHP language.		
12Y1VC Waterways and Shipping	KZ	2
Basic modes of transport. The position of water transport in the transport system of the Czech Republic and the EU. Advantages and disadvantage	=	' -
of waterways in Europe, a network of waterways in the Czech Republic. Construction of the waterway and its equipment. Management of waterways	and its operation.	The legal regime
in inland navigation, navigation rules of operation, navigation maps.	1/7	
23Y1VS Negotiation and Cooperation	KZ	2
Code of conduct for negotiation. The influence of personality traits on the negotiations. Negotiation and commanding. Teamwork. Variants teams. In Principles of negotiation, the essence of negotiation, the differences in negotiation in business and in crisis situations, the principle of "win both", sp		
trust.	ecincations and bic	during, the role of
14Y1VM Development of Applications for Mobile Devices	KZ	2
Object oriented programming, Java programming language, development environment, operating system Android, development application - widge	1	
permissions, services, GUI.		
16Y1VT Development in Railroad Vehicles	KZ	2
Railroad vehicles traction. Railroad vehicle parametres regulation. Control and driving of railroad vehicles. Importance in heavy duty and personal to	ransportation. Critic	cal situation
assesment. New materials in design. International standardization.		
14Y1W1 Webdesign 1	KZ	2
Students will learn the basics of communication HTTP, URL and addressing, markup languages HTML and XHTML, HTML tags, rules of web access		
and selectors, the issue of web browsers, creating one to three column layout pages, sites validation, conditional comments. Topics will be practiced	d on practical exam	
14Y1W2 Webdesign 2	KZ	2
Students will learn advanced techniques CSS, responsive webdesign, CSS frontends, content management systems, JavaScript, jQuery, SEO, we	b server installation	+ configuration
directives. Topics will be practiced on practical examples.	1/7	
16Y1ZL Vehicle Testing, Legislation and Construction Vehicle, bus and motorbike costruction, aggregate computing, driving resistance, build and parameters of traction, constructional arrangement of person	KZ	2
r venicle, bus and motorbike costruction, aggregate computing, driving resistance, build and parameters of traction, constructional arrangement of perso		
		000,0101200,
legislation in the EU and in the world, technical legislation creation, testing methods, vehicle tests, accelerated tests, mathematical modelling in testing	ting.	
legislation in the EU and in the world, technical legislation creation, testing methods, vehicle tests, accelerated tests, mathematical modelling in test 16Y1ZG Introduction into Applied Computer Graphics	ting.	2
legislation in the EU and in the world, technical legislation creation, testing methods, vehicle tests, accelerated tests, mathematical modelling in testing	ting. KZ schemes, models, p	2 principles of 2D
legislation in the EU and in the world, technical legislation creation, testing methods, vehicle tests, accelerated tests, mathematical modelling in test 16Y1ZG Introduction into Applied Computer Graphics Computer graphics, division and applications with emphasis on transport, including development and research. Colours, colour perception, colour sections.	ting. KZ schemes, models, p	2 principles of 2D
legislation in the EU and in the world, technical legislation creation, testing methods, vehicle tests, accelerated tests, mathematical modelling in test 16Y1ZG Introduction into Applied Computer Graphics Computer graphics, division and applications with emphasis on transport, including development and research. Colours, colour perception, colour s and 3D generation, elementary algorithms for graphic data workout. Visualisation principles and tasks, technics, graphics and visualisation HW bas graphics software. 14Y1ZM Fundamentals of Parametric and Adaptive Programming	ting. KZ schemes, models, prics. Introduction to	2 principles of 2D 2D and 3D
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Name of the block: Jazyky

Minimal number of credits of the block: 6

The role of the block: J

Code of the group: JZ-B-3,4 16/17

Name of the group: Jazyk bak. 5., 6.sem. od 16/17 (pro B3710)

Requirement credits in the group: In this group you have to gain 6 credits

Requirement courses in the group: In this group you have to complete 2 courses

Credits in the group: 6 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
15JZ3F	Foreign Language - French 3 Eva Rezlerová, Irena Veselková	Z	3	0P+4C	Z	J
15JZ3I	Foreign Language - Italian 3	Z	3	0P+4C	Z	J
15JZ3N	Foreign Language - German 3 Eva Rezlerová, Jana Štikarová	Z	3	0P+4C	Z	J
15JZ3R	Foreign Language - Russian 3 Eva Rezlerová, Marie Michlová	Z	3	0P+4C	Z	J
15JZ3S	Foreign Language - Spanish 3 Eva Rezlerová, Nina Hricsina Puškinová	Z	3	0P+4C	Z	J
15JZ4F	Foreign Language - French 4	Z,ZK	3	0P+4C+10E	B L	J
15JZ4I	Foreign Language - Italian 4	Z,ZK	3	0P+4C+10E	B L	J
15JZ4N	Foreign Language - German 4	Z,ZK	3	0P+4C+10E	B L	J
15JZ4R	Foreign Language - Russian 4	Z,ZK	3	0P+4C+10E	B L	J
15JZ4S	Foreign Language - Spanish 4	Z,ZK	3	0P+4C+10E	B L	J

Characteristics of the courses of this group of Study Plan: Code=JZ-B-3,4 16/17 Name=Jazyk bak. 5., 6.sem. od 16/17 (pro B3710)

Foreign Language - French 3

Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation.

Foreign Language - Italian 3

Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation.

Foreign Language - German 3

Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation.

15JZ3R Foreign Language - Russian 3

Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation.

15JZ3S Foreign Language - Spanish 3

Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its

15JZ4F Foreign Language - French 4

features. Practice of oral and written presentation.

Z,ZK

Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation.

15JZ4I Foreign Language - Italian 4 Z,ZK

3

Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation.

15JZ4N Foreign Language - German 4 Z,ZK

Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation.

15JZ4R Foreign Language - Russian 4 Z,ZK

Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation.

15JZ4S Foreign Language - Spanish 4

Z,ZK

3

Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation.

