Study plan

Name of study plan: DOS bak.prez.15/16

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: 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: 103

The role of the block: Z

Code of the group: 1.S.BP 13/14

Name of the group: 1.sem.bak.prez. 13/14

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 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
17E	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 Martina 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
TV-1	Physical Education	Z	1		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

Characteristics of the courses of this group of Study Plan: Code=1.S.BP 13/14 Name=1.sem.bak.prez. 13/14

17E	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	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	ele 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 a	and their solvability. De	terminants and
their applications.	Scalar product. Similarity of matrices (eigenvalues and eigenvectors). Quadratic forms and their classification.		
11MTA	Mathematical Analysis	Z,ZK	4
Sequences and se	ries of real numbers and its convergence. Basic properties of functions. Differential and integral calculus of the real function of o	ne real variable. Power	r series, Fourie
series and foundat	ions of Fourier transform.		
18MRI1	Materials 1	Z,ZK	3
Crystal structure. E	Basics of thermodynamics of metals and their alloys. Balanced binary diagrams. Alloys of iron with carbon. Deterioration of soli-	d solutions. Heating pr	ocessing of
steel and cast iron	s. Physical features. Mechanical features. Dephectostopic testing. Corosion.		
TV-1	Physical Education	Z	1
18TTED	Creation of Technical Documentation	KZ	2
Technical standard	s, international standardization, types of technical drawings, representation of technical objects, technical diagrams and charts, d	imensional and geome	etrical accuracy
arrangement of dra	awing sheets, types of schemes and their creation.		
22UN	Troffic Assidants Introduction	7	
ZZUN	Traffic Accidents Introduction		2
_	a physical process, systematic submission, vehicle x human x infrastructure interaction, accidents statistics, aircraft accidents,		_
Traffic accident as			_
Traffic accident as	a physical process, systematic submission, vehicle x human x infrastructure interaction, accidents statistics, aircraft accidents,		_
Traffic accident as waterways, road tra	a physical process, systematic submission, vehicle x human x infrastructure interaction, accidents statistics, aircraft accidents, affic accidents, other aspects, accidental prevention.	accidents on railways	s, accidents on
Traffic accident as waterways, road tra	a physical process, systematic submission, vehicle x human x infrastructure interaction, accidents statistics, aircraft accidents, affic accidents, other aspects, accidental prevention. Introduction to Transportation Engineering estrial roads. Residential zone. Land - use planning. Railway transport. Public mass transport. Integrated traffic systems. Traffic	accidents on railways	s, accidents on
Traffic accident as waterways, road tra 12ZADI Traffic survey. Terre	a physical process, systematic submission, vehicle x human x infrastructure interaction, accidents statistics, aircraft accidents, affic accidents, other aspects, accidental prevention. Introduction to Transportation Engineering estrial roads. Residential zone. Land - use planning. Railway transport. Public mass transport. Integrated traffic systems. Traffic	accidents on railways	s, accidents on
Traffic accident as waterways, road tra 12ZADI Traffic survey. Terre Traffic and environa	a physical process, systematic submission, vehicle x human x infrastructure interaction, accidents statistics, aircraft accidents, affic accidents, other aspects, accidental prevention. Introduction to Transportation Engineering estrial roads. Residential zone. Land - use planning. Railway transport. Public mass transport. Integrated traffic systems. Trafficment.	accidents on railways Z,ZK prognosis. Traffic safet	s, accidents on 3 ty. Air transport
Traffic accident as waterways, road tra 12ZADI Traffic survey. Terre Traffic and environ 14ZINF Introduction to fact	a physical process, systematic submission, vehicle x human x infrastructure interaction, accidents statistics, aircraft accidents, affic accidents, other aspects, accidental prevention. Introduction to Transportation Engineering estrial roads. Residential zone. Land - use planning. Railway transport. Public mass transport. Integrated traffic systems. Traffic ment. Fundamentals of Informatics	Z,ZK prognosis. Traffic safet KZ N. Number systems inc	s, accidents on 3 ty. Air transport 2 cl. arithmetic
Traffic accident as waterways, road tra 12ZADI Traffic survey. Terre Traffic and environ 14ZINF Introduction to fact	a physical process, systematic submission, vehicle x human x infrastructure interaction, accidents statistics, aircraft accidents, affic accidents, other aspects, accidental prevention. Introduction to Transportation Engineering estrial roads. Residential zone. Land - use planning. Railway transport. Public mass transport. Integrated traffic systems. Traffic ment. Fundamentals of Informatics ulty network, MS-Word and Open Office, use of styles and advanced features, computer functions and information transmission thms and their proprieties. Flow charts for algorithms drawing. Mathematic and logic ordering algorithms incl. functions and process.	Z,ZK prognosis. Traffic safet KZ N. Number systems inc	s, accidents on 3 ty. Air transport 2 cl. arithmetic
Traffic accident as waterways, road tra 12ZADI Traffic survey. Terre Traffic and environ 14ZINF Introduction to fact calculations. Algori	a physical process, systematic submission, vehicle x human x infrastructure interaction, accidents statistics, aircraft accidents, affic accidents, other aspects, accidental prevention. Introduction to Transportation Engineering estrial roads. Residential zone. Land - use planning. Railway transport. Public mass transport. Integrated traffic systems. Traffic ment. Fundamentals of Informatics ulty network, MS-Word and Open Office, use of styles and advanced features, computer functions and information transmission thms and their proprieties. Flow charts for algorithms drawing. Mathematic and logic ordering algorithms incl. functions and process.	Z,ZK prognosis. Traffic safet KZ N. Number systems inc	s, accidents on 3 ty. Air transport 2 cl. arithmetic
Traffic accident as waterways, road training traffic survey. Terrestraffic and environmental AZINF Introduction to faculations. Algoring graphs, calculations 21ZLD	a physical process, systematic submission, vehicle x human x infrastructure interaction, accidents statistics, aircraft accidents, affic accidents, other aspects, accidental prevention. Introduction to Transportation Engineering estrial roads. Residential zone. Land - use planning. Railway transport. Public mass transport. Integrated traffic systems. Traffic ment. Fundamentals of Informatics ulty network, MS-Word and Open Office, use of styles and advanced features, computer functions and information transmission thms and their proprieties. Flow charts for algorithms drawing. Mathematic and logic ordering algorithms incl. functions and process, functions.	Z,ZK prognosis. Traffic safet KZ n. Number systems incedures. Work with MS	s, accidents on 3 ty. Air transport 2 cl. arithmetic 3-Excel - tables

Code of the group: 3.S.BP 14/15

Name of the group: 3.sem.bak.prez.14/15

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:

intersections.

	<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
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	Z	Z
12PPOK	Designing Roads, Highways and Motorways Josef Kocourek, Petr Satra, Tomáš Pad lek, Petr Kumpošt	KZ	3	1P+2C+10B	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	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

11DAD	Differential and Difference Equations	Z,ZK	3
Difference equation	s 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	e homogeneou
equation, solution o	f inhomogeneous equation by means of variation of constants. Power series and their use for solution of differential equation. Bound	dary value problem	n. Eigennumber
and function for diff	erential equation. Fourier series of function.		
11FY2	Physics 2	Z,ZK	4
Magnetic field, elec	tromagnetic field. Optics, quantum character of electromagnetic radiation. Introduction into quantization, hydrogen atom. Multi-ele	ectron atoms, the	nuclei. Basics c
solid body physics.			
12MDE	Transport Models and Transport Excesses	Z,ZK	3
Parameters of the t	raffic flow and methods for their measurement. Models of the traffic flow, communications load, line and urban systems. Theory o	f queues, shock w	aves. Quality o
transport and its as	sessment. Statistical characteristics of transport. Transport excesses, their analysis, the causes, identify and minimize the consec	quences. Improvin	g of transport
safety and fluency.			
	Designing Deads, Highways and Materyays	KZ	3
12PPOK	Designing Roads, Highways and Motorways	'\~	•
	Designing Roads, Fighways and Motorways whership, maintenance, management and categorization of roads and highways. Curve and transition curve. Sinuosity and standard standards are significant.		-

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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 Statistics 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 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 16UDDM Introduction to Transportation and Manipulation Technics ZK 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. ΚZ 2 Fundamentals of Electrotechnics 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 and principle of superposition in direct current circuits

Code of the group: 5.S.BDOS 12/13

Name of the group: 5.sem.DOS bak.prez. 12/13

Requirement credits in the group: In this group you have to gain 20 credits

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

Credits in the group: 20 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
12MKDP	Urban Rail Transport	Z,ZK	3	2+1	Z	Z
12ZELP	Railway Operation Martin Jacura, Tomáš Javo ík	Z,ZK	4	2P+2C	Z	Z
17TGA	Graph Theory and its Applications in Transport Alena Rybi ková, Denisa Mocková, Dušan Teichmann	Z,ZK	4	2P+2C+12B	Z	Z
14DB	Database Systems	KZ	2	0+2	Z	Z
14DIVT	Transportation Engineering with Computation Technique Aid	KZ	2	0+2	Z	Z
16DOPY	Vehicle Technology	KZ	3	3+0	Z	Z
22UAN	Road Traffic Accidents Analysis Introduction	KZ	2	1P+2C	Z	Z

