Study plan

Name of study plan: bak.prez.11/12

Faculty/Institute/Others:

Department:

Branch of study guaranteed by the department: Welcome page

Garantor of the study branch:

Program of study: Technology in Transportation and Telecommunications

Type of study: Bachelor full-time

Required credits: 120

Elective courses credits: -30 Sum of credits in the plan: 90

Note on the plan:

Name of the block: Compulsory courses Minimal number of credits of the block: 87

The role of the block: Z

Code of the group: 1.S.BP 10/11

Name of the group: 1.sem.bak.prez.10/11

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 12 courses

Credits in the group: 30 Note on the group:

NOTE OIL THE	<u> </u>					
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
13E	Economics	Z,ZK	3	2+1	Z	Z
11GIE	Geometry Old ich Hykš, Pavel Provinský, Šárka Vorá ová Old ich Hykš Old ich Hykš (Gar.)	KZ	3	2P+2C+12E	3 Z	Z
14KSP	Constructing with Computer Aid Martin Brumovský, Martin Fiala, Radek Kratochvíl, Lukáš Svoboda, Jan Vogl, Drahomír Schmidt Lukáš Svoboda Drahomír Schmidt (Gar.)	KZ	2	0P+2C+8E	B Z	Z
11LA	Linear Algebra Pavel Provinský, Lucie Kárná, Martina Be vá ová Martina Be vá ová (Gar.) Be vá ová (Gar.)	Z,ZK	3	2P+1C+10E	3 Z	Z
11MTA	Mathematical Analysis	Z,ZK	4	2+2	Z	Z
18MRI1	Materials 1	Z,ZK	3	2+1	Z	Z
00TVC1	Physical Education 1	Z	1	0+2	Z	Z
18TTED	Creation of Technical Documentation	KZ	2	2+1	Z	Z
22UN	Traffic Accidents Introduction	Z	2	2+0	Z	Z
12ZADI	Introduction to Transportation Engineering	Z,ZK	3	2+1	Z	Z
14ZINF	Fundamentals of Informatics	KZ	2	0+2	Z	Z
21ZLD	Introduction to Air Transport	KZ	2	2+1	Z	Z
	=			1	1	

Characteristics of the courses of this group of Study Plan: Code=1.S.BP 10/11 Name=1.sem.bak.prez.10/11

13E	Economics	Z,ZK	3
Microeconomic and m	acroeconomic interpretation of economic relations. Method and subject of the economics. Economic decision making of consu	imers and produc	ers. Market
structures. Labour and	capital, efficiency, ownership, public choice.		
11GIE	Geometry	KZ	3
Differential geometry of	f curves - parameterization, the arc of the curve, torsion and curvature, Frenet`s trihedron. Kinematics - a curve as a trajector	y of the motion, the	ne velocity, and
acceleration of a partic	le moving on a curved path.		
14KSP	Constructing with Computer Aid	KZ	2
"CAD systems" term d	etermination. CAD role in projecting system model. Existing CAD systems on Czech market. Project creation, basic common	work rules in grap	hic applications
and CA systems. Co-o	rdinated systems, CAD environment skill (basics of constructing, dimensioning, modifications, user interfaces, projecting poss	sibilites, AutoCAD	environment
profiles, drawings with	raster foundaments).		

11LA	Linear Algebra	Z,ZK	3
Vector spaces (line	ear combinations, linear independence, dimension, basis, coordinates). Matrices and operations. Systems of linear equations	and their solvability. D	eterminants an
their applications.	Scalar product. Similarity of matrices (eigenvalues and eigenvectors). Quadratic forms and their classification.		
11MTA	Mathematical Analysis	Z,ZK	4
Sequences and se	eries of real numbers and its convergence. Basic properties of functions. Differential and integral calculus of the real function of c	one real variable. Powe	er series, Fourie
series and foundat	tions of Fourier transform.		
18MRI1	Materials 1	Z,ZK	3
•	Basics of thermodynamics of metals and their alloys. Balanced binary diagrams. Alloys of iron with carbon. Deterioration of solins. Physical features. Mechanical features. Dephectostopic testing. Corosion.	id solutions. Heating p	rocessing of
00TVC1	Physical Education 1	Z	1
Practical instructio	on and training in a wide variety of sports and games: from basic recreational coaching to competitive top level training. Include	ed are: basketball, volle	eyball, soccer,
tennis, squash, flo	orball, bodybuilding, swimming, canoeing, aerobic.		
		1/7	2
18TTED	Creation of Technical Documentation	KZ	2
-	Creation of Technical Documentation ds, international standardization, types of technical drawings, representation of technical objects, technical diagrams and charts, or		_
Technical standard			_
Technical standard	ds, international standardization, types of technical drawings, representation of technical objects, technical diagrams and charts, or		_
Technical standard arrangement of dra 22UN	ds, international standardization, types of technical drawings, representation of technical objects, technical diagrams and charts, cawing sheets, types of schemes and their creation.	dimensional and geom	etrical accurac
Technical standard arrangement of dra 22UN Traffic accident as	ds, international standardization, types of technical drawings, representation of technical objects, technical diagrams and charts, cawing sheets, types of schemes and their creation. Traffic Accidents Introduction	dimensional and geom	etrical accuracy
Technical standard arrangement of dra 22UN Traffic accident as	ds, international standardization, types of technical drawings, representation of technical objects, technical diagrams and charts, cawing sheets, types of schemes and their creation. Traffic Accidents Introduction a physical process, systematic submission, vehicle x human x infrastructure interaction, accidents statistics, aircraft accidents	dimensional and geom	etrical accuracy
Technical standard arrangement of dra 22UN Traffic accident as waterways, road tr 12ZADI	ds, international standardization, types of technical drawings, representation of technical objects, technical diagrams and charts, cawing sheets, types of schemes and their creation. Traffic Accidents Introduction Traffic Accidents Introduction	dimensional and geom	etrical accuracy 2 s, accidents on
Technical standard arrangement of dra 22UN Traffic accident as waterways, road tr 12ZADI	ds, international standardization, types of technical drawings, representation of technical objects, technical diagrams and charts, or awing sheets, types of schemes and their creation. Traffic Accidents Introduction Traffic Accidents Introduction	dimensional and geom	etrical accuracy 2 s, accidents on
Technical standard arrangement of dra 22UN Traffic accident as waterways, road tr 12ZADI Traffic survey. Terre	ds, international standardization, types of technical drawings, representation of technical objects, technical diagrams and charts, or awing sheets, types of schemes and their creation. Traffic Accidents Introduction Traffic Accidents Introduction	dimensional and geom	etrical accuracy 2 s, accidents on
Technical standard arrangement of dra 22UN Traffic accident as waterways, road tr 12ZADI Traffic survey. Terror Traffic and environ 14ZINF	ds, international standardization, types of technical drawings, representation of technical objects, technical diagrams and charts, or the same standardization, types of technical drawings, representation of technical objects, technical diagrams and charts, or the same standardization, the same standardization of technical objects, technical diagrams and charts, or the same standardization of technical objects, technical diagrams and charts, or the same standardization of the same standardization of the same standardization, accidents statistics, aircraft accidents raffic accidents, other aspects, accidental prevention. Introduction to Transportation Engineering restrial roads. Residential zone. Land - use planning. Railway transport. Public mass transport. Integrated traffic systems. Traffic ment.	dimensional and geom Z s, accidents on railway Z,ZK rorognosis. Traffic safe	etrical accuracy 2 s, accidents on 3 ety. Air transpor
Technical standard arrangement of dra 22UN Traffic accident as waterways, road tr 12ZADI Traffic survey. Terror Traffic and environ 14ZINF Introduction to face	ds, international standardization, types of technical drawings, representation of technical objects, technical diagrams and charts, or the same standardization, types of technical drawings, representation of technical objects, technical diagrams and charts, or the same standardization, the same standardization of technical objects, technical diagrams and charts, or the same standardization of technical objects, technical diagrams and charts, or the same standardization of technical objects, technical diagrams and charts, or the same standardization, the same standardization of the same standardization, the same standardization of the same standardization, the same standardization, the same standardization, the same standardization of the same standardization, the same standardization of the same standardization, the same standardization of the same standardization o	dimensional and geom Z s, accidents on railway Z,ZK prognosis. Traffic safe	etrical accuracy 2 s, accidents on 3 ety. Air transpor 2 ncl. arithmetic
Technical standard arrangement of dra 22UN Traffic accident as waterways, road tr 12ZADI Traffic survey. Terror Traffic and environ 14ZINF Introduction to face	ds, international standardization, types of technical drawings, representation of technical objects, technical diagrams and charts, or awing sheets, types of schemes and their creation. Traffic Accidents Introduction	dimensional and geom Z s, accidents on railway Z,ZK prognosis. Traffic safe	etrical accuracy 2 s, accidents on 3 ety. Air transpor 2 ncl. arithmetic
Technical standard arrangement of dra 22UN Traffic accident as waterways, road tr 12ZADI Traffic survey. Terror Traffic and environ 14ZINF Introduction to facical calculations. Algor	ds, international standardization, types of technical drawings, representation of technical objects, technical diagrams and charts, or awing sheets, types of schemes and their creation. Traffic Accidents Introduction	dimensional and geom Z s, accidents on railway Z,ZK prognosis. Traffic safe	etrical accuracy 2 s, accidents on 3 ety. Air transpor 2 ncl. arithmetic
Technical standard arrangement of dra 22UN Traffic accident as waterways, road tr 12ZADI Traffic survey. Terror Traffic and environ 14ZINF Introduction to fact calculations. Algor graphs, calculation 21ZLD	ds, international standardization, types of technical drawings, representation of technical objects, technical diagrams and charts, or awing sheets, types of schemes and their creation. Traffic Accidents Introduction	Z,ZK c prognosis. Traffic safe KZ cn. Number systems in production. Work with Microscopic and the systems in production. WZ	etrical accuracy 2 s, accidents on 3 ety. Air transpor 2 ncl. arithmetic S-Excel - tables