List of courses of this pass:

Code	Name of the course	Completion	Credits
11CAL1	Calculus 1	Z,ZK	7
Sequence of real n	umbers and its limit. Basic properties of mappings. Function of one real variable, its limit and derivative. Geometric properties of n-dim	iensional Euklideaı	n space and
Cartesia	an coordinate system. Geometric meaning of the differential of functions several real variables, differential calculus of functions of several real variables.	eral real variables	
11CAL2	Calculus 2	Z,ZK	5
Antiderivative, Ne	ewtonian integral, Riemannian integral of the function of one variable, improper Riemannian integral, Riemannian integral in Rn. Para	metric description	of regular
k-dimensional sur	rfaces in Rn, Riemannian integral over regular surfaces. Line and surface integrals of the second type, Stokes theorems, ordinary diff order, linear differential equations with constant coefficients and its systems.	erential equations	of the first
11FYZ		Z,ZK	5
IIFIZ	Physics Kinematics, particle dynamics, dynamics of particle systems and rigid body. Continuum mechanics, thermodynamics.	Z,ZN) 3
44015		1/7	2
11GIE	Geometry	KZ	3
- ·	I oblique projections, linear perspective. Topographic surfaces and their orthogonal projection. Differential geometry of curves - param		
	and curvature, Frenet's trihedron. Kinematics - a curve as a trajectory of the motion, the velocity and acceleration of a particle moving		
11LA	Linear Algebra	Z,ZK	3
Vector spaces (line	ar combinations, linear independence, dimension, basis, coordinates). Matrices and operations. Systems of linear equations and the	-	minants and
	their applications. Scalar product. Similarity of matrices (eigenvalues and eigenvectors). Quadratic forms and their classifications.		
11MSP	Modeling of Systems and Processes	Z,ZK	4
	hods and algorithms as a basis for system analysis. Methods for modelling and evaluating the systems in continuous and discrete time recursive algorithms in solution of differential and difference equations, as an instrument for system description. Practical use of technology.	•	
440747	(MATLAB).	7 71/	4
11STAT	Statistics	Z,ZK	4
· ·	ility, random variable and its description, known distributions, random vector, function of random variable. Methods of point estimation.	-	
Regression and col	rrelation, linear regression, correlation coefficient, coefficient of determination, the general linear model, statistical inference in linear re	gression, analysis	of variance,
442/04	multiple regression, the use of matrices in regression.	_	
11X31	Project 1	Z	2
11X32	Project 2	Z	2
11X33	Project 3	Z	2
11Y1MM	Mathematical Models in Economy	KZ	2
The goal of the co	urse is to teach selected methods of linear programming, with theoretical procedures applicable for individual tasks and their progran	n implementation.	The outcom
	of the course is the ability to implement and solve basic tasks from the queue theory, graph theory and both free and constrained op	timization.	
11Y1PV	Parametrical and Multicriterial Programming	KZ	2
Solution to the prob	lem of linear programming with a parameter in objective function, on right sides and in the matrix of coeficients of linear constraints. Co	mputation of effici	ent solution.
11Y1SI	Transportation Software Engineering	KZ	2
	, oftware engineering, ranging from domain analysis, requirement analysis and software architectures to analyses, design and implemen		l techniques
·	and practical usuage.	_	•
11Y1TG	Graph Theory	KZ	2
	rected graphs, weighted graphs, matrices descripting graphs, minimal spanning tree, minimal path, Eulerian paths, graph traversing, flow networks. Algorithms for problems of existence and optimization. Solving of NP-hard problems, heuristic approach.		ı
11Y1ZM	Foundation of MATLAB Programming	KZ	2
	ciple of algorithmization, flow charts, description of MATLAB environment and its settings, MATLAB help, mathematical operators, mat		l .
	control flow, inputs and outputs, graphics, optimization and program code debugging.		
12MDE	Transport Models and Transport Excesses	Z,ZK	3
	traffic flow and methods for their measurement. Models of the traffic flow, communications load, line and urban systems. Theory of qu		
	assessment. Statistical characteristics of transport. Transport excesses, their analysis, the causes, identify and minimize the consequence safety and fluency.	*	,
12PPOK	Designing Roads, Highways and Motorways	KZ	3
Definition, types,	ownership, maintenance, management and categorization of roads and highways. Curve and transition curve. Sinuosity and standard stopping and overtaking. Road body - shapes and proportions, bottom and superstructure. Drainage and components of roads. Safet intersections.	speed. Route in r	ural areas.
12X31	Project 1	Z	2
	·		
12X32	Project 2	Z	2
12X33	Project 3	Z	2
12Y1C1	Designing Roads in Civil 3D I	KZ	2
	voted to the traffic buildings design field, specifically the design of roads as such, by the means of a 3D software. Students go through uilding, from the initial situation, over the longitudinal section, to the model and work sections and the cubic capacity calculation. The explanation of the traffic building design in the real-life profession.	· ·	-