12MKDP	Urban Rail Transport	Z,ZK	3
ransport in the tov	vn. Tramway transport and vehicles. Geometrical setting of tramway tracks. Tramway construction. Subway. Geometrical setting of su	bway tracks. Subw	ay constructio
12ZELP	Railway Operation	Z,ZK	4
egislation in railw	ay transport. Railway vehicles. Railway signals and signal devices. Railway traffic organisation and operation. Simplified railway tra	affic operation. Rai	lway vehicles
rakes. Railway ve	hicles marking. Operation intervals. Theoretical graph of train running.		
I7TGA	Graph Theory and its Applications in Transport	Z,ZK	4
asic terms of gra	ph theory, paths in graphs, flows in networks, location problems, design problems on graphs, optimum routing, use of graphs in ot	her scientific disci	olines.
I4DB	Database Systems	KZ	2
Basic concepts of	database systems, conceptual model, relational data model, the principles of normal forms, relational database design, security a	ind integrity of data	a, database
jueries, relational	algebra, SQL language, client / server, multilayer architectures, distributed database systems. Access to data via the WWW.		
	algebra, SQL language, client / server, multilayer architectures, distributed database systems. Access to data via the WWW. Transportation Engineering with Computation Technique Aid	KZ	2
I4DIVT		1	-
I4DIVT Overview of transp	Transportation Engineering with Computation Technique Aid	nicrosopic traffic m	odel. Output
I 4DIVT Overview of transp characteristics eva	Transportation Engineering with Computation Technique Aid port models for micro-simulation. Application working environment. Vehicles movement within system. Creation and simulation of n	nicrosopic traffic m	odel. Output
4DIVT Overview of transp haracteristics eva nodel. History, tre	Transportation Engineering with Computation Technique Aid out models for micro-simulation. Application working environment. Vehicles movement within system. Creation and simulation of naturation. 4D transport model visualization. Comparison with static model. Principles, elements, and construction of supply and demandation.	nicrosopic traffic m	odel. Output
4DIVT Overview of transpharacteristics evanodel. History, tree	Transportation Engineering with Computation Technique Aid nort models for micro-simulation. Application working environment. Vehicles movement within system. Creation and simulation of national process. 4D transport model visualization. Comparison with static model. Principles, elements, and construction of supply and demands, and practise exercise.	nicrosopic traffic mond models. Stochas	odel. Output stic gravitatio
ADIVT Overview of transpharacteristics evanodel. History, tref 6DOPY Terminology in transpharacteristics	Transportation Engineering with Computation Technique Aid out models for micro-simulation. Application working environment. Vehicles movement within system. Creation and simulation of naturation. 4D transport model visualization. Comparison with static model. Principles, elements, and construction of supply and demands, and practise exercise. Vehicle Technology	nicrosopic traffic mention models. Stochastic KZ Traction engines c	odel. Output stic gravitation 3 haracteristics
Department of the second of th	Transportation Engineering with Computation Technique Aid port models for micro-simulation. Application working environment. Vehicles movement within system. Creation and simulation of no luation. 4D transport model visualization. Comparison with static model. Principles, elements, and construction of supply and demands, and practise exercise. Vehicle Technology Insportation technology. Vehicle in the terms of legislation. Construction, operation, environmental influence. Vehicles and ecology.	nicrosopic traffic mention models. Stochastic KZ Traction engines c	odel. Output stic gravitation 3 haracteristics
Department of the second of th	Transportation Engineering with Computation Technique Aid port models for micro-simulation. Application working environment. Vehicles movement within system. Creation and simulation of no luation. 4D transport model visualization. Comparison with static model. Principles, elements, and construction of supply and demands, and practise exercise. Vehicle Technology Insportation technology. Vehicle in the terms of legislation. Construction, operation, environmental influence. Vehicles and ecology. Ilectrical engines. Power train construction. Power transmission. Conducting properties of railroad vehicles. Resistance to disrailing	nicrosopic traffic mand models. Stochast	odel. Output stic gravitation 3 haracteristics

Code of the group: 5.S.BDOS VÝB R 12/1

Name of the group: 5.sem.DOS výb r p edm tu 12/13

critical maneuvring, technical view hindrances, visibility and discriminability, nightfall.

post-crash deformation, impact influence on passengers, video documentation, problem who was the driver, documentation, marks analysis, limits of accidental analysis, cornering,

Requirement credits in the group: In this group you have to gain 3 credits Requirement courses in the group: In this group you have to complete 1 course

Credits in the group: 3

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
16PBV	Passive Vehicle Safety	Z,ZK	3	2+1	Z	Z
20RU	Control of Traffic Node and Line	Z,ZK	3	2+1	Z	Z

Characteristics of the courses of this group of Study Plan: Code=5.S.BDOS VÝB R 12/1 Name=5.sem.DOS výb r p edm tu 12/13

16PBV	Passive Vehicle Safety	Z,ZK	3				
Legislation and testing processes. Barrier tests. Car body properties. Injury mechanism. Critical limits for evaluation of injury seriousness. Retaining systems. Airbags. Risk of collisions.							
of various vehicle types.	of various vehicle types. Safety of traffic participants. Mathematic modeling. E-call.						
CODII	0 · 1 /= // N 1 · 1 · 1 · 1	: /					
20RU	Control of Traffic Node and Line	Z,ZK	3				
	Control of Traffic Node and Line rinciples and requirements for documentation. Criteria of design light signaling equipment. Hardware and software of transpo	,	3 tectors. Proposal				

Code of the group: 6.S.BDOS 13/14

model of elastic foundation. Pasternak model of elastic foundation.

Name of the group: 6.sem.DOS bak.prez. 13/14

Requirement credits in the group: In this group you have to gain 20 credits

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

Credits in the group: 20 Note on the group:

in transport management.

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
12PPMK	Urban Road Traffic and Design Josef Kocourek, Tomáš Pad lek, Petr Kumpošt Josef Kocourek (Gar.)	Z,ZK	4	2P+2C	L	Z
12ZAPR	Introduction to Architectural Design	ZK	2	2+0	L	Z
17ERP	Company Economy and Management	Z,ZK	3	2+1	L	Z
12ECO	Ecology	KZ	2	1+1	L	Z
17GEDS	Geography of Transport Systems Miroslav Marada Miroslav Marada (Gar.)	KZ	2	2P+0C+8E	B L	Z
18TK	Theory of Structures	KZ	2	2P+0C	L	Z
22PSN	Road Traffic Accidents Prevention	KZ	2	2+1	L	Z
12VDSR	Public Transport in Cities and Regions	Z	2	2+0	L	Z
17DAS	Transportation and Communication Law	Z	1	2+0	L	Z

Composition of urban road, elements and routes for traffic, pedestrian and cycling transport, projection of intersections, roundabouts, ca & amp; partially-sighted, induction of traffic, organization and regulation of transport. 12ZAPR Introduction to Architectural Design Urbanism and architecture of traffic systems. Bus and trolley-bus transport. Tramway and town tracks. Design of vehicles. Subway. Railw communications. International airports. 17ERP Company Economy and Management Company and its neighbourhood, structure of assets and liabilities, depreciation, costs, revenues and profit, break-even point, costing, in appraisal, basics of management, organizational structures, human resources management, marketing, company strategy, business plate 12ECO Ecology	ZK way transport. Railway stations Z,ZK inventory, financial manageme	2 . Local
Introduction to Architectural Design Urbanism and architecture of traffic systems. Bus and trolley-bus transport. Tramway and town tracks. Design of vehicles. Subway. Railwommunications. International airports. Urbanism and architecture of traffic systems. Bus and trolley-bus transport. Tramway and town tracks. Design of vehicles. Subway. Railwommunications. International airports. Urbanism and architecture of traffic systems. Bus and trolley-bus transport. Tramway and town tracks. Design of vehicles. Subway. Railwommunications. International airports. Urbanism and architecture of traffic systems. Bus and trolley-bus transport. Tramway and town tracks. Design of vehicles. Subway. Railwommunications. International airports. Urbanism and architecture of traffic systems. Bus and trolley-bus transport. Tramway and town tracks. Design of vehicles. Subway. Railwommunications. International airports. Urbanism and architecture of traffic systems. Bus and trolley-bus transport. Tramway and town tracks. Design of vehicles. Subway. Railwommunications. International airports. Urbanism and architecture of traffic systems. Bus and trolley-bus transport. Tramway and town tracks. Design of vehicles. Subway. Railwommunications. International airports. Urbanism and architecture of traffic systems. Bus and trolley-bus transport. Tramway and town tracks. Design of vehicles. Subway. Railwommunications. International airports. Urbanism and architecture of traffic systems. Bus and trolley-bus transport. Tramway and town tracks. Design of vehicles. Subway. Railwommunications. International airports. Urbanism and architecture of traffic systems. Bus and trolley-bus transport. Tramway and town tracks. Design of vehicles. Subway. Railwommunications. International airports. Urbanism and architecture of traffic systems. Bus and trolley-bus transport. Tramway and town tracks. Design of vehicles. Subway. Railwommunications. International airports. Urbanism and architecture of traffic systems. Bus and trolley-bus transport. Tramwa	way transport. Railway stations Z,ZK inventory, financial manageme	3
Urbanism and architecture of traffic systems. Bus and trolley-bus transport. Tramway and town tracks. Design of vehicles. Subway. Railwommunications. International airports. ITERP Company Economy and Management Company and its neighbourhood, structure of assets and liabilities, depreciation, costs, revenues and profit, break-even point, costing, in appraisal, basics of management, organizational structures, human resources management, marketing, company strategy, business plateCO Ecology	way transport. Railway stations Z,ZK inventory, financial manageme	3
ommunications. International airports. 7ERP Company Economy and Management Company and its neighbourhood, structure of assets and liabilities, depreciation, costs, revenues and profit, break-even point, costing, is ppraisal, basics of management, organizational structures, human resources management, marketing, company strategy, business place 2ECO Ecology	Z,ZK inventory, financial manageme	3
TERP Company Economy and Management Company and its neighbourhood, structure of assets and liabilities, depreciation, costs, revenues and profit, break-even point, costing, in ppraisal, basics of management, organizational structures, human resources management, marketing, company strategy, business place 2ECO Ecology	inventory, financial manageme	
Company and its neighbourhood, structure of assets and liabilities, depreciation, costs, revenues and profit, break-even point, costing, is ppraisal, basics of management, organizational structures, human resources management, marketing, company strategy, business pla 2ECO Ecology	inventory, financial manageme	
ppraisal, basics of management, organizational structures, human resources management, marketing, company strategy, business pla 2ECO Ecology	an.	ent, investment
2ECO Ecology		
1 77	K7	
		2
asic ecological terms and principles. Ecosystem. Ecological factors, ecological limits. Energy in ecosystem, food pyramid, photosynthe	esis, ecological effectiveness a	nd production
pplied ecology. Environment. Greenhouse effect. Environment protection. Landscape ecology.		
7GEDS Geography of Transport Systems	KZ	2
egional differentiation of the transport system. Sociogeographic regionalization and its relation to transport. Transport and local and re	egional development. Spatial in	teraction -
neoretical and methodological framework. Mobility research - travel behavior, mode choice and the influence onto "modal-split." Modal com	npetition. Practical use of transp	oort-geographi
ınalysis in transportation planning.		
8TK Theory of Structures	KZ	2
Deformation in plane, principle of virtual work. Force (flexibility) method. Aplication of force method to frame analysis. Displacement (stiff	ffness) method. Simplified and	general stiffn