Code of the group: 2.S.BP 10/11

Name of the group: 2.sem.bak.prez.10/11

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 12 courses

Credits in the group: 30 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
13EDOT	Economy, Transport, Telecommunications	KZ	2	2+0	L	Z
11FY1	Physics 1	Z,ZK	4	2P+2C	L	Z
11MVP	Mathematical Analysis of Function of More Variables	Z,ZK	3	2+2	L	Z
18MRI2	Materials 2	KZ	2	2+0	L	Z
11PT	Probability	Z	2	1+1	L	Z
12PKD	Rail Transport Designing	Z,ZK	3	2+2	L	Z
14SIAP	Networks and Protocols	KZ	2	1+1	L	Z
18ST	Statics	Z,ZK	3	2+1	L	Z
17TDL	Transport Technology and Logistics	Z,ZK	3	2+2	L	Z
00TVC2	Physical Education 2	Z	1	0+2	L	Z
20UIS	Introduction to ITS	Z,ZK	3	2+1	L	Z
14UPRO	Introduction to Programming	KZ	2	0+2	L	Z

Characteristics of the courses of this group of Study Plan: Code=2.S.BP 10/11 Name=2.sem.bak.prez.10/11

13EDOT	Economy, Transport, Telecommunications	KZ	2
Transport, telecomm	unications, demand, supply, indicators, economic development, legislation, European union, regulation, liberalisation, transport	modes, ITS, sust	ainability.
11FY1	Physics 1	Z,ZK	4
Kinematics, particle	dynamics, dynamics of particle systems and rigid body. Continuum mechanics, thermodynamics, electric field, directed electric	current.	,
11MVP	Mathematical Analysis of Function of More Variables	Z,ZK	3
Metric spaces, sequ	ences in metric spaces, limit of sequence in metric space. Differential calculus of functions of several variables, differential of fur	nction, partial deri	vations, implicit
defined functions, ex	tremes of functions of several variables. Integral calculus of functions of several variables, Riemann integral, integral over curve	s and surfaces in	R3, application
of integral calculus in	n physics.		
18MRI2	Materials 2	KZ	2
Fundamental conce	ots notions. The main materials groups. Semiconductors, Polymers, Special types of steel, Properties and application of the con-	nposite materials	•

11PT Probability Descriptive statistics. Basic probability concepts: elementary events and events, definitions and interpretation of probability. Random variable, probability distribution, probability mass and density, moments, some discrete and continuous distributions, Random vectors; joint and marginal distributions, mean vector, covariance matrix, Mixed distributions, mixture of distributions. Law of large numbers, central limit theorem. Rail Transport Designing Railway lines network. Vehicle and track relation. Traction. Track geometrical parameters. Clearance profile. Railway lines routing. Superstructure and substructure of the railway lines. Switches. Railway stations. City rail transport. 14SIAP ΚZ Networks and Protocols Basic communication model, history and development of the Internet, principle of data transfer through computer networks (TCP/IP), performance of basic network protocols (ARP, RARP, TCP, UDP, Telnet, FTP, DNS, DHCP POP3, IMAP), data acquirement from the Internet sources, communicating ability via the Internet and fundamentals of own web presentation **18ST** Statics Z,ZK General system of forces. Calculation of reactions of mass objects and compound systems. Assessment of internal forces on statically determinate beam and simple framework. Principle of virtual works. Kinematic method for calculation of reactions of statically determinate systems. Determination of axial forces in truss construction, method of joints and method of sections. Geometry of cross sections. Plane fiber polygons and catenary cables. Transport Technology and Logistics Basic terms in transport technology and logistics. Particular steps of transport planning. Quantification of carriage relations. Line planning. Timetabling. Planning in pasanger and freight transport. Organisation of traffic in each transport means. Technological factors from the point of view of operator and client. Organisation of public city transport. Logistic technologies and their application using various transport means Physical Education 2 Practical instruction and training in a wide variety of sports and games: from basic recreational coaching to competitive top level training. Included are: basketball, volleyball, soccer, tennis, squash, floorball, bodybuilding, swimming, canoeing, aerobic. **20UIS** Z,ZK 3 Introduction to ITS Intelligent Transport Systems (ITS), their objectives and vision. ITS in the world, in Europe and in the Czech Republic. Architecture of ITS and the role of standardization. Information and navigation systems. ITS in road, rail and combine transport. Design of ITS, organization, preparation and implementation of the project. Current projects in the Czech Republic.