The course is exvived to the retired buildings design field specified the ceeping or roads as a such, by the means of a 30 columns (Subseria por Hospital specifical process) and developed. Subseria leaves in the design interventions. 12Y1DS Project Countrialistics (Subseria Subseria Subseria (Subseria Subseria (Subseria Subseria (Subseria Subseria (Subseria Subseria (Sub	12Y1C2	Designing Roads in Civil 3D II	KZ	2
12Y1DS			h the complete des	ign of this
Project documentation or sealing. Project documentation plans (sport accurate accura	particular linear b	uilding, from the initial situation, over the longitudinal section, to the model and work sections and the cubic capacity calculation. The	previously acquired	d skills are
Proposition covariants or creating. Project documentation types: Support materials for project documentation creating, Building permit obtaining process. Butdet and process Protection. 12Y HD Tariffic Notice Tariffic Notice		improved and developed. Students learn to design intersections.		
12Y1HD Section of some project documentation parts Accustic introduction, best terms, quantities. Basics of physiological accusts, nose impacts on human body. Accustic legistation, standarts, regulations. Creating accusts, controlled projects of the property of the projects of the pr	12Y1DS	Project Documentation in Practice	KZ	2
12Y1FD Tarific Noise RZ 2 2 2 2 2 2 2 2 2	Project documents		Budget and pricing	g. Practical
Accounts instructions, basic terms, quantifies. Braits of physiological accounts, rodes impacts on human body. Accounts depicialism, standards, regulatorism. Coronina control control accounts, or determination of accounts of unitarial standards in the seesar interest. Methodology of company and measurement of transport noise. Accounts disculaes, measuring protocol. 12Y FIX Combined Transportation Combined Transport Strategy and legislation. Load units, Mental of transport in comment transport. Coroninal durasport systems. Transphipting areas. Multimoral algorithm of the company of the control of the company of the control of the company of the control of company of the control of the control of company of the control of control of company of the control of control of the control of control		creation of some project documentation parts.		
ates, principies of urban accusals, noise transmissions, soundscrowing Times of moise sources in area. Determination of ancusals situation in the area of interest. Methodology of 12Y1RN Combined Transportation & KZ 2 Combined transport steages and eigistation. Load units. Means of transport of transport combined tra	12Y1HD	Traffic Noise	KZ	2
Complained Transport Indicates Complained Transport Combined Transport Combined Transport Combined Transport Combined Transport Combined Transport Combined Transport Systems. Transcriptings areas. Multimorbial legislate controls. 12Y1PC				
12Y IVC Waterways transport strategy and legislation. Load wisk. Means of transport contracted transport. Combined Transport Co	area, principles		of interest. Method	lology of
Combined transport strategy and legislation. Load units. Means of transport in combined transport dyspers. Transport programs are Multimodal logistic centres. 12Y FD Routes for podestrians. Prodestrian onescings. Modifications for blind, dim-sighted and disabled people. Design of cycle routes revisors. Ways of cycle route injurity of the cycles. Production of cyclists from other transport modes, cycles transport and sealings and man arranging or one wy streets, reserved fulfile blees, bus steps, crossivals with orthogonal cycles transport structures, the EA process. Multimodal programs and man arranging or one wy streets, reserved fulfile blees, bus steps, crossivals with orthogonal cycles. Programs of the modes of the production of the structures, prosperity or the structures, the EA process. Multimodal programs and man arranging or devices, several stransport structures, the EA process. Multimodal medicate concentration in the programs of line arranging or structures, the EA process. Multimodal medicate concentration in the programs of line arranging or structures, the EA process. Multimodal medicate concentration of Reality and Structures. The structures is the structures of the modes of the structures of the structures. The structures is the structure of the structures of the structures of the structures. The structures of the structures of the structures of the structures of the structures. The structures of the structures	40)////		147	
12YFPC Products for pedestrains. Procestrain crossings, Modifications for third, dim-sighted and disables popole. Design of crysic routes network. Ways of typel concisions your and design parameters for cyclests. Separation of cyclests from other transport modes. Cycle tacks and its design - one way streets, researed traffic lances, bus stops, crossings with other transport modes. Cycles tacks and its design - one way streets, researed traffic lances, bus stops, crossings with other transport modes. Cycles tacks and its design - one way streets, researed traffic lance, bus stops, crossings with other transport modes. Cycles tacks and its design - one way streets, researed traffic lance, bus stops, crossings with other transport modes. Cycles tacks. A second transport structures for the street of the cyclests. A second transport structures in the following on the structures of the structures. Practical examples of assessment of traffic buildings on the environment. 12YFPU				
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"CAD systems" term determination. CAD role in projecting system model. Existing CAD systems on Czech market. Project creation, basic common work rules in graphic applications and CA systems. Co-ordinated systems, CAD environment skill (basics of constructing, dimensioning, modifications, user interfaces, projecting possibilites, AutoCAD environment profiles, drawings with raster foundaments). 14PRG Programming Algorithm development, methods of structured programming, high-level programming languages, basics of C programming languages (types, variables, conditions, cycles, arrays, functions), programming techniques, complexity. 14X31 Project 1 Z 2 14X32 Project 2 Z 2 14X33 Project 3 Z 2 14Y1AV Animation and Visualization KZ 2 Introducing and basic 3D primitives and their basic modifications and transformations. Creating 3D scenes. Transformations of 3D primitives, connection / interaction / combination of 3D primitives, creating 3D bodies as non-primitives. Using of surfaces. Working with materials and material editors. Lightnings. Setting of light and material parameters. Scene capturing. Camera settings, moving in the scene. Rendering and making animation. 14Y1BE Barrierless Transport KZ 2 The issue of barrierless accessible public transportation in terms of architectural barriers and also for transportation-technological point of view. Students will gain theoretical knowledge of barrierless environment roads, railway stations, public transport stops, terminal buildings, vehicles, public transport, information and orientation systems and transportation technology. Theoretical knowledge will be supplemented by practical examples. 8iometric Methods Biometric Methods Biometric Methods Biometric Methods Biometric Methods Biometric Methods AZ 2 Basic biometric terms, authentication methods, principles and performance measurement of biometric systems, overview of biometric technologies, hand geometry, iris recognition, retina recognition method, 2D and 3D face recognition, vein patterns on the wris		queries, relational algebra, SQL language, client / server, multilayer architectures, distributed database systems. Access to data via	the WWW.	
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retina recognition method, 2D and 3D face recognition, vein patterns on the wrist, ear biometrics, fingerprint recognition, skin spectroscopy, behavioral methods, the use of biometrics			1	
				-
in transport applications, safety and risks of biometric technologies.	retina recognition n		methods, the use o	f biometrics
		in transport applications, safety and risks of biometric technologies.		