22PSN	Road Traffic Accidents Prevention	KZ	2					
Basic relation causes -	Basic relation causes - prevention, collision diagrams, causes of not giving way, initial speed and breaking influence on speed of impact, downhill grade, load transport and fixation,							
collisions with pedestrians, cyclists and motorcyclists, construction of vehicle breaks, winter conditions, inconvenient road parameters, visibility, anti-slide properties of road surface,								
solid barriers, assist systems, technical fault of vehicles.								
12VDSR	Public Transport in Cities and Regions	Z	2					
Landscape configuration and transport. Public transport and city extension. Traffic service in region. Public transport financing. Principles of traffic service designing. Traffic service of								
recreation areas. Making transport terminals. Public transport and region expansion.								
17DAS	Transportation and Communication Law	Z	1					
Transportation and con	ansportation and communication law - railway road transport, roneway water road air transport, telecommunication, nost, natent							

Code of the group: 6.S.BDOS VÝB R 12/1

Name of the group: 6.sem.DOS výb r p edm tu 12/13

Requirement credits in the group: In this group you have to gain 3 credits

Requirement courses in the group: In this group you have to complete 1 course

Credits in the group: 3 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
16DYJ	Vehicle Dynamics	Z,ZK	3	2P+1C	Z	Z
20RM	Urban Concentration and Motorway Control	Z,ZK	3	2+1	L	Z

Characteristics of the courses of this group of Study Plan: Code=6.S.BDOS VÝB R 12/1 Name=6.sem.DOS výb r p edm tu 12/13

16DYJ	Vehicle Dynamics	Z,ZK	3				
Application of mechanics. Wheel and axle suspension mechanism. Wheel to road positioning characteristics. Wheel - road contact. Skid and its characteristics. Longitudinal dynamic							
acceleration and decele	ration. Vertical dynamics, spring suspension, driving characteristics. Directional dynamics, gyroscopical characteristics. Drivin	g stability conditior	ns. Aerodynamic				
forces. Driving and feed	forces. Driving and feedback. ABS, ESP.						
20RM	Urban Concentration and Motorway Control	Z,ZK	3				

City transport management. Overall transport management. Stationary transport. Information panels, variable traffic signs. Transport system control including city public transport. Road tunnels and their technological equipment, control and safety systems. Emergency situations in transport and their solutions.

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

The role of the block: ZP

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:

n Credits			
	Scope	Semester	Role
2	0P+1C	L	ZP
2	0P+1C	L	ZP
2	0P+1C	L	ZP
2	0P+1C	L	ZP
2	0P+1C	L	ZP
2	0P+1C	L	ZP
2	0P+1C	L	ZP
2	0P+1C	L	ZP
2	0P+1C	L	ZP
2	0P+1C	L	ZP
2	0P+1C	L	ZP
	2 2 2 2 2 2 2 2 2 2 2	2 0P+1C 2 0P+1C	2 0P+1C L

11X32	Project 2	Z	2	0P+2C	Z	ZP
12X32	Project 2	Z	2	0P+2C	Z	ZP
14X32	Project 2	Z	2	0P+2C	Z	ZP
15X32	Project 2	Z	2	0P+2C	Z	ZP
16X32	Project 2 Petr Bouchner, Tereza Kunclová	Z	2	0P+2C	Z	ZP
17X32	Project 2 Alena Rybi ková, Denisa Mocková, Dušan Teichmann, Andrea Hrní ková, Milan K íž, Václav Baroch, Daniel Pilát, Michal Drábek, Alexandra Dvo á ková,	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 Jakub Kraus, Andrej Lališ, Jakub Hospodka, Slobodan Stoji , Lenka Hanáková, Terézia Pilmannová, Peter Vittek, Natalia Guskova, Lukáš Popek,	Z	2	0P+2C	Z	ZP
22X32	Project 2	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 Josef Kocourek, Tomáš Pad lek, Dagmar Ko árková	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 Alena Rybi ková, Denisa Mocková, Dušan Teichmann, Roman Št rba, Milan K íž, Václav Baroch, Daniel Pilát, Michal Drábek, Alexandra Dvo á ková, Václav Baroch (Gar.)	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 Andrej Lališ, Slobodan Stoji , Lenka Hanáková, Terézia Pilmannová, Lukáš Popek, Iveta Kameníková, Milan Kameník, Marek Šudoma, Viktor Valenta,	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 courses in the program

Minimal number of credits of the block: 53

The role of the block: P

Code of the group: 2.S.BP 13/14

Name of the group: 2.sem.bak.prez. 13/14

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:

TV-2

Physical Education

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

17EDOT	Economy, Transport, Telecommunications	KZ	2
Transport, telecom	munications, demand, supply, indicators, economic development, legislation, European union, regulation, liberalisation, transport	modes, ITS, susta	inability.
11FY1	Physics 1	Z,ZK	4
Kinematics, particle	e 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, seq	uences in metric spaces, limit of sequence in metric space. Differential calculus of functions of several variables, differential of fur		ations, implicitl
defined functions, of	extremes of functions of several variables. Integral calculus of functions of several variables, Riemann integral, integral over curve	s and surfaces in F	R3, application
of integral calculus	in physics.		
18MRI2	Materials 2	KZ	2
Fundamental conc	epts, notions. The main materials groups. Semiconductors. Polymers. Special types of steel. Properties and application of the con	posite materials.	
11PT	Probability	Z	2
Descriptive statistic	cs. Basic probability concepts: elementary events and events, definitions and interpretation of probability. Random variable, probal	bility distribution, p	robability mass
•	nts, some discrete and continuous distributions. Random vectors: joint and marginal distributions, mean vector, covariance matrix		-
• • • • • • • • • • • • • • • • • • • •	of large numbers, central limit theorem.		
12PKD	Rail Transport Designing	Z,ZK	3
Railway lines netwo	ork. Vehicle and track relation. Traction. Track geometrical parameters. Clearance profile. Railway lines routing. Superstructure and	substructure of th	e railway lines
Switches. Railway	stations. City rail transport.		
14SIAP	Networks and Protocols	KZ	2
Basic communicati	on model, history and development of the Internet, principle of data transfer through computer networks (TCP/IP), performance o	f basic network pro	otocols (ARP,
RARP, TCP, UDP, T	elnet, FTP, DNS, DHCP POP3, IMAP), data acquirement from the Internet sources, communicating ability via the Internet and fund	amentals of own w	eb presentatio
design by the mean	ns of web sites.		
18ST	Statics	Z,ZK	3
General system of	forces. Calculation of reactions of mass objects and compound systems. Assessment of internal forces on statically determinate	beam and simple f	ramework.
Principle of virtual v	works. Kinematic method for calculation of reactions of statically determinate systems. Determination of axial forces in truss constru	ction, method of joi	ints and metho
of sections. Geome	etry of cross sections. Plane fiber polygons and catenary cables.		
17TDL	Transport Technology and Logistics	Z,ZK	3
Basic terms in trans	sport technology and logistics. Particular steps of transport planning. Quantification of carriage relations. Line planning. Timetabling	g. Planning in pasa	nger and freigl
transport. Organisa	ation of traffic in each transport means. Technological factors from the point of view of operator and client. Organisation of public c	ity transport. Logis	tic technologic
and their application	n using various transport means.		

Z

20UIS Introduction to ITS Z,ZK 3

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.

ΚZ

2

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: 4.S.BDOS 11/12

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

Introduction to Programming

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 8 courses

Credits in the group: 23 Note on the group:

14UPRO

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
12DPZ	Traffic Surveys	KZ	2	2+0	L	Р
18KIAD	Kinematics and Dynamics	Z,ZK	2	2+1	L	Р
11MDS	Collection and Processing of Traffic Data	KZ	2	2P+0C	L	Р
22MMT	Measurement Methods and Technology in Transportation	KZ	3	2+2	L	Р
11MSP	Modeling of Systems and Processes Lucie Kárná, Bohumil Ková, Jana Kuklová Jana Kuklová Bohumil Ková (Gar.)	Z,ZK	4	2P+2C+12E	L L	Р
12OMHD	Public Transport Operation Martin Jareš, Petr Chmela, Jan Kruntorád	Z,ZK	4	2P+2C	L	Р
14PPD	Computer Aid of Transportation Projecting	KZ	2	0P+2C	L	Р
12SDK	Highways, Motorways and Intersections Josef Kocourek, Tomáš Pad lek, Petr Kumpošt Josef Kocourek (Gar.)	Z,ZK	4	2P+2C	L	Р

Characteristics of the courses of this group of Study Plan: Code=4.S.BDOS 11/12 Name=4.sem.DOS bak.prez.11/12

12012	name our veys	1 1/2	_				
Fundamental means of traffic surveys, project of skills of counting vehicles at all types of road junction, car park surveys to determine accumulation and length of stay of each vehicle,							
statistical analysis, simulation models, etc.							
18KIAD	Kinematics and Dynamics	Z,ZK	2				
Motion along a line, motion along a curve. Kinematics of rigid plane, kinematics of rigid body. Point mass kinematics, system of point masses. Point mass dynamics and system of point							

masses, equation of motion. Method of Newton. Princle of D'Alembert. Free and forced vibration with one degree of freedom. Viscous damping. Impact theory. Introduction to the solution of vibration with multiple degrees of freedom.