Algorithm development, methods of structured programming, high-level programming languages, basics of C programming languages (types, variables, conditions, cycles, arrays,

functions), programming techniques, complexity.

Code of the group: 3.S.BP 11/12 Name of the group: 3.sem.bak.prez.11/12

Introduction to Programming

Requirement credits in the group: In this group you have to gain 27 credits

Requirement courses in the group: In this group you have to complete 10 courses

Credits in the group: 27 Note on the group.

safety and fluency.

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
11DAD	Differential and Difference Equations	Z,ZK	3	2+1	Z	Z
11FY2	Physics 2	Z,ZK	4	2+2	Z	Z
12MDE	Transport Models and Transport Excesses Milan Dont, Josef Kocourek	Z,ZK	3	2P+1C+8B	B Z	Z
12PPOK	Designing Roads, Highways and Motorways Josef Kocourek, Petr Šatra, Tomáš Pad lek, Petr Kumpošt	KZ	3	1P+2C+10B	B Z	Z
18PZP	Elasticity and Strength Jan Vy ichl, Jitka ezní ková, Daniel Kytý, Jan Šleichrt, Tomáš Doktor, Tomáš Fíla, Nela Kr má ová, Jan Falta, Radim Dvo ák,	Z,ZK	3	2P+1C+10B	B Z	Z
11SIS	Statistics	Z,ZK	2	1+1	Z	Z
20SSA	Systems Analysis	Z,ZK	3	2+1	Z	Z
14UATT	Introduction to Automatization and Telecommunication Systems	KZ	2	3+0	Z	Z
16UDDM	Introduction to Transportation and Manipulation Technics	ZK	2	2+0	Z	Z
14ZAET	Fundamentals of Electrotechnics	KZ	2	2+1	Z	Z

Characteristics •	of the courses of this group of Study Plan: Code=3.S.BP 11/12 Name=3.sem.bak.prez.11/12		
11DAD	Differential and Difference Equations	Z,ZK	3
Difference equations	and its systems. Some solvable types of differential equations of the first order. Linear differential equations of the n-th order. Metho	ds for solution of th	ne homogeneou
	nhomogeneous equation by means of variation of constants. Power series and their use for solution of differential equation. Bound ential equation. Fourier series of function.	dary value problen	n. Eigennumber
11FY2	Physics 2	Z,ZK	4
Magnetic field, electro	omagnetic field. Optics, quantum character of electromagnetic radiation. Introduction into quantization, hydrogen atom. Multi-ele	ectron atoms, the	nuclei. Basics o
solid body physics.			
12MDE	Transport Models and Transport Excesses	Z,ZK	3
	fic flow and methods for their measurement. Models of the traffic flow, communications load, line and urban systems. Theory o	•	

12PPOK 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. 18PZP Elasticity and Strength Tension and compression. Bending of beam. Shear stress in bending of beam. Design and analysis of cross section of beam. Design of riveted, bolted and welded joints of structures. Analysis of deflection curve of beams. Torsion of circular cross sections. Combined loading. Stability. **11SIS** Z,ZK Point estimation, properties of point estimators, methods of point estimation. Testing statistical hypothesis. Fit test, independence test. Regression and correlation, linear regression, correlation coefficient, coefficient of determination, general linear model, statistical inference in linear regression, analysis of variance, multiple regression, use of matrices in regression. Systems Analysis Systems identification. Typical tasks of systems analysis: on the interface, routes in system, decomposition and integration, on systems feedback. Capacity tasks, process analysis. Task about behaviour, aim behaviour, the genetic code, architecture and identity of systems. Fundamentals of technical cybernetics, stability and reliability of systems 14UATT Introduction to Automatization and Telecommunication Systems Basic axioms of technical cybernetics, automatization in transportation, human as the weakest element, signalling in transportation, modelling and projecting of transport systems, integrated technological and infromation system in post, principle of telecommunication signal transmission, solving of telecommunication networks, modulating methods, multimedial networks and services, NGN networks. Introduction to Transportation and Manipulation Technics Means of transportation and transportation systems. Principles, functions and arrangement of means of transportation. Motors and their characteristics. Water transportation. Manipulating technics. Principles of lifting machines and conveyors. Legislature. 14ZAET Fundamentals of Electrotechnics ΚZ 2

Basic electrotechnic terms, circuit quantities. Periodic courses characteristics. Electric circuits elements and basic circuit members. Assignating of bipoles and basic circuit elements. Solution to direct current circuits with a help of circuit analysis elementar methods: method of consecutive reduction, unloaded voltage divider, current divider. Transfiguration star-triplangel

Name of the block: Compulsory courses in the program

Minimal number of credits of the block: 27

The role of the block: P

Code of the group: 4.S.BPIL 11/12

and principle of superposition in direct current circuits.

Name of the group: 4.sem.PIL bak.prez.11/12

Requirement credits in the group: In this group you have to gain 27 credits

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

Credits in the group: 27 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
21CNV	Flight Navigation Training	Z	2	0+2	L	Р
21LL1	Aircraft 1	KZ	3	2P+1C+10B	L	Р
21LPVL	IFR Flights, Night's Flying and Multiengine Aircrafts Flying	KZ	3	2+0	L	Р
21LR	Radio Technology in Aviation	ZK	2	2+0	L	Р
21MGI	Meteorology	Z,ZK	5	4+2	L	Р
21PJE1	Instrumentation 1	Z,ZK	2	2+1	L	Р
21PLL2	Flight Planning and Performance 2	KZ	4	2+1	L	Р
21PVY2	Practical Pilot's Training 2	KZ	3	0+1	L	Р
21ZLE1	Principles of Flight 1	KZ	3	2+1	L	Р

in aviation, radiation and reception of electromagnetic field, antennas in aviation, receivers and transmitters.