14Y1HW			
Docian combination	Computer Hardware nal and sequential logical circuits and their implementation on FPGA, VHDL language. Computer architecture, structures of computer.	KZ	2
Design combinatio	memories, I/O subsystem, typical interfaces and buses (PCI Express, I2C, SPI, USB).	components - cor	ntroller, ALU,
14Y1MP	Modeling Complex Assemblies and Models in Parametric Modeller	KZ	2
Assemblies pro	gramming - tools and methodology of working subassemblies and assemblies, sheet metal parts modelling, welded assemblies, pipel	ines, and distribu	tion lines.
	Photorealistic output rendering - physical and material properties, lighting sources. MKP - visual example.		
14Y10P	Operating System stallation GNU/Linux OS. X-window system. Rights management - users and groups, ACL rights. Filesystems and attributes. Programs	KZ	2 OS boot
	console programs / commands. Config files. SW management, package systems. Programs in graphic shell - text, spreadsheet, graph		
	communication. Services management. Safe and secure configuration of OS. Remote administration.	, , , , , , , , , , , , , , , , , , , ,	
14Y1P2	Computer Aid of Transportation Projecting 2	KZ	2
	pplication for transportation projecting aid. AutoCAD environment possibilities of basic tasks automatizing (programming, scripting, data		
modification (attrib	utes, relation to databases). Work in projecting group, external references. Basic tasks for cummunication projecting (clotoidic transition section). Basics of 3D modelling.	curve, cross-and	d longitudinal
14Y1PA	3D Modeling in AutoCAD	KZ	2
	arametric modeller (AutoCAD) environment, scenes rendering, creation of planar and volumetric objects, user setup creation, object of		1
	connected with external database. Basic definition of work with lights, materials and reflexes. Models presentation.		_
14Y1PG	Computer Graphics	KZ	2
Basic formats of	graphic and possibilities of their editing and mutual conversion. Use of individual types according to character of work. Work with editing	0. 0	nin the user
14Y1PI	level scope) using layers, DPI, colors. Basics of digital photography, scanning and computer technology like monitors and graphics Corporate Information System	KZ	2
	on-knowledge, components of information system, syntatic and semantic sense of data, structure of corporate information system, par		
	luction, storage, etc.), corporate information politic and information control, risks of information system operation, legal environment of		•
	state information system, information system security, data protection, safety politics.		
14Y1PJ	C Programming Language	KZ	2
C programming lan	guage. Preprocessor, basics of the C language (data types, syntax, commands), functions, pointes, dynamical memory allocation, strin Implementations of abstract data types (FIFO, LIFO, list), programming techniques (sorting, searching, recursion), using bitwise op	•	s and unions.
14Y1PZ	Advanced Data Processing in Spreadsheets	KZ	2
	familiar with principles of working in a spreadsheet. Graphic layout of the table appearance, formatting of numbers, insertion of formul		1
	etection. Working with large spreadsheets, filters, advanced filters, database functions. Pivot tables and charts, conditional formatting, so		_
	data analysis. Examples and questions from various companies and training.		
14Y1TI	Creating Interactive Internet Applications	KZ	2
Possibilities of scrip	oting language PHP. Overview of PHP language syntax, and functions. Analysis of finished scripts and demonstration of solutions. Your	own application	programmed
14Y1UP	in PHP language. Editing of Theses in MS Word	KZ	2
_	introduced to the principles of creating and editing large documents and basic typographic rules. They will properly apply styles, creat		1
	phs, etc. Footnotes, captions, index. They practice corrections of finished documents. The goal is to prepare students for seamless edi		
	so that they are able to concentrate mainly on writing a thesis.		
14Y1VM	Development of Applications for Mobile Devices		
01: 1 : 1		KZ	2
Object oriented	programming, Java programming language, development environment, operating system Android, development application - widgets,		1
·	programming, Java programming language, development environment, operating system Android, development application - widgets, permissions, services, GUI.	containers, threa	ids, menu,
14Y1W1	programming, Java programming language, development environment, operating system Android, development application - widgets,	containers, threa	ds, menu,
14Y1W1 Students will learn	programming, Java programming language, development environment, operating system Android, development application - widgets, permissions, services, GUI. Webdesign 1	KZ v and usability, CS	2 SS properties
14Y1W1 Students will learn and selectors 14Y1W2	programming, Java programming language, development environment, operating system Android, development application - widgets, permissions, services, GUI. Webdesign 1 the basics of communication HTTP, URL and addressing, markup languages HTML and XHTML, HTML tags, rules of web accessibility s, the issue of web browsers, creating one to three column layout pages, sites validation, conditional comments. Topics will be practiced. Webdesign 2	KZ v and usability, CS d on practical exa	2 SS properties amples.
14Y1W1 Students will learn and selectors 14Y1W2	programming, Java programming language, development environment, operating system Android, development application - widgets, permissions, services, GUI. Webdesign 1 the basics of communication HTTP, URL and addressing, markup languages HTML and XHTML, HTML tags, rules of web accessibility, the issue of web browsers, creating one to three column layout pages, sites validation, conditional comments. Topics will be practiced Webdesign 2 advanced techniques CSS, responsive webdesign, CSS frontends, content management systems, JavaScript, jQuery, SEO, web services.	KZ v and usability, CS d on practical exa	2 SS properties amples.
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14Y1W1 Students will learn and selectors 14Y1W2 Students will learn 14Y1ZM	programming, Java programming language, development environment, operating system Android, development application - widgets, permissions, services, GUI. Webdesign 1 the basics of communication HTTP, URL and addressing, markup languages HTML and XHTML, HTML tags, rules of web accessibility, the issue of web browsers, creating one to three column layout pages, sites validation, conditional comments. Topics will be practiced Webdesign 2 advanced techniques CSS, responsive webdesign, CSS frontends, content management systems, JavaScript, jQuery, SEO, web sendirectives. Topics will be practiced on practical examples. Fundamentals of Parametric and Adaptive Programming	KZ vand usability, CS d on practical exa KZ ver installation + o	2 SS properties amples. 2 configuration
14Y1W1 Students will learn and selectors 14Y1W2 Students will learn 14Y1ZM	programming, Java programming language, development environment, operating system Android, development application - widgets, permissions, services, GUI. Webdesign 1 the basics of communication HTTP, URL and addressing, markup languages HTML and XHTML, HTML tags, rules of web accessibility, the issue of web browsers, creating one to three column layout pages, sites validation, conditional comments. Topics will be practiced Webdesign 2 advanced techniques CSS, responsive webdesign, CSS frontends, content management systems, JavaScript, jQuery, SEO, web services and irectives. Topics will be practiced on practical examples.	KZ vand usability, CS d on practical exa KZ ver installation + o	2 SS properties amples. 2 configuration