 11MDS
 Collection and Processing of Traffic Data
 KZ
 2

 Basic principles of traffic detection and data collection, specific problems of the field of traffic data. Data preprocessing and analysis for use in additional applications.

 22MMT
 Measurement Methods and Technology in Transportation
 KZ
 3

Geodetic base in CR, mapping principles, measurement errors in geodesy, angular and linear measurement, measurement of height, location and ranging, photogrammetry, high speed camera, acceleration measurement in road traffic dynamic processes.

camera, acceleration measurement in road traffic dynamic processes.

11MSP | Modeling of Systems and Processes | Z,ZK | 4

System and subsystem, external and internal system description, continuous and discrete system, mathematics as a tool, examples of formulation of differential and differential equations. Linear and nonlinear system, stationary and non-stationary system, causality. Convolutional integral. Laplace and Z transformations. Transfer function. Stability of LTI systems. Discretization of continuous systems. System interconnection.

12OMHD Public Transport Operation Z,ZK 4

Project of public transport organisation, project of city public transport network, transportation survey, project of transport parametres, transport graph, route and stops of line, public transport priority, financing of public transport, quality of public transport.

14PPD Computer Aid of Transportation Projecting

KZ 2

14PPD | Computer Aid of Transportation Projecting
Overview of CAx application for transportation projecting aid. AutoCAD environment possibilities of basic tasks automatizing (programming, scripting, data exchange). Advanced blocks modification (attributes, relation to databases). Work in projecting group, external references. Basic tasks for cummunication projecting (clotoidic transition curve, cross and longitudinal

section). Basics of 3D modelling.

12SDK Highways, Motorways and Intersections Z,ZK 4

Roads and motorways network, transport output. Types of direction curves. Hairpin bend. Stopping sight distance and overtaking sight distance. Levels of traffic service. Design elements of crossroads and intersections. Crossroads. Roundabouts. Intersections. Special types of junctions. Capacity of crossroads and intersections. Structure of pavement of roads and motorways. Road engineering structures. Assessment of route alternatives.

Name of the block: Compulsory elective courses

Minimal number of credits of the block: 6

Traffic Surveys

The role of the block: PV

Code of the group: Y1-BDOS 15/16

Name of the group: PVP bak.prez.DOS 15/16

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
17Y1AF	Alternative Forms of Transportation Project Financing	KZ	2	2+0	Z	PV
18Y1AM	Anatomy, Mobility and Safety of Man	KZ	2	2P+0C	Z	PV
14Y1AV	Animation and Visualization	KZ	2	2P+0C	L	PV
20Y1AE	Applied Electronics	KZ	2	2P+0C	Z	PV
14Y1AP	Automatization in Mail	KZ	2	2+0	Z	PV
14Y1BE	Barrierless Transport	KZ	2	2P+0C	L	PV
15Y1BO	Work Safety and Health Protection in Transportation Petr Musil, Eva Rezlerová	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
15Y1DU	History of Art and Society	KZ	2	2+0	Z	PV
15Y1DZ	History of Railway Martin Jacura, Eva Rezlerová	KZ	2	2P+0C	L	PV
12Y1DS	Project Documentation in Practice	KZ	2	2P+0C	Z	PV
18Y1D1	Dynamics of Routes and Vehicles 1	KZ	2	2+0	Z	PV
17Y1EV	Public Sector Economy Veronika Faifrová	KZ	2	2P+0C	Z	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 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
14Y1GD	GIS and Maps Digitalization	KZ	2	2+0	Z	PV
14Y1HW	Computer Hardware	KZ	2	2P+0C	L	PV
15Y1HL	History of Civil Aviation Eva Rezlerová, Vladimír Plos	KZ	2	2P+0C	L,Z	PV
15Y1HD	History of City Mass Transport Milan Dont, Eva Rezlerová	KZ	2	2P+0C	Z	PV
12Y1HD	Traffic Noise Dagmar Ko árková, Libor Ládyš	KZ	2	2P+0C	L	PV
15Y1HE	Work Hygiene and Ergonomics in Traffic Petr Musil, Eva Rezlerová	KZ	2	2P+0C	Z	PV
16Y1IS	Interactive simulators and simulations	KZ	2	2P+0C	L	PV
12Y1KN	Combined Transportation Petr Nejedlý	KZ	2	2P+0C	Z	PV
23Y1KO	Quantum Physics and Optoelectronics	KZ	2	2P+0C	L	PV
20Y1K	Cybernetics	KZ	2	2+0	Z	PV
21Y1LR	Radio Technology in Aviation	KZ	2	2+0	L	PV
17Y1LL	Logistics of Passenger and Freight Air Transport Petra Skolilová Petra Skolilová (Gar.)	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
11Y1MM	Mathematical Models in Economy	KZ	2	2P+0C	Z	PV
18Y1MT	Engineering Materials Jaroslav Valach	KZ	2	2P+0C	L	PV
14Y1MP	Modeling Complex Assemblies and Models in Parametric Modeller	KZ	2	2P+0C	Z	PV
17Y1ND	Maritime Transportation	KZ	2	2+0	Z	PV
15Y1NE	German in the Economy and Society	KZ	2	2P+0C	Z	PV
14Y1NP	Non-parametric 3D Modelling	KZ	2	2+0	Z	PV

20Y1NS	Neural Networks	KZ	2	2+0	Z	PV
21Y1OL	Security of Air Transport	KZ	2	2+0	L	PV
23Y1OK	Protection of Critical Objects and Infrastructures	KZ	2	2P+0C	L	PV
20Y1OI	Fare Collection and Information Systems Milan Sliacky, Patrik Horaž ovský Milan Sliacky (Gar.)	KZ	2	2P+0C	L	PV
14Y1OP	Operating System	KZ	2	2P+0C	Z	PV
14Y1OL	Linux Operating System	KZ	2	2+0	Z	PV
17Y10F	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
12Y1PC	Pedestrian and Cycling Transport Denis Liutov	KZ	2	2P+0C	L	PV
20Y1PO	Weather, Air Quality and Transportation	KZ	2	2+0	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 Petr Zlámal	KZ	2	2P+0C	L	PV
14Y1PI	Corporate Information System	KZ	2	2P+0C	Z	PV
12Y1PD	Assessment of Transport Structures	KZ	2	2P+0C	Z	PV
20Y1PK	Product Quality Management Processes Martin Leso	KZ	2	2P+0C	Z	PV
14Y1PJ	C Programming Language	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	Z	PV
14Y1PA	70máš Honc 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
12Y1RZ	Railway Lines Reconstruction	KZ	2	2+0	Z	PV
16Y1RE	Control and Electronic Vehicle Systems Josef Mik, P emysl Toman	KZ	2	2P+0C	Z	PV
21Y1RZ	Human Resources Management	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
11Y1SI	Transportation Software Engineering Martin P ni ka	KZ	2	2P+0C	Z	PV
22Y1SZ	Forensic Expertise	KZ	2	2P+0C	L	PV
16Y1KS	Quality and Reliability of Vehicles	KZ	2	2P+0C	Z	PV
12Y1SU	Jaroslav Machan, David Lehet Road Management and Maintenance	KZ	2	2P+0C		PV
18Y1SN	Dagmar Ko árková, Otakar Vacín Statically Nondeterminated Structures	KZ	2	2+0	Z	PV
21Y1TH	Aircraft Technical Handling	KZ	2	2P+0C	 	PV
16Y1TJ	Technological Quality Aspects	KZ	2	2+0		PV
20Y1TD	Telematics Databases	KZ	2	2+0	Z	PV
11Y1TG	Graph Theory	KZ	2	2P+0C	 L	PV
14Y1TI	Lucie Kárná Lucie Kárná Lucie Kárná (Gar.) Creating Interactive Internet Applications	KZ	2	2P+0C	L	PV
21Y1UT	Airports Maintenance	KZ	2	2+0	-	PV
18Y1UK	Introduction of Rail Vehicles	KZ	2	2P+0C	 L	PV
12Y1VC	Jitka ezní ková, Josef Kolá Waterways and Shipping	KZ	2	2P+0C	Z	PV
23Y1VS	Negotiation and Cooperation	KZ	2	2P+0C	 Z	PV
14Y1VM	Milena Macková Development of Applications for Mobile Devices	KZ	2	2P+0C	 	PV
16Y1VT	Development in Railroad Vehicles	KZ	2	2P+0C		PV
14Y1W1	Webdesign 1	KZ	2	2P+0C	Z	PV
14Y1W2	Webdesign 2	KZ	2	2P+0C	 L	PV
16Y1ZG	Introduction into Applied Computer Graphics	KZ	2	2P+0C		PV