Characteristics	of the courses of this group of Study Plan: Code=4.S.BPIL 11/12 Name=4.sem.PIL bak.prez. [.]	11/12	
21CNV	Flight Navigation Training	Z	2
Navigation systems	lestricption and device handling navigation systems, standard arrival and departures routes (STAR, SID), ILS, MLS approach p	rocedures, PAR,	SRE approach
procedures, VOR / D	ME, NDB approach procedures, approach by circuit, visual approach, altimeteres setting procedures, holding procedures, low	visibility procedure	es. IFR flight
preparation and oper	ation, examples from General navigation and Radionavigation.		
21LL1	Aircraft 1	KZ	3
Aircraft structural and	l conceptual design types - definitions and basic knowledge of the problem. Development of requirements, aircraft definitions ar	d categorisation.	Aircraft loadings
Systems of primary a	and secondary airframe structure. Airframe and propulsion unit. Lectures are devoted to aeroplane topics.		
21LPVL	IFR Flights, Night's Flying and Multiengine Aircrafts Flying	KZ	3
Basic night flying, mu	ltiengine flying and instrument flying. Instrumentation, airport, lightning, signals. Normal operations and emergency operations nig	ht. Instrumentation	n, aerodynamics
aeroplane specificati	on. Normal operations and emergency operations multiengines. Avionics, instrument panel, cockpit ergonomy. Normal operatio	ns and emefgency	y operations
instrument flying. Co	nections in operations multiengines in IMC and night.		
21LR	Radio Technology in Aviation	ZK	2
Electric signals and t	he wave spectrum, Analog and digital modulations, Noises, Filters, Resonance circuits. Electromagnetic field. Electromagnetic	wave propagation	. Wave ranges

21MGI Meteorology 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. Instrumentation 1 Basic classification and construction of flight instruments, electric systems, power plant sensors and instruments, airframe sensors and instruments, measurement of air data parameters. 21PLL2 Flight Planning and Performance 2 4 Basic terms in aircraft performance, basic characteristic speeds, runway characteristics, single and multiengine aircraft performance class B, aircraft performance class A, take off and landing performance, after take off and missed approach climb, noise abatement procedures, range of aircraft, drift down, MEL, ETOPS 21PVY2 Practical Pilot's Training 2 ΚZ Practical exercises for improvement of theoretical knowledges needed for commencement of training for acquisition of IR(A) qualification in courses 010 to 090 in compliance with JAR FCL 1. This course is finished in verification of teoretical knowledge and practical exam with FTO examinator for practical training. 21ZLE1 Principles of Flight 1 ΚZ Aerodynamic drag, relation between drag and speed, streamline, boundary layer, continuity equation, Bernoulli's equation, 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.

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-1,2 11/12

texts and their features; practice of oral and written presentation.

Name of the group: Jazyk bak.3.4.sem.od 11/12

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:

Note on the grou						
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
15JZ1A	Foreign Language - English 1 Markéta Vojanová, Dana Boušová, Marie Michlová, Barbora Horá ková, Marek Tome ek, Jan Feit, Markéta Musilová, Peter Morpuss, Lenka Monková,	Z	3	0P+4C+10B	Z	J
15JZ2A	Foreign Language - English 2 Markéta Vojanová, Dana Boušová, Marie Michlová, Barbora Horá ková, Marek Tome ek, Jan Feit, Markéta Musilová, Peter Morpuss, Lenka Monková,	Z,ZK	3	0P+4C+10B		J
15JZ1F	Foreign Language - French 1	Z	3	0+4	Z	J
15JZ2F	Foreign Language - French 2	Z,ZK	3	0+4	L	J
15JZ1N	Foreign Language - German 1	Z	3	0+4	Z	J
15JZ2N	Foreign Language - German 2	Z,ZK	3	0+4	L	J
15JZ1R	Foreign Language - Russian 1	Z	3	0+4	Z	J
15JZ2R	Foreign Language - Russian 2	Z,ZK	3	0+4	L	J
15JZ1S	Foreign Language - Spanish 1	Z	3	0+4	Z	J
15JZ2S	Foreign Language - Spanish 2	Z,ZK	3	0+4	L	J

15JZ1A	Foreign Language - English 1	Z	3
Grammatical Struc	ures and Style. Selection of conversation topics relating to transportation sciences. Extending vocabulary, developing perceptive and	communicative s	kills. Elementa
stylistics forms. Or	al and written presentation of original research. Academic text principles and reading comprehension. Principles of rhetoric.		
15JZ2A	Foreign Language - English 2	Z,ZK	3
Grammatical struc	ures and style. Selection of conversation topics relating to transportation sciences. Extending vocabulary, developing perceptive and	communicative s	kills. Elementa
stylistics forms. Or	al and written presentation of original research. Academic text principles and reading comprehension. Principles of rhetoric.		
15JZ1F	Foreign Language - French 1	Z	3
Grammar structure	and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Facult	y's fields of study	/. Focus on
improvement in pe	ceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both ora	I and written form	ns. Technical
texts and their feat	ures; practice of oral and written presentation.		
15JZ2F	Foreign Language - French 2	Z,ZK	3
Grammar structure	and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Facult	y's fields of study	/. Focus on
improvement in pe	ceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both ora	l and written form	ns. Technical
texts and their feat	ures; practice of oral and written presentation.		
15JZ1N	Foreign Language - German 1	7	3
100Z IIV	Toroigh Earliguage German	_	

improvement in perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral and written forms. Technical

15JZ2N	Foreign Language - German 2	Z,ZK	3
Grammar structure	and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faci	ulty's fields of stud	y. Focus on
improvement in per	rceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both c	oral and written form	ns. Technical
texts and their feat	ures; practice of oral and written presentation.		
15JZ1R	Foreign Language - Russian 1	Z	3
Grammar structure	and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faci	ulty's fields of stud	y. Focus on
improvement in per	rceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both c	oral and written form	ns. Technical
texts and their feat	ures; practice of oral and written presentation.		
15JZ2R	Foreign Language - Russian 2	Z,ZK	3
Grammar structure	and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faci	ulty's fields of stud	y. Focus on
improvement in per	rceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both c	oral and written form	ns. Technical
texts and their feat	ures; practice of oral and written presentation.		
15JZ1S	Foreign Language - Spanish 1	Z	3
Grammar structure	and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faci	ulty's fields of stud	y. Focus on
improvement in pe	rceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both c	oral and written form	ns. Technical
texts and their feat	ures; practice of oral and written presentation.		
15JZ2S	Foreign Language - Spanish 2	Z,ZK	3
Grammar structure	and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faci	ulty's fields of stud	y. Focus on
improvement in pe	rceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both c	oral and written form	ns. Technical

List of courses of this pass:

	Name of the course	Completion	Credits
00TVC1	Physical Education 1	Z	1
Practical instruct	tion and training in a wide variety of sports and games: from basic recreational coaching to competitive top level training. Included are:	basketball, volleyb	all, soccer,
	tennis, squash, floorball, bodybuilding, swimming, canoeing, aerobic.		
00TVC2	Physical Education 2	Z	1
Practical instruct	tion and training in a wide variety of sports and games: from basic recreational coaching to competitive top level training. Included are:	basketball, volleyb	all, soccer,
	tennis, squash, floorball, bodybuilding, swimming, canoeing, aerobic.		
11DAD	Differential and Difference Equations	Z,ZK	3
	ons and its systems. Some solvable types of differential equations of the first order. Linear differential equations of the n-th order. Methods fo		ı mogeneous
equation, solution	n of inhomogeneous equation by means of variation of constants. Power series and their use for solution of differential equation. Boundary	value problem. Eig	gennumbers
	and function for differential equation. Fourier series of function.		
11FY1	Physics 1	Z.ZK	4
Kine	ematics, particle dynamics, dynamics of particle systems and rigid body. Continuum mechanics, thermodynamics, electric field, directe	d electric current.	
11FY2	Physics 2	Z,ZK	4
	ectromagnetic field. Optics, quantum character of electromagnetic radiation. Introduction into quantization, hydrogen atom. Multi-electro		i ei. Basics of
,	solid body physics.	,	
11GIE	Geometry	KZ	3
	netry of curves - parameterization, the arc of the curve, torsion and curvature, Frenet's trihedron. Kinematics - a curve as a trajectory c	of the motion, the ve	elocity, and
3 · · · · · · · · · · · · · · · · · · ·	acceleration of a particle moving on a curved path.	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,
11LA	Linear Algebra	Z,ZK	3
	near combinations, linear independence, dimension, basis, coordinates). Matrices and operations. Systems of linear equations and the		_
	······································		
	their applications. Scalar product. Similarity of matrices (eigenvalues and eigenvectors). Quadratic forms and their classificati	ion.	
11MTA	their applications. Scalar product. Similarity of matrices (eigenvalues and eigenvectors). Quadratic forms and their classifications. Mathematical Analysis		4
11MTA Sequences and s	Mathematical Analysis	Z,ZK	
		Z,ZK	
Sequences and s	Mathematical Analysis series of real numbers and its convergence. Basic properties of functions. Differential and integral calculus of the real function of one real series and foundations of Fourier transform.	Z,ZK variable. Power se	ries, Fourie
Sequences and s	Mathematical Analysis series of real numbers and its convergence. Basic properties of functions. Differential and integral calculus of the real function of one real series and foundations of Fourier transform. Mathematical Analysis of Function of More Variables	Z,ZK variable. Power se	ries, Fourier
Sequences and s 11MVP Metric spaces, se	Mathematical Analysis series of real numbers and its convergence. Basic properties of functions. Differential and integral calculus of the real function of one real series and foundations of Fourier transform. Mathematical Analysis of Function of More Variables sequences in metric spaces, limit of sequence in metric space. Differential calculus of functions of several variables, differential of functions	Z,ZK variable. Power se Z,ZK on, partial derivation	ries, Fourier 3 ns, implicitly
Sequences and s 11MVP Metric spaces, se	Mathematical Analysis series of real numbers and its convergence. Basic properties of functions. Differential and integral calculus of the real function of one real series and foundations of Fourier transform. Mathematical Analysis of Function of More Variables	Z,ZK variable. Power se Z,ZK on, partial derivation	ries, Fourier 3 ns, implicitly
11MVP Metric spaces, se defined functions	Mathematical Analysis series of real numbers and its convergence. Basic properties of functions. Differential and integral calculus of the real function of one real series and foundations of Fourier transform. Mathematical Analysis of Function of More Variables equences in metric spaces, limit of sequence in metric space. Differential calculus of functions of several variables, differential of functions, extremes of functions of several variables. Integral calculus of functions of several variables, Riemann integral, integral over curves a of integral calculus in physics.	Z,ZK variable. Power se Z,ZK on, partial derivation nd surfaces in R3,	ries, Fourier 3 ns, implicitly application
11MVP Metric spaces, se defined functions	Mathematical Analysis series of real numbers and its convergence. Basic properties of functions. Differential and integral calculus of the real function of one real series and foundations of Fourier transform. Mathematical Analysis of Function of More Variables equences in metric spaces, limit of sequence in metric space. Differential calculus of functions of several variables, differential of functions, extremes of functions of several variables. Integral calculus of functions of several variables, Riemann integral, integral over curves a of integral calculus in physics. Probability	Z,ZK variable. Power se Z,ZK un, partial derivation nd surfaces in R3,	ries, Fourier 3 ns, implicitly application
11MVP Metric spaces, se defined functions 11PT Descriptive statis	Mathematical Analysis series of real numbers and its convergence. Basic properties of functions. Differential and integral calculus of the real function of one real series and foundations of Fourier transform. Mathematical Analysis of Function of More Variables equences in metric spaces, limit of sequence in metric space. Differential calculus of functions of several variables, differential of functions, extremes of functions of several variables. Integral calculus of functions of several variables, Riemann integral, integral over curves a of integral calculus in physics. Probability stics. Basic probability concepts: elementary events and events, definitions and interpretation of probability. Random variable, probability	Z,ZK variable. Power se Z,ZK on, partial derivation nd surfaces in R3, Z y distribution, proba	3 ns, implicitly application 2 ability mass
11MVP Metric spaces, se defined functions 11PT Descriptive statis	Mathematical Analysis series of real numbers and its convergence. Basic properties of functions. Differential and integral calculus of the real function of one real series and foundations of Fourier transform. Mathematical Analysis of Function of More Variables equences in metric spaces, limit of sequence in metric space. Differential calculus of functions of several variables, differential of functions, extremes of functions of several variables. Integral calculus of functions of several variables, Riemann integral, integral over curves a of integral calculus in physics. Probability	Z,ZK variable. Power se Z,ZK on, partial derivation nd surfaces in R3, Z y distribution, proba	3 ns, implicitly application 2 ability mass
11MVP Metric spaces, se defined functions 11PT Descriptive statis and density, more	Mathematical Analysis series of real numbers and its convergence. Basic properties of functions. Differential and integral calculus of the real function of one real series and foundations of Fourier transform. Mathematical Analysis of Function of More Variables equences in metric spaces, limit of sequence in metric space. Differential calculus of functions of several variables, differential of functions, extremes of functions of several variables. Integral calculus of functions of several variables, Riemann integral, integral over curves a of integral calculus in physics. Probability etics. Basic probability concepts: elementary events and events, definitions and interpretation of probability. Random variable, probability ments, some discrete and continuous distributions. Random vectors: joint and marginal distributions, mean vector, covariance matrix. Medistributions. Law of large numbers, central limit theorem.	Z,ZK variable. Power se Z,ZK on, partial derivation nd surfaces in R3, Z y distribution, proba	3 ns, implicitly application 2 ability mass mixture of