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14Y1W1 Students will learn and selectors 14Y1W2 Students will learn 14Y1ZM Basics of work at p 15DPLG Subject of psychologof trave	programming, Java programming language, development environment, operating system Android, development application - widgets, permissions, services, GUI. Webdesign 1 the basics of communication HTTP, URL and addressing, markup languages HTML and XHTML, HTML tags, rules of web accessibility, the issue of web browsers, creating one to three column layout pages, sites validation, conditional comments. Topics will be practiced. Webdesign 2 advanced techniques CSS, responsive webdesign, CSS frontends, content management systems, JavaScript, jQuery, SEO, web services will be practiced on practical examples. Fundamentals of Parametric and Adaptive Programming products and parts creation. Sketch drawing by help of geometric relations, parametric dimensions, creation of adaptive models from 21 from and to another systems. Fundamentals of assemblies creation. Transportation Psychology Dogy and its basic concepts. Information intake, decision-making and behaviour. Performance. Engineering psychology and vehicle constrict of the staff. Work and leisure. Age as a factor in training of the staff. Work and leisure. Age as a factor in training of the staff.	KZ v and usability, CS d on practical exa KZ ver installation + o KZ D sketches. Impo	2 SS properties amples. 2 Configuration 2 rt and export 2 gical aspects
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16Y1EN	Energy Requirements of Vehicles	KZ	2
Dynamics and the	e driving inertial of the vehicles. Types of energy - kinetic, static, heat, chemical and others. Ways of energy change into kinetic energy drive, steam engine, air engine. Energy accumulation means, accumulator, flywheel, fuel cell. Energy recuperation. WTW anal		ine, electric
16Y1IS	Interactive Systems and Simulations	KZ	2
· ·	licle movement. Forces in moving vehicle, origin, classification, assesment. Adhesion. Traction output. Drives, source systems, classifi and energetic singularity. Sources of energy. Calculations to assess output quantities and energetic intensity. Auxiliary systems energy		perational
16Y1KS	Quality and Reliability of Vehicles	KZ	2
	ibility theory in design, development, production and operation of vehicles. Definition and possible approach to quality and reliability. K		1
Mode and Effects	s Analysis), QFD (Quality Function Deployment), DFx (Design for Assamly, Manufacturying, Quality, Services) and other methods u Knowledge-based systems of quality and reliability, data collection.	sed in industrial a	pplications.
16Y1PV	Operation, Construction and Maintenance of Vehicles	KZ	2
Methods of vehicl	e production. Vehicle maintenance. Vehicle diagnostics. Maintenence and repair plans. Engine maintenance and emission measureme General principles of engine diagnostics.	ent. Transmission r	mechanism.
16Y1RE	Control and Electronic Vehicle Systems	KZ	2
-	pts of regulation. Tools for analytical solution, linear system description. Basic types of a regulator (PID), properties, advantages, disadva e control. Electric drive. Vehicle communication bus (CAN, LIN, FlexRay, ISObus, KWP2000 protocole etc.). Vehicle electronic control, comfort systems.	-	
16Y1VT	Development in Railroad Vehicles	KZ	2
	es traction. Railroad vehicle parametres regulation. Control and driving of railroad vehicles. Importance in heavy duty and personal trar assesment. New materials in design. International standardization.	l	1
16Y1ZG	Introduction into Applied Computer Graphics	KZ	2
	cs, division and applications with emphasis on transport, including development and research. Colours, colour perception, colour sche	1	1
and 3D generat	tion, elementary algorithms for graphic data workout. Visualisation principles and tasks, technics, graphics and visualisation HW basic graphics software.	s. Introduction to 2	D and 3D
16Y1ZL	Vehicle Testing, Legislation and Construction	KZ	2
	notorbike costruction, aggregate computing, driving resistance, build and parameters of traction, constructional arrangement of personal of		, motorbikes
_	pislation in the EU and in the world, technical legislation creation, testing methods, vehicle tests, accelerated tests, mathematical mode		
17TEDL	Transport Technology and Logistics nsport technology and logistics, particular steps of transport planning, line planning, timetabling, planning in pasanger and freight tran	KZ	3
	nodus, technologic factors of the side of operator and client, organisation of city transport, logistic technologies and their aplication usi		
17TGA	Graph Theory and its Applications in Transport	Z,ZK	4
	of graph theory, paths in graphs, flows in networks, location problems, design problems on graphs, optimum routing, use of graphs in c		I
17X31	Project 1	Z	2
17X32	Project 2	Z	2
17X33	Project 3	Z	2
17Y1LL	Logistics of Passenger and Freight Air Transport	KZ	2
Logistics airline pa	assenger and cargo. Aircraft and airport terminals for passenger and cargo transport. Airlines in terms of logistics systems. Aerial trans air cargo. Information systems in air transport. Global distribution systems.	sport process pas	sengers and
17Y1MD	Marketing in Transportation	KZ	2
General principles	s of marketing applied to transport issues, marketing tools suitable for transport as a service, specifics of public passenger transport a the application of marketing.	nd the resulting di	fferences in
17Y10F	Personal Finance	KZ	2
	(budget, financing of basic living needs), debt (loans and credits, payment instruments, interest and fees, debt trap), financing of house		
consumer loans, re	efinancing), savings and investments (investment horizon, return, risk, investment strategy), insurance (insurance types, suitability and	adequacy), securi	ng the future
47\/4DN	(retirement savings and insurance).	1/7	
17Y1PM Human sou	Personnel Management rces, work group, man as personality, planning, choice, evaluation and education of human sources, work adaptation, teamwork, inter	KZ	2 cation
17Y1SL	Sociology of Human Resources	KZ	2
	and their importance, work group as a special kind of social group, communication, personal management, modern management, hum of the organization.	1	1
17Y1ST	Titan Simulation	KZ	2
Titan is a mana	agement game simulating the business decisions. Lets 2-8 student groups to produce and compete in the market with the same produ antity and capacity of production, plan budgets for marketing, research and development. They become familiar with the consequences	ct. Students set a	price and
4014717	of financial corporate reports and they use this information for other business decisions.	7 71/	
18MTY	Materials Science and Engineering aterials science and engineering explains mechanical properties of structural materials based on their bonding forces and microstructu	Z,ZK	ain attention
	as the most important engineering materials, also other major classes of materials are presented, namely ceramics, polymers and con to degradation processes in materials, to defectoscopy and to main mechanical tests.		
18PZP	Elasticity and Strength	Z,ZK	3
=	ression. Bending of beam. Shear stress during bending of beam. Design and analysis of cross section of beam. Design of riveted, bolte lection curve of beam. Torsion of circle cross section. Combined loading. Stability of compressed bar and buckling. Beam on elastic for		
18SAT	Structural Analysis	Z,ZK	4
General system	of forces in plane and space. Calculation of reactions of bodies and structures. Assessment of internal forces on statically determinate work. Kinematic method for calculation of reactions of statically determinate systems. Determination of axial forces in truss constructions.	e beams and simp	-
=	of alasan abases. File and all shades		
Principle of virtual	of planar shapes. Fiber polygons and chains.		l –
Principle of virtual	Technical Documentation lards, international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensional	KZ al and geometrical	2 accuracy,
Principle of virtual 18TED Technical stand	Technical Documentation lards, international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensional arrangement of drawing sheets.	al and geometrical	accuracy,
Principle of virtual	Technical Documentation lards, international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensional	l	I