11Y1ZF Introduction to Solid State Physics 21Y1ZA Basics of Aerobatics 14Y1ZM Fundamentals of parametric and adaptive modeling 11Y1ZM Foundation of MATLAB Programming	KZ	2	2+0	Z	PV
11V17M Foundation of MATLAB Programming	KZ	2	2+0	L	PV
11V17M Foundation of MATLAB Programming	KZ	2	2P+0C	L	PV
Šárka Vorá ová Šárka Vorá ová Šárka Vorá ová (Gar.)	KZ	2	2P+0C	L	PV
12Y1ZU Principles of Urbanism Karel Hájek	KZ	2	2P+0C	Z	PV
16Y1ZL Vehicle Testing, Legislation and Construction Josef Mik, Zuzana Radová	KZ	2	2P+0C	Z	PV
Characteristics of the courses of this group of Study Plan: Code=Y1-BDOS 15/16 Nar	me=PVP ba	k.prez.D	OS 15/16		•
17Y1AF Alternative Forms of Transportation Project Financing			1	Z	2
There will be specifed such forms of financing in transportation, where the public sector body perform the final debtor is not a direct participant of the transaction and it is not the counterparty of the financial institute which provides the function of the transaction and it is not the counterparty of the financial institute which provides the function of the transaction and it is not the counterparty of the financial institute which provides the function of the transaction and it is not the counterparty of the financial institute which provides the function of the transaction and it is not the counterparty of the financial institute which provides the function of the transaction and it is not the counterparty of the financial institute which provides the function of the transaction and it is not the counterparty of the financial institute which provides the function of the transaction and it is not the counterparty of the financial institute which provides the function of the transaction and it is not the counterparty of the financial institute which provides the function of the transaction and it is not the counterparty of the financial institute which provides the function of the financial institute which provides the function of the financial institute which is not the financial		•		•	
18Y1AM Anatomy, Mobility and Safety of Man			K	Z	2
Survey of tissues. Anatomical structure and growth of bones. Articular joint. Remodelling of bone tissue. Anatomical structure					
and biomechanics of muscular-skeletal system. Injury of human organs and musculo-skeletal system during traffic a joint prostheses. Protective means and traffic safety regulations.	ccidents. Mobil	ity of ill and	injured man a	nd his trea	tment. Human
14Y1AV Animation and Visualization			к	Z	2
Advanced modifications and modeling of NURBS, Patch objects, selection of objects (according to filter and propertie	es). 3D Studio M	AX systems			-
and other effects, rendering filters, Motion blur, advanced animations, Motion panel. Modeling for morphing and anim	nation, bone for	mation, ani			
20Y1AE Applied Electronics Basic electronic semiconductor components, their principles, characteristics and typical connection diagrams. Semic	andustor DN iu	nation diad		Z	2
amplifiers, basic logic gates. Functions of basic electronic circuits and methods for their designs (rectifiers, voltage re	•			,	•
amplifier as an inverting and noninverting amplifier).	ogulator mili 2			. срс.	, oporanoria.
14Y1AP Automatization in Mail			K	Z	2
Technology of post shipment submission, transport, and delivery via physic and electronic way, virtual post operation				-	-
application of new information and communication technologies in an offer of permanent, mobile, and NGN e-commun technological principles of end telecommunication devices.	nication network	s, solutions	to e-communic	cation netv	vork interfaces,
14Y1BE Barrierless Transport			K	Z	2
The issue of barrierless accessible public transportation in terms of architectural barriers and also for transportation-te	echnological po	int of view.	1		
$of \ barrier less\ environment\ roads,\ railway\ stations,\ public\ transport\ stops,\ terminal\ buildings,\ vehicles,\ public\ transport,\ descriptions and the problem of the problem $	information and	l orientation	systems and t	ransportat	ion technology.
Theoretical knowledge will be supplemented by practical examples.			1 12	<u> </u>	
15Y1BO Work Safety and Health Protection in Transportation	ution with focus	transas	1	Z	2
Fundamental legislative, definition of terms, risks and possible health damage, working conditions and health protection health insurance of home and foreign business trips, statistics, working practice.	tion with locus	on transpor	tation. neatti p	rotection	programmes,
14Y1BM Biometric Methods			K	Z	2
Basic biometric terms, authentication methods, principles and performance measurement of biometric systems, ove	rview of biomet	ric technolo	gies, hand ged	ometry, iris	recognition,
retina recognition method, 2D and 3D face recognition, vein patterns on the wrist, ear biometrics, fingerprint recogni	ition, skin spect	roscopy, be	havioral metho	ds, the us	e of biometrics
in transport applications, safety and risks of biometric technologies. 23Y1DZ Data and Their Processing for Engineering Fields Needs				Z	2
23Y1DZ Data and Their Processing for Engineering Fields Needs Courses of risk, basic terms, data collection, data sets, data random uncertainty and data epistemic uncertainty, dat	a processing, h	azard. risk.			
heuristic methods, hazard determination and risk determination, methods for variants' creation, decision support sys		azara, 11011,	raido odaloo,	ariary troat,	ompinoar and
15Y1DU History of Art and Society			K	Z	2
History of art - definitions, terminology, division into periods. Architecture, fine arts, design. Situation in Central Europe	pe, today in the	Czech Rep	oublic. Stations	, bridges,	industrial
buildings. Design of transport vehicles.			1 1/	- T	
15Y1DZ History of Railway Horse-drawn railways, steam railways, railway network development in the 2nd half of 19th century, regional railways	s enoch railway	s of the "Fi		Z electric tra	2 ction World
War II railways, railway development in the 2nd half of 20th century, high-speed railway origins, railway lines closing, in	-				
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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, communism goals. Europe after Hitler's getting to power, system of bilateral agreements. Decline of the LN. Rearrangement of powers during WWII. Cold war and		
New quality of French-German relationship - a driving power of starting European integration.	u its consequence	s for Europe.
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-destruct	ive testing of mate	erials. Design of
experimental procedures and sample preparation. Tensile and bending tests. Electrical resistance strain gages. Optical based strain measurement.	Fatigue and lifetim	e prediction.
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 and interpretation of ICAO Annexes 13 and 19. Analysis and interpretation of the Regulation (EC), Regulation (EU). Human factor. Utilization of information of the Regulation (EC) and the scope of the investigation organisations within the state and and interpretation of ICAO Annexes 13 and 19. Analysis and interpretation of the Regulation (EC), Regulation (EU). Human factor. Utilization of information of the Regulation (EC) and the scope of the investigation organizations within the state and and interpretation of ICAO Annexes 13 and 19. Analysis and interpretation of the Regulation (EC) and the scope of the investigation organizations within the state and and interpretation of ICAO Annexes 13 and 19. Analysis and interpretation of the Regulation (EC) and the scope of the investigation organizations within the state and and interpretation of ICAO Annexes 13 and 19. Analysis and interpretation of the Regulation (EC) and the scope of the investigation organization organi		•
reports.		ivestigation
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, air tr	affic, specialised t	erminology.
French society and culture. Current political system. System of education, studying in France. Selected authors of French literature. French gastrono		
14Y1GD GIS and Maps Digitalization	KZ	2
Work with map sources and their creating. Maps digitalization and creation. Use and creation of other (non-graphic) information with use of database	es. Interlinking ext	ernal references
with drawings containing maps. 14Y1HW Computer Hardware	KZ	2
Computer Transware Computer architecture, basics of logical circuits design and their realization using FPGA. In detail, description of computer architecture and separate	1 1	
arithmetic and logical units, I/O subsystem.	- panta arangig	,
15Y1HL History of Civil Aviation	KZ	2
Beginnings of flying, development of aircrafts lighter than air. Beginnings of aircrafts heavier than air. Czechoslovak aviation pioneers. Development	of airports in the C	Zzech Republic.
World airports. Famous aviators. Helicopters. CSA airplanes. Development of aircrafts in Czechoslovakia between the years 1945-1989. Classic era	of aviation. Golde	n era of civil
aviation. Modern era of civil aviation. Airline companies. Supersonic flying.	1/7	
15Y1HD History of City Mass Transport History of city mass transport in the world, development of tram, bus and trolley-bus systems. History of transport networks in the world, current trer	KZ	2 ents of tariff and
clearance systems. History of city transport in Prague and Brno. History of tram, bus and trolley-bus operation systems in the Czech Republic and S		ents of tariii and
12Y1HD Traffic Noise	KZ	2
Acoustic introduction, basic terms, quantities. Basics of physiological acoustic, noise impacts on human body. Acoustic legislation, standarts, regular	1 1	
area, principles of urban acoustic, noise transmission, soundproofing. Types of noise sources in area. Determination of acoustic situation in the area	of interest. Metho	odology of
computing and measurement of transport noise. Acoustic studies, measuring protocol.	,	
15Y1HE Work Hygiene and Ergonomics in Traffic	KZ	2
Basic knowledge of occupational hygiene and ergonomics, and their application in transport. Working environment factors, and the influence of thes Creation and protection of working conditions that do not damage public health. Mutual links: man-machine-environment. Adaptation of technology to		
The state of the s	o possibilities and	Skills of a friaff.
Practical examples from the field of transportation; relevant legislature		
Practical examples from the field of transportation; relevant legislature. 16Y1IS Interactive simulators and simulations	KZ	2
Practical examples from the field of transportation; relevant legislature. 16Y1IS Interactive simulators and simulations Simulation theory and application of computing equipment. Creating computing models. Mechanical and dynamic systems and their mathematical math	KZ nodels. Computing	2 methods.
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16Y1IS	Models. Computing plators. KZ as. Multimodal logith KZ as. Multimodal logith KZ as. Melations between Relations between Relations between RZ as and KZ as as Multimodal logith KZ as as Multimodal logith KZ as a Multimodal logi	g methods. 2 istic centres. 2 ween languages 2 Wave ranges 2 passengers and 2 ets for finding 2 on. The outcom 2
Interactive simulators and simulations	KZ wave propagation. KZ warnsport process KZ wamples of datase KZ warniation and nego	g methods. 2 istic centres. 2 ween languages 2 Wave ranges 2 passengers and 2 ets for finding 2 on. The outcom 2
Interactive simulators and simulations Simulation theory and application of computing equipment. Creating computing models. Mechanical and dynamic systems and their mathematical m Simulation of vehicle dynamics, on-land carriage in particular. Virtual reality systems. Practical exercise with simulation software and interactive simulation of vehicle dynamics, on-land carriage in particular. Virtual reality systems. Practical exercise with simulation software and interactive simulation of vehicle dynamics, on-land carriage in particular. Virtual reality systems. Practical exercise with simulation software and interactive simulation of vehicle dynamics, on-land carriage in particular. Virtual reality systems. Practical exercise with simulation software and interactive simulation of vehicle dynamics, on-land carriage in particular. Virtual reality systems. Practical exercise with simulation software and interactive simulation. Combined transport systems. Transshipping area 23Y1KO Quantum Physics and Optoelectronics Ground of quantum physics. Application of quantum physics in practice. Optoelectronics. Production of optoelectronics components. Cybernetics Fundamentals of information theory, dynamic systems, the principle of feedback, logical systems. Finite automata as a special case of dynamical system and automata. 21Y1LR Radio Technology in Aviation Electric signals and the wave spectrum. Analog and digital modulations. Noises. Filters. Resonance circuits. Electromagnetic field. Electromagnetic via aviation, radiation and reception of electromagnetic field. Antennas in aviation, receivers and transmitters. 17Y1LL Logistics of Passenger and Freight Air Transport Logistics airline passenger and cargo. Aircraft and airport terminals for passenger and cargo transport. Airlines in terms of logistics systems. Aerial via cargo. Information systems in air transport. Global distribution systems. 20Y1LN Location and Navigation Description and examples of road networks, localization on the network. Routing algo	Models. Computing plators. KZ as. Multimodal logi KZ ems. Relations bet KZ wave propagation. KZ transport process KZ xamples of datase KZ sentation and nego KZ gram implementation KZ and composites, an charts. KZ	gmethods. 2 istic centres. 2 ween languages 2 Wave ranges 2 passengers and 2 otis for finding 2 otin. Personal 2 on. The outcom 2 attention is paid
Interactive simulators and simulations	Models. Computing plators. KZ as. Multimodal logi KZ ems. Relations bet KZ wave propagation. KZ transport process KZ xamples of datase KZ sentation and nego KZ gram implementation KZ and composites, an charts. KZ	gmethods. 2 istic centres. 2 ween languages 2 Wave ranges 2 passengers and 2 otis for finding 2 otin. Personal 2 on. The outcom 2 attention is paid
Interactive simulators and simulations	KZ wave propagation. KZ wamples of datase	gmethods. 2 istic centres. 2 ween languages 2 Wave ranges 2 passengers and 2 otis for finding 2 otinion. Personal 2 on. The outcom 2 attention is paid 2 ution lines.
Interactive simulators and simulations	Models. Computing plators. KZ as. Multimodal logi KZ as. Multimodal logi KZ as. Relations bet KZ as ems. Relations bet KZ avave propagation. KZ transport process KZ transport process KZ aramples of datase KZ transport mplementation KZ and composites, an charts. KZ elines, and distributions.	gmethods. 2 istic centres. 2 ween languages 2 Wave ranges 2 passengers and 2 otis for finding 2 otiation. Personal 2 on. The outcom 2 attention is paid 2 ution lines.
Interactive simulators and simulations	KZ wave propagation. KZ wave propagation. KZ wave propagation. KZ wave propagation. KZ transport process KZ wamples of datase KZ wand composites, and composites, and charts. KZ elines, and distributilization, inland logical composited to the composite of the comp	gmethods. 2 istic centres. 2 ween languages 2 Wave ranges 2 passengers and 2 otis for finding 2 otinion. Personal 2 on. The outcom 2 attention is paid 2 gistic centre and