11MVP Metric spaces, se defined functions 11PT Descriptive statis and density, more	Mathematical Analysis series of real numbers and its convergence. Basic properties of functions. Differential and integral calculus of the real function of one real series and foundations of Fourier transform. Mathematical Analysis of Function of More Variables equences in metric spaces, limit of sequence in metric space. Differential calculus of functions of several variables, differential of functions, extremes of functions of several variables. Integral calculus of functions of several variables, Riemann integral, integral over curves a of integral calculus in physics. Probability etics. Basic probability concepts: elementary events and events, definitions and interpretation of probability. Random variable, probability ments, some discrete and continuous distributions. Random vectors: joint and marginal distributions, mean vector, covariance matrix. Medistributions. Law of large numbers, central limit theorem. Statistics	Z,ZK variable. Power se Z,ZK on, partial derivation nd surfaces in R3, Z y distribution, prob. dixed distributions,	3 ns, implicitly application 2 ability mass mixture of
11MVP Metric spaces, se defined functions 11PT Descriptive statis and density, more 11SIS Point estimation,	Mathematical Analysis series of real numbers and its convergence. Basic properties of functions. Differential and integral calculus of the real function of one real series and foundations of Fourier transform. Mathematical Analysis of Function of More Variables equences in metric spaces, limit of sequence in metric space. Differential calculus of functions of several variables, differential of functions, extremes of functions of several variables. Integral calculus of functions of several variables, Riemann integral, integral over curves a of integral calculus in physics. Probability etics. Basic probability concepts: elementary events and events, definitions and interpretation of probability. Random variable, probability ments, some discrete and continuous distributions. Random vectors: joint and marginal distributions, mean vector, covariance matrix. Medistributions. Law of large numbers, central limit theorem. Statistics , properties of point estimators, methods of point estimation. Testing statistical hypothesis. Fit test, independence test. Regression and	Z,ZK variable. Power se Z,ZK on, partial derivation nd surfaces in R3, Z y distribution, prob. Mixed distributions, Z,ZK correlation, linear	3 ns, implicitly application 2 ability mass mixture of 2 regression,
11MVP Metric spaces, se defined functions 11PT Descriptive statis and density, more 11SIS Point estimation, correlation coeffice	Mathematical Analysis series of real numbers and its convergence. Basic properties of functions. Differential and integral calculus of the real function of one real series and foundations of Fourier transform. Mathematical Analysis of Function of More Variables	Z,ZK variable. Power se Z,ZK on, partial derivation nd surfaces in R3, Z y distribution, prob dixed distributions, Z,ZK correlation, linear in, use of matrices in	3 ns, implicitly application 2 ability mass mixture of 2 regression,
11MVP Metric spaces, se defined functions 11PT Descriptive statis and density, more 11SIS Point estimation, correlation coeffice 12MDE	Mathematical Analysis series of real numbers and its convergence. Basic properties of functions. Differential and integral calculus of the real function of one real series and foundations of Fourier transform. Mathematical Analysis of Function of More Variables equences in metric spaces, limit of sequence in metric space. Differential calculus of functions of several variables, differential of functions, extremes of functions of several variables. Integral calculus of functions of several variables, Riemann integral, integral over curves a of integral calculus in physics. Probability	Z,ZK variable. Power se Z,ZK on, partial derivation nd surfaces in R3, Z y distribution, proba dixed distributions, Z,ZK correlation, linear in, use of matrices in Z,ZK	3 ns, implicitly application 2 ability mass mixture of 2 regression, regression. 3
11MVP Metric spaces, se defined functions 11PT Descriptive statis and density, more 11SIS Point estimation, correlation coeffic 12MDE Parameters of the	Mathematical Analysis series of real numbers and its convergence. Basic properties of functions. Differential and integral calculus of the real function of one real series and foundations of Fourier transform. Mathematical Analysis of Function of More Variables	Z,ZK variable. Power se Z,ZK on, partial derivation nd surfaces in R3, Z y distribution, probe dixed distributions, Z,ZK correlation, linear in, use of matrices in Z,ZK use uses, shock waves	3 ns, implicitly application 2 ability mass mixture of 2 regression, regression 3 s. Quality of
11MVP Metric spaces, se defined functions 11PT Descriptive statis and density, more 11SIS Point estimation, correlation coeffice 12MDE Parameters of the	Mathematical Analysis series of real numbers and its convergence. Basic properties of functions. Differential and integral calculus of the real function of one real series and foundations of Fourier transform. Mathematical Analysis of Function of More Variables equences in metric spaces, limit of sequence in metric space. Differential calculus of functions of several variables, differential of functions, extremes of functions of several variables. Integral calculus of functions of several variables, Riemann integral, integral over curves a of integral calculus in physics. Probability	Z,ZK variable. Power se Z,ZK on, partial derivation nd surfaces in R3, Z y distribution, probe dixed distributions, Z,ZK correlation, linear in, use of matrices in Z,ZK use uses, shock waves	3 ns, implicitly application 2 ability mass mixture of 2 regression, regression 3 s. Quality of
11MVP Metric spaces, se defined functions 11PT Descriptive statis and density, more than 11SIS Point estimation, correlation coeffice 12MDE Parameters of the transport and its	Mathematical Analysis series of real numbers and its convergence. Basic properties of functions. Differential and integral calculus of the real function of one real series and foundations of Fourier transform. Mathematical Analysis of Function of More Variables arguences in metric spaces, limit of sequence in metric space. Differential calculus of functions of several variables, differential of functions, extremes of functions of several variables. Integral calculus of functions of several variables, Riemann integral, integral over curves a of integral calculus in physics. Probability	Z,ZK variable. Power se Z,ZK on, partial derivation nd surfaces in R3, Z y distribution, proba dixed distributions, Z,ZK correlation, linear in, use of matrices in Z,ZK use uses, shock wavesences. Improving of	application 2 ability mass mixture of 2 regression, regression 3 s. Quality of
11MVP Metric spaces, se defined functions 11PT Descriptive statis and density, more than 11SIS Point estimation, correlation coeffice 12MDE Parameters of the transport and its	Mathematical Analysis series of real numbers and its convergence. Basic properties of functions. Differential and integral calculus of the real function of one real series and foundations of Fourier transform. Mathematical Analysis of Function of More Variables	Z,ZK variable. Power se Z,ZK on, partial derivation nd surfaces in R3, Z y distribution, proba dixed distributions, Z,ZK correlation, linear in, use of matrices in Z,ZK use uses, shock waves ences. Improving of Z,ZK	application 2 ability mass mixture of 2 regression, regression 3 s. Quality of transport