18X33	Project 3	Z	2
18Y1AM	Anatomy, Mobility and Safety of Man	KZ	2
•	Anatomical structure and growth of bones. Articular joint. Remodelling of bone tissue. Anatomical structure of muscles. Blood circulation	•	
and biomechanics	of muscular-skeletal system. Injury of human organs and musculo-skeletal system during traffic accidents. Mobility of ill and injured n	nan and his treatr	nent. Human
18Y1EM	joint prostheses. Protective means and traffic safety regulations. Experimental Methods in Mechanics	KZ	2
	role of experimental mechanics. Sensors for mechanical testing. Overview of experimental methods. Destructive and non-destructive		1
	ocedures and sample preparation. Tensile and bending tests. Electrical resistance strain gages. Optical based strain measurement. Fa	-	-
	Instrumented hardness testing. Introduction to electron microscopy. Errors in measurement.		
18Y1MT	Engineering Materials	KZ	2
	ew of main classes of materials used in technical design. In addition to main classes of materials, i. e. metals, ceramics, polymers and		ntion is paid
	logical materials and to biomimetics. Integral approach to material selection process is also demonstrated based on so called Ashby's		
18Y1PS	Computer Simulations in Mechanics overview of programs for stress analysis of structures. Numerical methods in mechanics, finite element method. Geometric model dev	KZ	2
	ner CAE systems. Assignment of material properties. The types of elements and their use. Discretization of solid model. Boundary cor	•	-
	load. Basic tasks of structural and modal analysis. Introduction to complex nonlinear problems.		
18Y1UK	Introduction of Rail Vehicles	KZ	2
	tics and parameters rail transport systems - railway and urban transport. Basis driving mechanics rail vehicles - equation of motion tra		-
track resistance. To	otal running resistance. Acceleration force. Analyzing driving cycle rail vehicle. Speed-power diagrams and characteristics rail vehicle - and electric drive. Design concept rail vehicles and drive of wheel set.	nydromechanic, h	ydrodynamic
20SYSA		Z,ZK	5
	Systems Analysis tem sciences, system viewpoint, terminology, typical system analysis tasks, system identification, system interface and interface tasks	•	_
	strong functions and processes, genetic code, system identity, system architecture. Tools for system analysis - Petri nets, decision talk		
	tasks. Soft and hard systems, methods for soft system analysis.		
20UITS	Introduction to Intelligent Transport Systems	Z,ZK	7
	gislative framework telematics systems and their architecture. Telematics systems in practice and their operation. Fundamentals of infor		
systems for ITS. P	rinciples and technical support measurement of traffic data, localization and navigation. Practical work with traffic data. Real examples principles of ITS.	of possible applic	cations of the
20X31	Project 1	Z	2
20X31 20X32	Project 2	<u>Z</u>	2
20X33	Project 3	<u>Z</u>	2
20Y1AE	Applied Electronics	KZ	2
	semiconductor components, their principles, characteristics and typical connection diagrams. Semiconductor PN junction diodes, tran	· 	_
	ogic gates. Functions of basic electronic circuits and methods for their designs (rectifiers, voltage regulator with Zener diode, transisto		-
	amplifier as an inverting and noninverting amplifier).		1
20Y1AF	Alternative Forms of Transportation Project Financing	, KZ	2
-	such forms of financing in transportation and telecomunications, where the public sector body perform the final debtor, i. e. debt paym not a direct participant of the transaction and it is not the counterparty of the financial institute which provides the funding. Issue of sec		_
the iliai debtor is i	of transportation and telecomunication projects.	anties as an aiten	iative source
20Y1EA	Environmental Aspects of Transport	KZ	2
	phere, weather observation network, weather in transportation, road meteorology. Weather forecasting, data assimilation, probabilistic	forecasts, forecas	st evaluation.
	n pollutants and their effects, atmospheric chemistry, traffic emissions. Greenhouse gasses, carbon cycle, a role of energy and transp	ortation in climate	change.
20Y1EK	Qualification in Electrical Engineering	KZ	2
· ·	ce with measurements in laboratories, electrical equipment, power supply, electrical installation of low voltage, electric shock hazard, a place of protection against a part along the part along the protection against a part along the protection against a part along the protection against a part along the part alo	=	-
voitage, maximum	n allowed currents, electrical equipment protection against short circuit and overload protection, control and revision, first aid, legislatio in relation to health and safety and electrical engineering.	on, standards and	regulations
20Y1LN	Location and Navigation	KZ	2
	examples of road networks, localization on the network. Routing algorithms, their properties and implementation. Description and exa		1
	transport connections, routing algorithms, their properties and implementation.		
20Y1OI	Fare Collection and Information Systems	KZ	2
	ystems in public transport and their components (on-board units, validators, turnstiles,). Information systems and their components	•	oles, maps,
· · · · · · · · · · · · · · · · · · ·	nels) and operators (cycles, location or current delay of vehicles,). The issue of tariff systems. Other examples of clearance systems		
20Y1PK	Product Quality Management Processes of organization management. Management systems and international standards; quality management systems. Quality products, pro	KZ	2
	or organization management. Management systems and international standards, quality management systems. Quality products, pro stems management, management principles. Principles of process management, monitoring and measurement systems management. L	=	
· · · · · · · · · · · · · · · · · · ·	for systems management. Process management principles. Metrology and testing. Product certification.		
20Y1SC	Sensors and Actuators	KZ	2
Principles of senso	rs and actuators. Basics of measuring theory and actuating influence. The respective technologies and construction principles. Sensors of	mechanical, elec	tro-magnetic,
0.1=	state (temperature, humidity), chemical and particle flow values. Electrical, pneumatic and hydraulic actuators and solid phase ele		1 .
21ELED	Air Transport Economy	Z,ZK	4
	s of air transport. Costs of airline. Revenue management. Fuel management. Currencies development. Demand and supply. Rates in a Fleet asignment. Aging of aircraft. Airlines bankrupcty. Crew planning. Marketing in Air Transport. Cargo tariff and rates. Air network or	-	an selection.
21LAG1	English for Aviation 1	KZ	3
210101	Familiarity with the terminology used in civil aviation in the general context and emphasizing the ability to receive information only in		1 3
21LAG2	English in Aviation 2	KZ	3
	Terminology in the sphere of aircraft construction, principles of flight, aircraft engines, instruments and systems.	<u>-</u>	
21LCM	Aircraft Engines	Z,ZK	3
-	gine, theoretical background, operational characteristics and construction schemes. Propellers, operational characterictics. Turbine en	-	-
	construction schemes, operational characteristics. Turbojet and turbofan engines, basic construction modules, and their operational ch		