15Y1NE	German in the Economy and Society ocial issues of German speaking countries and of the EU. Reading and listening of texts. Lexical, grammatical and semantic	KZ	2 Discussion on
selected topics.	ocial issues of German speaking countries and of the EG. Reading and listening of texts. Lexical, grainmatical and semantic	analysis of texts. L	21300331011 011
14Y1NP	Non-parametric 3D Modelling	KZ	2
•	etricmodeller (AutoCAD) environment, scenes rendering, creation of planar and volumetric objects, user setup creation, object database. Basic definition of work with lights, materials and reflexes. Models presentation.	t data creation, wo	ork with data
20Y1NS	Neural Networks	KZ	2
	function of human brain and its main functional blocks and building elements - neurons. Models of neurons, modelling their r	networks and the b	asic paradigms
of artificial neural netwo	rks. Security of Air Transport	KZ	2
	Security of Air Transport I aviation. Definitions and regulations. History of acts of unlawful interference. Terrorism in aviation. National security program		_
	procedures. Modern means of protection and control.		
23Y1OK	Protection of Critical Objects and Infrastructures ystems, critical item, risks and their courses, criticality, vulnerability, connectivity, dependability, resilience, failure, protection, s	KZ	2
infrastructures.	ystems, childaritem, risks and their courses, childarity, vulnerability, connectivity, dependability, resilience, failure, protection, s	alety of critical obj	ects and childar
20Y1OI	Fare Collection and Information Systems	KZ	2
· · · · · · · · · · · · · · · · · · ·	in public transport and their components (on-board units, validators, turnstiles,). Information systems and their components (cycles, location or current delay of vehicles,). The issue of tariff systems. Other examples of clearance systems (parking	•	ables, maps,
14Y10P	Operating System	KZ	2
	GNU/Linux OS. X-window system. Rights management - users and groups, ACL rights. Filesystems and attributes. Program	ns and processess	
	e programs / commands. Config files. SW management, package systems. Programs in graphic shell - text, spreadsheet, grap es management. Safe and secure configuration of OS. Remote administration.	ohic editors, sound	I, video and
14Y1OL	Linux Operating System	KZ	2
Distributions. GNU/Linu	x system installation. X-window system. Rights - Users and Groups, ACL rights. Filesystems and file attributes. Programs and		
	ls. Configuration files. Managing SW system. Programs in graphic mode - tools for text, graphics, sound, video, communication. ion. Remote administration.	Services manager	ment. Principles
17Y1OF	Personal Finance	KZ	2
, ,	et, financing of basic living needs), debt (loans and credits, payment instruments, interest and fees, debt trap), financing of ho	• • •	
consumer loans, refinar (retirement savings and	icing), savings and investments (investment horizon, return, risk, investment strategy), insurance (insurance types, suitability a	ind adequacy), sec	curing the future
11Y1PV	Parametrical and Multicriterial Programming	KZ	2
Solution to the problem	of linear programming with a parameter in objective function, on right sides and in the matrix of coeficients of linear constraints	. Computation of e	fficient solution.
17Y1PM	Personnel Management	KZ	2
12Y1PC	roup, man as personality, planning, choice, evaluation and education of human sources, work adaptation, teamwork, intercul Pedestrian and Cycling Transport	KZ	2
•	Pedestrian crossings. Modifications for blind, dim-sighted and disabled people. Design of cycle routes network. Ways of cycle ro	-	
	of cyclists from other transport modes. Cycle tracks and its design - one way streets, reserved traffic lanes, bus stops, crossing and road marking for cyclists.	igs with other trans	sport modes,
20Y1PO	Weather, Air Quality and Transportation	KZ	2
	, weather observation network, weather in transportation, road meteorology. Weather forecasting, data assimilation, probabili		
	nts and their effects, atmospheric chemistry, traffic emissions. Greenhouse gasses, carbon cycle, a role of energy and transp Computer Graphics	ortation in climate	change.
	cand possibilities of their editing and mutual conversion. Use of individual types according to character of work. Work with ed		thin the user
	s, DPI, colors. Basics of digital photography, scanning and computer technology like monitors and graphics cards.		
14Y1P2	Computer Aid of Transportation Projecting 2 ation for transportation projecting aid. AutoCAD environment possibilities of basic tasks automatizing (programming, scripting,	KZ	dvanaad blaaka
	relation to databases). Work in projecting group, external references. Basic tasks for cummunication projecting (clotoidic trans		
section). Basics of 3D n			
18Y1PS Principles and overview	Computer Simulations in Mechanics of tools for stress analysis of structures. Numerical methods in mechanics, finite element method. Geometric model develop	KZ	2 on of geometry
•	s. Assignment of material properties. The types of elements and their use. Discretization of solid model. Boundary conditions		
	nodal analysis. Introduction to complex nonlinear problems.		
14Y1PI Data-information-knowl	Corporate Information System edge, components of information system, syntatic and semantic sense of data, structure of corporate information system, pa	KZ rticular information	2 n system
	n, storage, etc.), corporate information politic and information control, risks of information system operation, legal environmen		-
-	n, information system security, data protection, safety politics.		
12Y1PD Assessment of transpor	Assessment of Transport Structures t structures, the EIA process. Multicriteria assessment methods, risk analysis, SWOT analysis. Landscape character, possibilitie	KZ	2 and assessment
	the landscape. Rating fragmentation and landscape connectivity in the preparation of linear structures. Practical examples of		
the environment.			
20Y1PK	Product Overlib Management Produ	1/7	
	Product Quality Management Processes	KZ	2 ns A framework
General principles of or	Product Quality Management Processes ganization management. Management systems and international standards; quality management systems. Quality products, management, management principles. Principles of process management, monitoring and measurement systems management	processes, system	ns. A framework
General principles of or of standards for systems for systems manageme	ganization management. Management systems and international standards; quality management systems. Quality products, management, management principles. Principles of process management, monitoring and measurement systems management. Process management principles. Metrology and testing. Product certification.	processes, system	ns. A framework ork of standards
General principles of or of standards for systems for systems manageme 14Y1PJ	ganization management. Management systems and international standards; quality management systems. Quality products, management, management principles. Principles of process management, monitoring and measurement systems management. Process management principles. Metrology and testing. Product certification. C Programming Language	processes, system nt. Uniform framewo	ns. A framework ork of standards
General principles of or of standards for systems for systems manageme 14Y1PJ C programming languas	ganization management. Management systems and international standards; quality management systems. Quality products, management, management principles. Principles of process management, monitoring and measurement systems management. Process management principles. Metrology and testing. Product certification.	processes, system nt. Uniform framewo	ns. A framework ork of standards
General principles of or of standards for systems for systems management 14Y1PJ C programming language Implementations of absets 12Y1C1	ganization management. Management systems and international standards; quality management systems. Quality products, management, management principles. Principles of process management, monitoring and measurement systems management. Process management principles. Metrology and testing. Product certification. C Programming Language Je. Preprocessor, basics of the C language (data types, syntax, commands), functions, pointes, dynamical memory allocation, stract data types (FIFO, LIFO, list), programming techniques (sorting, searching, recursion), using bitwise oprerators. Designing Roads in Civil 3D I	processes, system nt. Uniform framewo KZ string, files, structu	ns. A framework ork of standards 2 ures and unions.
General principles of or of standards for systems for systems management 14Y1PJ C programming language Implementations of abset 12Y1C1 The course is devoted to the form of the standard standards and the systems are supplementations.	ganization management. Management systems and international standards; quality management systems. Quality products, management, management principles. Principles of process management, monitoring and measurement systems management. Process management principles. Metrology and testing. Product certification. C Programming Language ge. Preprocessor, basics of the C language (data types, syntax, commands), functions, pointes, dynamical memory allocation, stract data types (FIFO, LIFO, list), programming techniques (sorting, searching, recursion), using bitwise oprerators.	processes, system nt. Uniform framewo KZ string, files, structu KZ gh the complete do	ns. A framework ork of standards 2 ares and unions. 2 esign of this