12PPOK			
_	Designing Roads, Highways and Motorways	KZ	3
	wnership, 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	•	
. tango or violentier	intersections.	, acrical crossing	,0, ,000,
12ZADI	Introduction to Transportation Engineering	Z,ZK	3
Traffic survey. Terres	strial roads. Residential zone. Land - use planning. Railway transport. Public mass transport. Integrated traffic systems. Traffic prognos	sis. Traffic safety. A	\ \ir transport.
	Traffic and environment.		
13E	Economics	Z,ZK	3
Microeconomic a	nd macroeconomic interpretation of economic relations. Method and subject of the economics. Economic decision making of consun	ners and producer	rs. Market
12EDOT	structures. Labour and capital, efficiency, ownership, public choice.	V7	2
13EDOT	Economy, Transport, Telecommunications mmunications, demand, supply, indicators, economic development, legislation, European union, regulation, liberalisation, transport	KZ modes ITS susta	I
14KSP	Constructing with Computer Aid	KZ	2
	n determination. CAD role in projecting system model. Existing CAD systems on Czech market. Project creation, basic common wor		_
	Co-ordinated systems, CAD environment skill (basics of constructing, dimensioning, modifications, user interfaces, projecting possib		
	profiles, drawings with raster foundaments).		
14SIAP	Networks and Protocols	KZ	2
	ion model, history and development of the Internet, principle of data transfer through computer networks (TCP/IP), performance of b		
	lnet, FTP, DNS, DHCP POP3, IMAP), data acquirement from the Internet sources, communicating ability via the Internet and fundame design by the means of web sites.		
14UATT	Introduction to Automatization and Telecommunication Systems	KZ	2
	echnical cybernetics, automatization in transportation, human as the weakest element, signalling in transpotation, modelling and proj		-
megrated technolo(gical and infromation system in post, principle of telecommunication signal transmission, solving of telecommunication networks, mo networks and services, NGN networks.	uulalii ig methods,	mummedial
14UPRO	Introduction to Programming	KZ	2
	ment, methods of structured programming, high-level programming languages, basics of C programming languages (types, variable functions), programming techniques, complexity.		
14ZAET	Fundamentals of Electrotechnics	KZ	2
ı	c terms, circuit quantities. Periodic courses characteristics. Electric circuits elements and basic circuit members. Assignating of bipole	- -	_
	rent circuits with a help of circuit analysis elementar methods: method of consecutive reduction, unloaded voltage divider, current divider		
	and principle of superposition in direct current circuits.		
14ZINF	Fundamentals of Informatics	KZ	2
	ulty network, MS-Word and Open Office, use of styles and advanced features, computer functions and information transmission. Nur	-	
calculations. Algorith	nms and their proprieties. Flow charts for algorithms drawing. Mathematic and logic ordering algorithms incl. functions and procedures graphs, calculations, functions.	s. Work with MS-Ex	xcel - tables,
15JZ1A	Foreign Language - English 1	Z	3
	ures and Style. Selection of conversation topics relating to transportation sciences. Extending vocabulary, developing perceptive and con		Elementary
	stylistics forms. Oral and written presentation of original research. Academic text principles and reading comprehension. Principles of		ı
15JZ1F	Foreign Language - French 1	Z	3
	re and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty erceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral		
improvement in pr	texts and their features; practice of oral and written presentation.	and whiten lonns.	recrimical
15JZ1N	Foreign Language - German 1	Z	3
	re and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty		_
improvement in po	erceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral texts and their features; practice of oral and written presentation.	and written forms.	Technical
15JZ1R	Foreign Language - Russian 1	Z	3
	re and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty		_
	erceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral	-	
	texts and their features; practice of oral and written presentation.		
15JZ1S	Foreign Language - Spanish 1	Z	3
	re and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty	•	
improvement in po	erceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral	and written forms.	Technical
15JZ2A	texts and their features; practice of oral and written presentation.	Z,ZK	3
	Foreign Language - English 2 Ires and style. Selection of conversation topics relating to transportation sciences. Extending vocabulary, developing perceptive and cor	•	
	stylistics forms. Oral and written presentation of original research. Academic text principles and reading comprehension. Principles of		,
15JZ2F	Foreign Language - French 2	Z,ZK	3
	re and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty	,	
improvement in pe	erceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral texts and their features; practice of oral and written presentation.	and written forms.	Technical
15JZ2N	Foreign Language - German 2	Z,ZK	3
	re and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty	s fields of study.	Focus on
	erceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral	and written forms.	Technical
	toyte and their features; prestice of arel and written presentation		
improvement in po	texts and their features; practice of oral and written presentation.	7 7V	2
improvement in po	Foreign Language - Russian 2	Z,ZK	3 Focus on
15JZ2R Grammar structu	Foreign Language - Russian 2 re and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty	s fields of study.	Focus on
15JZ2R Grammar structu	Foreign Language - Russian 2	s fields of study.	Focus on