21LGP	Legislation and Operational Regulations	Z,ZK	5
	aviation regulations. The scope of international and national organizations in civil aviation. Analysis and interpretation of the ICAO Ann		
7030, 8168	3. Introduction to the European Parliament and Council Regulation (EC), Commission Regulation (EU) and the Decisions of the Executive Commission Regulation (EU) and the Decisions of the Executive Commission Regulation (EU) and the Decisions of the Executive Commission Regulation (EU) and the Decisions of the Executive Commission Regulation (EU) and the Decisions of the Executive Commission Regulation (EU) and the Decisions of the Executive Commission Regulation (EU) and the Decisions of the Executive Commission Regulation (EU) and the Decisions of the Executive Commission Regulation (EU) and the Decisions of the Executive Commission Regulation (EU) and the Decisions of the Executive Commission Regulation (EU) and the Decisions of the Executive Commission Regulation (EU) and the Decisions of the Executive Commission Regulation (EU) and the Decision Regulation (EU) and the Decisio	utive Director of EA	SA.
21LIVO	Human Performance and Limitations	Z,ZK	5
Human performad	ce & De & Samp; limitations, aptibility & De Samp; competence, accident statistics, flight safety, basics of flight physiology, man & De Samp; environment	, breathing &	circulation,
sensory system,	health & amp; hygiene, health preservation, intoxication, incapacitation, basics of flight psychology, human information processing, me	mory & learni	ng, theory
	& model of human error, body rhythms & sleep, stress, fatigue, working methods.		
21LL1	Aircraft 1	KZ	3
Aircraft structural a	and conceptual design types - definitions and basic knowledge of the problem. Development of requirements, aircraft definitions and ca	-	aft loadings.
041.74.0	Systems of primary and secondary airframe structure. Airframe and propulsion unit. Lectures are devoted to aeroplane topic		
21LTA2	Aircraft 2	Z,ZK	2
Manufacturers res	ponsibility, responsibilities of operator and professional supervising. Legislation in area of airworthiness. International and national star structures. Aeroelasticity. Inherent and operational reliability of aircraft structure. Fatigue strength. Aircraft structure lifetime presu		ty of aircraft
21LTN	Air Navigation	Z,ZK	2
	parameters and properties. Aeronautical charts and their use. Measuring time. Dead reckoning. Radionavigation aids. Global navigati		
Lartii its shape,	services and their design.	on satellite systems	3.7 til tiallio
21LTTE	Aerodromes	Z.ZK	4
	ence point and temperature, TORA, TODA, ASDA, LDA. Taxiway and apron. Clearway. Stopway. Obstacle limitation surfaces. Runway	l ' I	=
	Environmental conditions. Public traffic.	,	Ü
21MRG	Meteorology	KZ	3
_	osphere. Vertical stratification. Pressures QNH, QFE, QFF, QME. Instability. Atmospherical fronts. Atmospherical rainfall, origin fission.	Turbulence. Power	-
wind. Cyclone and	anticyclone. Gradient wind. Geostrofical and geocyklostrofical wind. Visibilities in air transport. Dangerous meteorological aspects. Met	eorological maps. (Climatology.
	Circulation. Intertropical front. Meteorological informations.		
210BP	Airline Business and Operations	Z,ZK	3
Airline business ar	nd operation abbreviations and terminology. Civil aviation structure in the Czech republic. Act No. 49/1997 Coll., on civil aviation. Air transcription	ansport regulations	ICAO, EU.
IATA, ICAO, ECA	C, JAA, EUROCONTROL. Air operators. Air transport distribution. Global distribution and reservation systems. Agreements among air	operators. Air traff	ic manuals
	and publications. Passenger and cargo air transport.		
21PAP	Flight Planning and Performance	Z,ZK	4
	Load of aircraft. Determination of centre of gravity - loadsheet, trimsheet. Aircraft weighing. Overloading of aircraft. Basic characteristic s		
Take off and landin	ng performance. Drift down. ETOPS. MEL. Flight planning and monitoring. Routing. FL and speeds selection. Charts. ICAO ATC FPL. A	erodrom operation	minimums.
040015	Fuel plan. Operational flight plan.	1/7	
21PDLE	Airport Design and Operation	KZ	3
ivietnods for the ne	w airports design. Existing airports development. A closer look at the development of the airports operational areas. Certification of the o	perating areas and	procedures
21PJE	by ICAO Airports Manual. Development planning and project preparation, regulatory basis.	KZ	2
_	Aircraft Instruments raft instrumentation and its principles and construction, aircraft electrical systems, engine measuring and monitoring systems, air data		-
	gyroscopic indicators, inertial and radio navigation means, communication means, data recorders, complex flight and navigation data		-
21RILP	Air Traffic Control	7	2
	and their distribution. Organization of air traffic, flow and capacity management. Airspace management. System support for aircraft fly	ing through space	
	Separation of aircraft. Reports of air traffic services, the form, content. Harmonization and integration of ATC. CFMU and its subsyste		
,	FUA. RVSM, RNP. New trends in the area of ATC.		•
21ULCT	Aircraft Maintenance	Z	2
	and technical operations. Maintenance and work processes. Defects search methods, status check diagnostic tools. Selection and qua	lification of aviation	
Basic documenta	tion for maintenance. Optimization of time maintenance intervals. Regulation no. 1321/2014 Part 145. Human factors of aircraft maintenance	enance. Regulation	of director
	EASA for aircraft maintenance. Seminars will be focused on practical application.		
21X31	Project 1	Z	2
21X32	Project 2	Z	2
21X33	Project 3	Z	2
21Y1BC	Aviation safety and security	KZ	2
History o	of safety and security development in aviation. Modern tools for safety and security management. Research and development of safe	and secure system	S.
21Y1BS	Unmanned aircraft systems 1	KZ	2
	on Development. Aircraft design. Legislation in force in the Czech Republic. Planning and execution of the flight. Airspace division. Ope	erational risks and	operational
	procedures. Practical flights.		
21Y1FN	Factors Affecting the Rate of Accidents in Aviation	KZ	2
Introduction. The s	cope of international and national organizations in civil aviation. The scope of the investigation organisations within the state and international and national organizations in civil aviation.	rnational committee	es. Analysis
and interpretation	on of ICAO Annexes 13 and 19. Analysis and interpretation of the Regulation (EC), Regulation (EU). Human factor. Utilization of inform	nation from the inve	estigation
	reports.		
21Y1LA	Aerobatics	KZ	2
	ing aerobatic figures. Aerodynamics and flight mechanics of aerobatic figures. Aerobatic training syllabi and aerobatic competitions. Cr	-	
Salety in aerobat	tics, accidents related to aerobatics. Physiological aspects of flying aerobatics. Aircraft structure loads and construction fatigue strengi recovery training (UPRT) for commercial pilots and related accidents.	in or aerobatic airci	aii. Upset
21Y1LR		KZ	2
	Radio Technology in Aviation nd the wave spectrum. Analog and digital modulations. Noises. Filters. Resonance circuits. Electromagnetic field. Electromagnetic wa		
Liooti o oigilaio a	in aviation, radiation and reception of electromagnetic field. Antennas in aviation, receivers and transmitters.	vo propagation. vva	ivo rangoo
21Y1MP	Matlab for project-oriented study	KZ	2
	abus is focused on the problem-solving during bachelor's thesis preparation and it is based on students' requests. Individual exercises	l I	
	oles, based on actual students' needs and suggestions. The subject will have a flexible form, which is expected to bring an improveme		_
21Y1MZ	Managerial Ethics	KZ	2
	ogy of managerial ethics. Basics of etiquette and rules of social contact. Social events. Etiquette of working contacts. The art of presenta		
	image. Diplomatic protocol. Managerial ethics. Business ethics.		