12Y1C2	Designing Roads in Civil 3D II	KZ	2
	o the traffic buildings design field, specifically the design of roads as such, by the means of a 3D software. Students go throu , from the initial situation, over the longitudinal section, to the model and work sections and the cubic capacity calculation. Ti	-	-
'	d. Students learn to design intersections.		
14Y1PA	3D Modeling in AutoCAD	KZ	2
-	tric modeller (AutoCAD) environment, scenes rendering, creation of planar and volumetric objects, user setup creation, objects and reflects and refl	ect data creation, v	vork with data
16Y1PV	database. Basic definition of work with lights, materials and reflexes. Models presentation. Operation, Construction and Maintenance of Vehicles	KZ	2
-	uction. Vehicle maintenance. Vehicle diagnostics. Maintenence and repair plans. Engine maintenance and emission measur	1	
General principles of er			
12Y1PU	Organization Disposition of Railway Stations	KZ	2
_	senger transport equipment. Freight transport equipment. Branch lines and railway traffic inside industrial company areas. Zo		nation yards.
12Y1RZ	ology of work in railway station with regard to its disposition. Railway station documentations in the Czech Republic railway I Railway Lines Reconstruction	KZ	2
	ainance technology. Track maintainance machinery, superstructure and substructure building machinery and special rail vehicle	1	_
	d elimination principles. Track sections and station tracks exclusion planning. Reconstruction timetable design of railway sup	-	_
16Y1RE	Control and Electronic Vehicle Systems	KZ	2
	regulation. Tools for analytical solution, linear system description. Basic types of a regulator (PID), properties, advantages, disc	_	
comfort systems.	Electric drive. Vehicle communication bus (CAN, LIN, FlexRay, ISObus, KWP2000 protocole etc.). Vehicle electronic control	, safety, communi	cation and
21Y1RZ	Human Resources Management	KZ	2
	esources in the organization and related disciplines file. Substance, importance and challenges of human resources manag	1	
	esource management. Human resource planning. Search, recruitment and selection of employees. Motivation, evaluation and	d remuneration of	staff. Positioning,
	cies of employees. Education of employees. Planning career management.		
17Y1ST	Titan Simulation game simulating the business decisions. Lets 2-8 student groups to produce and compete in the market with the same produce.	KZ	2
	game simulating the business decisions. Lets 2-6 student groups to produce and compete in the market with the same produ and capacity of production, plan budgets for marketing, research and development. They become familiar with the conseque		•
	ports and they use this information for other business decisions.		
20Y1SC	Sensors and Actuators	KZ	2
	d actuators. Basics of measuring theory and actuating influence. The respective technologies and construction principles. Senso	rs of mechanical, e	electro-magnetic,
	idity), chemical and particle flow values. Electrical, pneumatic and hydraulic actuators and solid phase elements.	1/7	
11Y1SI Basic concents of softwo	Transportation Software Engineering are engineering, ranging from domain analysis, requirement analysis and software architectures to analyses, design and imple	KZ	2 ormal techniques
and practical usuage.	are engineering, runging norr domain analysis, requirement analysis and software are incestares to analyses, design and imple	mentation using it	ina teeninques
22Y1SZ	Forensic Expertise	KZ	2
	rensic engineering, forensic activity, current legislature in the Czech Republic, different disciplines, notion of forensic, forens	-	
· ·	ing proofs, forensic methodology. Notion of the evidence, general principles of evidence obtaining, metrology, protocol, evide s. Finding, expert testimony / report.	ences collection, s	ite inspection,
16Y1KS	Quality and Reliability of Vehicles	KZ	2
	eory in design, development, production and operation of vehicles. Definition and possible approach to quality and reliability.	1	
	sis), QFD (Quality Function Deployment), DFx (Design for Assamly, Manufacturying, Quality, Services) and other method		
Knowledge-based syste	ms of quality and reliability, data collection.		
12Y1SU	Road Management and Maintenance	KZ	2
_	nership of roads in the Czech Republic and the administration of the road at the state and county level. It is presented develors trategy of the Ministry of Transport, Maintenance of roads winter and summer, its requirements, specifies, possibilities, and references.	•	
_	strategy of the Ministry of Transport. Maintenance of roads winter and summer, its requirements, specifics, possibilities and re restment activity in highway engineering.	spair metrious are	discussed in the
18Y1SN	Statically Nondeterminated Structures	KZ	2
	am element, virtual work. Strength method. Frame analysis by strength method. Deformation method. Frame analysis by defo	1	
_	inkler's foundation. Calculation beam on elastic foundation. Basement of the mathematical elasticity. Calculation of walls. Ca	lculation of plates	. Cylindrical
shells. Examples of calc		1/7	
21Y1TH	Aircraft Technical Handling ing tractors. GPU. Air conditioning and heating units. Aircraft fuel equipment. De-acing and anti-icing units. Loading and unlo	KZ	2
	and offboarding. Operational processes of aircraft technical handling and regulations. Modernization and technical progress		oment ioi
16Y1TJ	Technological Quality Aspects	KZ	2
	ation. Quality management. Standards of Quality Management and its application. Quality system creation. Tools and methods	1	
verification. Environmer	tal certification. Workplace certification. QMS integration. Classification, certification of products and producers.		
20Y1TD	Telematics Databases	KZ	2
	bases, work with OpenStreetMap layer, use of Linux OS and PostgreSQL with PostGIS extension, real traffic data.	1/7	
11Y1TG	Graph Theory ninology of graph theory, graph representation. Problems of graph theory, problem instance. Graph search algorithms, trees,	KZ	2
-	path, bipartite graph matching, flow networks, circulations, critical path method, traveling salesman problem. Problem of existen	-	-
	tational complexity, dealing with NP-complete problems, heuristic approach.		·
14Y1TI	Creating Interactive Internet Applications	KZ	2
	language PHP. Overview of PHP language syntax, and functions. Analysis of finished scripts and demonstration of solutions.	Your own applicat	ion programmed
in PHP language.	Airports Maintenance		2
21Y1UT Summer airport mainte	Airports Maintenance	KZ	
· ·	iance. Summer maintenance equipment, vyinter airport maintenance, vyinter maintenance equipment, De-Icing / apti-Icing of	aircraft De-icing	anti-icina iiailia
procedures, i	nance. Summer maintenance equipment. Winter airport maintenance. Winter maintenance equipment. De-icing / anti-icing of imitations, practices.	aircraft. De-icing	anti-icing liquid.
18Y1UK		aircraft. De-icing /	anti-icing liquid.
18Y1UK Basic characteristics ar	imitations, practices. Introduction of Rail Vehicles d parameters rail transport systems - railway and urban transport. Basis driving mechanics rail vehicles - equation of motion	KZ train and unit train	2 ns. Rolling and
18Y1UK Basic characteristics ar track resistance. Total ru	Introduction of Rail Vehicles	KZ train and unit train	2 ns. Rolling and