4 = 1 = 0 0			
15JZ2S	Foreign Language - Spanish 2	Z,ZK	3
	ure and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty	•	II.
improvement in p	erceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral texts and their features; practice of oral and written presentation.	and written forms.	recnnical
16UDDM	Introduction to Transportation and Manipulation Technics	ZK	2
	ation and transportation systems. Principles, functions and arrangement of means of transportation. Motors and their characteristics. Wat		
wearis or transporte	technics. Principles of lifting machines and conveyors. Legislature.	er transportation. IV	laripulating
17TDL	Transport Technology and Logistics	Z,ZK	3
	sport technology and logistics. Particular steps of transport planning. Quantification of carriage relations. Line planning. Timetabling. Pla		-
transport. Organisa	tion of traffic in each transport means. Technological factors from the point of view of operator and client. Organisation of public city tr	ansport. Logistic te	echnologies
	and their application using various transport means.		
18MRI1	Materials 1	Z,ZK	3
Crystal structure.	Basics of thermodynamics of metals and their alloys. Balanced binary diagrams. Alloys of iron with carbon. Deterioration of solid solu	itions. Heating prod	cessing of
	steel and cast irons. Physical features. Mechanical features. Dephectostopic testing. Corosion.	1	
18MRI2	Materials 2	KZ	2
	tal concepts, notions. The main materials groups. Semiconductors. Polymers. Special types of steel. Properties and application of the		
18PZP	Elasticity and Strength	Z,ZK	3
rension and compr	ession. Bending of beam. Shear stress in bending of beam. Design and analysis of cross section of beam. Design of riveted, bolted at Analysis of deflection curve of beams. Torsion of circular cross sections. Combined loading. Stability.	na welaea joints of	structures.
10CT	Statics	Z,ZK	2
18ST	Statics of forces. Calculation of reactions of mass objects and compound systems. Assessment of internal forces on statically determinate be		3 mework
-	vorks. Kinematic method for calculation of reactions of statically determinate systems. Determination of axial forces in truss construction	•	
· ····o·p·o o· ·····tua····	of sections. Geometry of cross sections. Plane fiber polygons and catenary cables.	.,	and mound
18TTED	Creation of Technical Documentation	KZ	2
-	s, international standardization, types of technical drawings, representation of technical objects, technical diagrams and charts, dimensic	I I	
	arrangement of drawing sheets, types of schemes and their creation.	_	
20SSA	Systems Analysis	Z,ZK	3
Systems identification	tion. Typical tasks of systems analysis: on the interface, routes in system, decomposition and integration, on systems feedback. Capa	acity tasks, process	s analysis.
Task about	behaviour, aim behaviour, the genetic code, architecture and identity of systems. Fundamentals of technical cybernetics, stability and	d reliability of syste	ms.
20UIS	Introduction to ITS	Z,ZK	3
	rt Systems (ITS), their objectives and vision. ITS in the world, in Europe and in the Czech Republic. Architecture of ITS and the role of ITS and ITS and ITS are represented by ITS and ITS are represented by ITS and ITS are represented by		
	stems. ITS in road, rail and combine transport. Design of ITS, organization, preparation and implementation of the project. Current pro		
21CNV	Flight Navigation Training	Z	. 2
	is destricption and device handling navigation systems, standard arrival and departures routes (STAR, SID), ILS, MLS approach proc		
procedures, vok	! / DME, NDB approach procedures, approach by circuit, visual approach, altimeteres setting procedures, holding procedures, low vis preparation and operation, examples from General navigation and Radionavigation.	sibility procedures.	IFK IIIgIIL
21LL1	Aircraft 1		
	Allorate	K7	3
	nd conceptual design types - definitions and basic knowledge of the problem. Development of requirements, aircraft definitions and ca	KZ ategorisation, Aircra	3 aft loadings.
	nd conceptual design types - definitions and basic knowledge of the problem. Development of requirements, aircraft definitions and ca Systems of primary and secondary airframe structure. Airframe and propulsion unit. Lectures are devoted to aeroplane topic	tegorisation. Aircra	
Aircraft structural a	Systems of primary and secondary airframe structure. Airframe and propulsion unit. Lectures are devoted to aeroplane topic	tegorisation. Aircra	-
Aircraft structural a		ategorisation. Aircra	aft loadings.
Aircraft structural al	Systems of primary and secondary airframe structure. Airframe and propulsion unit. Lectures are devoted to aeroplane topic IFR Flights, Night's Flying and Multiengine Aircrafts Flying	ktegorisation. Aircra	aft loadings. 3 rodynamics,
Aircraft structural al 21LPVL Basic night flying, m aeroplane specifi	Systems of primary and secondary airframe structure. Airframe and propulsion unit. Lectures are devoted to aeroplane topic IFR Flights, Night's Flying and Multiengine Aircrafts Flying nultiengine flying and instrument flying. Instrumentation, airport, lightning, signals. Normal operations and emergency operations night. In	ktegorisation. Aircra iss. KZ nstrumentation, aer is and emefgency o	aft loadings. 3 rodynamics,
21LPVL Basic night flying, m aeroplane specifi	Systems of primary and secondary airframe structure. Airframe and propulsion unit. Lectures are devoted to aeroplane topic IFR Flights, Night's Flying and Multiengine Aircrafts Flying nultiengine flying and instrument flying. Instrumentation, airport, lightning, signals. Normal operations and emergency operations night. In ication. Normal operations and emergency operations multiengines. Avionics, instrument panel, cockpit ergonomy. Normal operations instrument flying. Connections in operations multiengines in IMC and night. Radio Technology in Aviation	ktegorisation. Aircrass. KZ Instrumentation, aer and emefgency of ZK	3 rodynamics, perations
21LPVL Basic night flying, m aeroplane specifi	Systems of primary and secondary airframe structure. Airframe and propulsion unit. Lectures are devoted to aeroplane topic IFR Flights, Night's Flying and Multiengine Aircrafts Flying nultiengine flying and instrument flying. Instrumentation, airport, lightning, signals. Normal operations and emergency operations night. In ication. Normal operations and emergency operations multiengines. Avionics, instrument panel, cockpit ergonomy. Normal operations instrument flying. Connections in operations multiengines in IMC and night. Radio Technology in Aviation In the wave spectrum, Analog and digital modulations, Noises, Filters, Resonance circuits. Electromagnetic field. Electromagnetic wave	ktegorisation. Aircrass. KZ Instrumentation, aer and emefgency of ZK	3 rodynamics, perations
21LPVL Basic night flying, m aeroplane specifi 21LR Electric signals an	Systems of primary and secondary airframe structure. Airframe and propulsion unit. Lectures are devoted to aeroplane topic IFR Flights, Night's Flying and Multiengine Aircrafts Flying nultiengine flying and instrument flying. Instrumentation, airport, lightning, signals. Normal operations and emergency operations night. In ication. Normal operations and emergency operations multiengines. Avionics, instrument panel, cockpit ergonomy. Normal operations instrument flying. Connections in operations multiengines in IMC and night. Radio Technology in Aviation Id the wave spectrum, Analog and digital modulations, Noises, Filters, Resonance circuits. Electromagnetic field. Electromagnetic wav in aviation, radiation and reception of electromagnetic field, antennas in aviation, receivers and transmitters.	ktegorisation. Aircra ss. KZ Instrumentation, aer s and emefgency of ZK ve propagation. Wa	aft loadings. 3 rodynamics, perations 2 ave ranges
21LPVL Basic night flying, m aeroplane specifi 21LR Electric signals an	Systems of primary and secondary airframe structure. Airframe and propulsion unit. Lectures are devoted to aeroplane topic IFR Flights, Night's Flying and Multiengine Aircrafts Flying nultiengine flying and instrument flying. Instrumentation, airport, lightning, signals. Normal operations and emergency operations night. In ication. Normal operations and emergency operations multiengines. Avionics, instrument panel, cockpit ergonomy. Normal operations instrument flying. Connections in operations multiengines in IMC and night. Radio Technology in Aviation Id the wave spectrum, Analog and digital modulations, Noises, Filters, Resonance circuits. Electromagnetic field. Electromagnetic wav in aviation, radiation and reception of electromagnetic field, antennas in aviation, receivers and transmitters. Meteorology	ktegorisation. Aircra es. KZ Instrumentation, aer e and emefgency of ZK ve propagation. Wa Z,ZK	aft loadings. 3 rodynamics, perations 2 ave ranges 5
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waterways, road traffic accidents, other aspects, accidental prevention.