21Y1RZ	Human Resources Management	KZ	2
The position of hu	man resources in the organization and related disciplines file. Substance, importance and challenges of human resources ma	anagement. Internal and	d external
nvironment of huma	n resource management. Human resource planning. Search, recruitment and selection of employees. Motivation, evaluation ar	nd remuneration of staff	f. Positioning
	dismissal and redundancies of employees. Education of employees. Planning career management.		
21Y1TH	Aircraft Technical Handling	KZ	2
_	d pushing tractors. GPU. Air conditioning and heating units. Aircraft fuel equipment. De-acing and anti-icing units. Loading and		oment for
	angers onboarding and offboarding. Operational processes of aircraft technical handling and regulations. Modernization and		
21Y1UT	Airports Maintenance	KZ	2
ummer airport main	tenance. Summer maintenance equipment. Winter airport maintenance. Winter maintenance equipment. De-icing / anti-icing of	of aircraft. De-icing / ant	ti-icing liquic
	Operating procedures, limitations, practices.		
21ZALD	Basics of Air Transport	KZ	2
-	rminology, basic rules. VFR/IFR. Basics of aerodynamics. Propulsion of aircraft. Aircraft design. Basics of navigation, radio navigation		
light planning, optim	ization of speed and heights, minimum fuel. Limitations of operation, maintenance, service life of aircraft. Traffic management,	ground handling, secu	ırity. Air crev
	Airlines and economics. Space technologies.		
21ZT	ATM Systems	ZK	2
The course introd	uces classical and modern facilities, systems and technologies designated for ATS. Student obtains knowledge of technical p	rinciples and solutions	as far as
	communication, navigation and surveillance aviation systems are concerned.		
21ZYL1	Principles of Flight 1	Z,ZK	5
	elation between drag and speed, streamline, boundary layer, formula of continuity, formula of Bernoulli, lift and drag, air flow a		
ttack, reactions of wi	ing in air flow, lift and drag of a wing and an aircraft, coefficient of lift and drag, critical angle of attack, wing with final span, ind	luced drag, interference	e, devices f
	lift and drag increase.		
21ZYL2	Principles of Flight 2	Z,ZK	5
	rust, propeller, jet propulsion, thrust and momentum, propulsion efficiency, aerodynamics of fixed and variable pitch propeller, p		
airstream effect, gy	yroscopic effect, balance of forces in horizontal flight, glide and landing, performances, take off an climb, acceleration, positive	e load, manoevures, sta	ability and
	controllability, transsonic speeds.		
22X31	Project 1	Z	2
22X32	Project 2	Z	2
22X33	Project 3	Z	2
22Y1SZ	Forensic Expertise	KZ	2
	of forensic engineering, forensic activity, current legislature in the Czech Republic, different disciplines, notion of forensic, forer		1
expert role in the ob	taining proofs, forensic methodology. Notion of the evidence, general principles of evidence obtaining, metrology, protocol, ev	idences collection, site	inspection,
	forensic report, elements. Finding, expert testimony / report.		
23X31	Project 1	Z	2
23X32	Project 2	Z	2
23X33	Project 3	Z	2
23Y1DZ	Data and Their Processing for Engineering Fields Needs	KZ	2
	bata and Their Processing for Engineering Fields Needs cterms, data collection, data sets, data random uncertainty and data epistemic uncertainty, data processing, hazard, risk, val		_
Jourses of risk, basic	heuristic methods, hazard determination and risk determination, methods for variants' creation, decision support sys	· ·	inpincai an
23Y1KO	Quantum Physics and Optoelectronics	KZ	2
231 INO	Ground of quantum physics. Application of quantum physics in practice. Optoelectronics. Production of optoelectronics co		2
22/40/			
23Y1OK	Protection of Critical Objects and Infrastructures	KZ	2
ypes of technologica	Il systems, critical item, risks and their courses, criticality, vulnerability, connectivity, dependability, resilience, failure, protection,	, safety of critical object	is and critica
00)/4)/0	infrastructures.	1/7	
23Y1VS	Negotiation and Cooperation	KZ	2
	negotiation. The influence of personality traits on the negotiations. Negotiation and commanding. Teamwork. Variants teams. Ir		
rincipies of negotiati	ion, the essence of negotiation, the differences in negotiation in business and in crisis situations, the principle of "win both", sp	becirications and biddin	ig, the role
TVA	trust.	7	
TV-1	Physical Education	Z	1
TV-2	Physical Education	Z	1 1

For updated information see http://bilakniha.cvut.cz/en/FF.html Generated: day 30. 11. 2020, time 05:35.