asiac modes of transport. The position of water transport in the transport system of the CZech Republic and the EU. Advantages and disadvantages of water transport. Basic system (waterways in two care to present the Czech Republic. Construction of the waterway and its equipment. Management of vaterways and its operation. The legal regin inland navigation, navigation rules of operation, navigation maps. XZ 2 371VS Negotiation and Cooperation RZ 2 2 observed of conduct for regiotation. The influence of personality traits on the negotiations. Negotiation and commanding. Tearmwork. Variants teams. Informal and formal role in the team rinciples of negotiation, the essence of negotiation, the differences in negotiation in business and in crisis situations, the principle of "win both", specifications and bidding, the role ust. 4Y1VM Development of Applications for Mobile Devices KZ 2 2 biplect oriented programming, Java programming language, development environment, operating system Android, development application - widgets, containers, threads, menu, armissions, services, GUI. 6Y1VT Development in Railroad Vehicles Interval and the standard communication in Railroad Vehicles AV1VI Webdesign 1 Webdesign 1 WZ 2 Ludents will be practiced on practical examples. Y/1VW2 Webdesign 1 WZ 2 Ludents will be practiced on practical examples. Y/1VW2 Webdesign 2 Ludents will be practiced on practical examples. WZ 2 Ludents will be practiced on practical examples. WZ 2 Ludents will be practiced on practical examples. WZ 2 Ludents will be practiced on practical examples. WZ 2 Ludents will be practiced on practical examples. WZ 2 Ludents will be practiced on practical examples. WZ 2 Ludents will be practiced on practical examples. WZ 2 Ludents will be practiced on practical examples. WZ 2 Ludents will be practiced on practical examples. WZ 2 Ludents will be practiced on practical examples. WZ 2 Ludents will be practiced on practical examples. WZ 2 Ludents will be practiced on practical examples	12Y1VC	Waterways and Shipping	KZ	2
inland navigation, navigation rules of operation, navigation maps. 3/Y1VS Negotiation and Cooperation Negotiation and commanding. Teamwork. Variants teams. Informal and formal role in the team rinciples of negotiation. The influence of personality traits on the negotiations and unsures and in crisis situations, the principle of "win both", specifications and bidding, the role ust. 4/Y1VM Development of Applications for Mobile Devices KZ 2 biject oriented programming. Java programming language, development environment, operating system Android, development application - widgets, containers, threads, menu, semissions, services, GUI. 6/Y1VT Development in Railroad Vehicles KZ 2 aliasted whicles traction. Railroad vehicle parameters regulation. Control and driving of railroad vehicles. Importance in heavy duty and personal transportation. Critical situation seasment. New materials in design. International standardization. 4/Y1W1 Webdesign 1 KZ 2 tudents will learn the basics of communication HTTP, URL and addressing, markup languages HTML and XHTML, HTML tags, rules of web accessibility and usability, CSS properting diselectors, the issue of web biowsers, creating one to three column layout pages, sites validation, conditional comments. Topics will be practiced on practical examples. 4/Y1W2 Webdesign 2 Webdesign 2 KZ 2 tudents will learn advanced techniques CSS, responsive webdesign, CSS frontends, content management systems, JavaScript, jQuery, SEO, web server installation + configurative receivers. Topics will be practiced on practical examples. 6/Y1ZG Introduction into Applied Computer Graphics			1	. Basic systems
Negotiation and Cooperation KZ 2 ode of conduct for negotiation. The influence of personality traits on the negotiations. Negotiation and commanding. Tearmwork, Variants teams. Informal and formal role in the tean finiciples of negotiation, the essence of negotiation, the differences in negotiation in business and in crisis situations, the principle of "win both", specifications and bidding, the role ust. 4/11/M Development of Applications for Mobile Devices kZ 2 bject oriented programming, Java programming language, development environment, operating system Android, development application - widgets, containers, threads, menu, strinissions, services, GUI. Poevelopment in Railroad Vehicles kZ 2 allitoad vehicles traction. Railroad vehicle parametres regulation. Control and driving of railroad vehicles. Importance in heavy duty and personal transportation. Critical situation sessement. New materials in design, International standardization. 4/11/M Webdesign 1 Udents will learn the basics of communication HTTP, URL and addressing, markup languages HTML and XHTML, HTML tags, rules of web accessibility and usability. CSS propertind desiectors, the issue of web browsers, creating one to three column layout pages, sites validation, conditional comments. Topics will be practiced on practical examples. 4/11/W2 Webdesign 2 Usudents will learn advanced techniques CSS, responsive webdesign, CSS frontends, content management systems, JavaScript, jQuery, SEO, web server installation + configurations. Topics will be practiced on practical examples. 6/12/G Introduction into Applied Computer Graphics 6/12/G Introduction into Applied Computer Graphics 6/12/G Introduction to Solid State Physics 1/12/F Introduction to Solid State Physics Repeated the production and acrobatics in present, aerodynamics and mechanics of flight during marginal f	of waterways in Europ	be, a network of waterways in the Czech Republic. Construction of the waterway and its equipment. Management of waterways	and its operation. T	he legal regime
ode of conduct for negotiation. The influence of personality traits on the negotiations. Negotiation and commanding, Teamwork, Variants leams, Informal and formal role in the team rinciples of negotiation, the essence of negotiation, the differences in negotiation in business and in crisis situations, the principle of "win both", specifications and bidding, the role ust. 4/1/WM Development of Applications for Mobile Devices biget oriented programming, Java programming language, development environment, operating system Android, development application - widgets, containers, threads, menu, ermissions, services, GUI. 6/1/WT Development in Railroad Vehicles alitoad vehicles traction. Railroad vehicle parameters regulation. Control and driving of railroad vehicles. Importance in heavy duty and personal transportation. Critical situation sessment. New materials in design. International standardization. 4/1/WI Webdesign 1 udents will learn the basics of communication HTTP, URL and addressing, markup languages HTML and XHTML, HTML tags, rules of web accessibility and usability, CSS propertive diselectors, the issue of web browsers, creating one to three column layout pages, sites validation, conditional comments. Topics will be practiced on practical examples. 4/1/WI Webdesign 2 tudents will learn advanced techniques CSS, responsive webdesign, CSS frontends, content management systems, JavaScript, iQuery, SEO, web server installation + configurative receives. Topics will be practiced on practical examples. 6/1/ZG Introduction into Applied Computer Graphics omputer graphics, division and applications with emphasis on transport, including development and research. Colours, colour perception, colour schemes, models, principles of 2th a 2D generation, elementary algorithus for graphic data workout. Visualisation principles and tasks, technics, graphics and visualisation HW basics. Introduction to 2D and 3D aphiciss software. 1/1/ZF Introduction to Solid State Physics 1/1/ZA Basics of Aerobatics he history, de	n inland navigation, r	navigation rules of operation, navigation maps.		
ode of conduct for negotiation. The influence of personality traits on the negotiations. Negotiation and commanding, Teamwork, Variants leams, Informal and formal role in the team rinciples of negotiation, the essence of negotiation, the differences in negotiation in business and in crisis situations, the principle of "win both", specifications and bidding, the role ust. 4/1/WM Development of Applications for Mobile Devices biget oriented programming, Java programming language, development environment, operating system Android, development application - widgets, containers, threads, menu, ermissions, services, GUI. 6/1/WT Development in Railroad Vehicles alitoad vehicles traction. Railroad vehicle parameters regulation. Control and driving of railroad vehicles. Importance in heavy duty and personal transportation. Critical situation sessment. New materials in design. International standardization. 4/1/WI Webdesign 1 udents will learn the basics of communication HTTP, URL and addressing, markup languages HTML and XHTML, HTML tags, rules of web accessibility and usability, CSS propertive diselectors, the issue of web browsers, creating one to three column layout pages, sites validation, conditional comments. Topics will be practiced on practical examples. 4/1/WI Webdesign 2 tudents will learn advanced techniques CSS, responsive webdesign, CSS frontends, content management systems, JavaScript, iQuery, SEO, web server installation + configurative receives. Topics will be practiced on practical examples. 6/1/ZG Introduction into Applied Computer Graphics omputer graphics, division and applications with emphasis on transport, including development and research. Colours, colour perception, colour schemes, models, principles of 2th a 2D generation, elementary algorithus for graphic data workout. Visualisation principles and tasks, technics, graphics and visualisation HW basics. Introduction to 2D and 3D aphiciss software. 1/1/ZF Introduction to Solid State Physics 1/1/ZA Basics of Aerobatics he history, de	23Y1VS	Negotiation and Cooperation	KZ	2
inciples of negotiation, the essence of negotiation, the differences in negotiation in business and in crisis situations, the principle of "win both", specifications and bidding, the role uses. 4Y1VM Development of Applications for Mobile Devices 4Y1VM Development of Applications for Mobile Devices 4Y1VM Development in Railroad Vehicles 5Y1VT Development in Railroad Vehicles 5Y2 2 5Y1VT Development in Beautiful States 5Y1VT Development in Beautiful		0	formal and formal re	ole in the team
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ontrol flow, inputs and outputs, graphics, optimization and program code debugging. 2Y1ZU Principles of Urbanism KZ 2 urvey on history of city and settlement building. Functional components and their mutual relations (working, living, recreation, transportation). Spacial arrangement of settlements. pres of towns or cities with a certain prevailing function, forms of their development. Brief overview of land-use planning. 6Y1ZL Vehicle Testing, Legislation and Construction KZ 2	6Y1ZG computer graphics, d nd 3D generation, e raphics software. 1Y1ZF structure of solids, cr dagnetism. 1Y1ZA the history, developmerobatics programs, 4Y1ZM tassics of work at procom and to another s	Invision and applications with emphasis on transport, including development and research. Colours, colour perception, colour selementary algorithms for graphic data workout. Visualisation principles and tasks, technics, graphics and visualisation HW bas Introduction to Solid State Physics ystal lattice, Bloch function, Brillouin zones. Bend theory of solids. Dynamics of 1D lattice. Phonons. Thermodynamic properties Basics of Aerobatics lent and aerobatics in present, aerodynamics and mechanics of flight during marginal flight modes, piloting technique of individual preparation for practicing aerobatics and safety training, competitive psychology and concentration on performance. Fundamentals of parametric and adaptive modeling ducts and parts creation. Sketch drawing by help of geometric relations, parametric dimensions, creation of adaptive models fresterms. Fundamentals of assemblies creation.	KZ al elements, compet KZ KZ Ses of solids. Semico KZ All elements, compet KZ Om 2D sketches. Im	rinciples of 2D 2D and 3D 2 Inductors. 2 Idition aerobatic 2 Inport and expo
2Y1ZU Principles of Urbanism KZ 2 urvey on history of city and settlement building. Functional components and their mutual relations (working, living, recreation, transportation). Spacial arrangement of settlements. //pes of towns or cities with a certain prevailing function, forms of their development. Brief overview of land-use planning. KZ 2 Vehicle Testing, Legislation and Construction KZ 2	6Y1ZG computer graphics, dependence of the computer graphics, dependence of the computer of th	Invision and applications with emphasis on transport, including development and research. Colours, colour perception, colour selementary algorithms for graphic data workout. Visualisation principles and tasks, technics, graphics and visualisation HW base. Introduction to Solid State Physics ystal lattice, Bloch function, Brillouin zones. Bend theory of solids. Dynamics of 1D lattice. Phonons. Thermodynamic properties Basics of Aerobatics nent and aerobatics in present, aerodynamics and mechanics of flight during marginal flight modes, piloting technique of individual preparation for practicing aerobatics and safety training, competitive psychology and concentration on performance. Fundamentals of parametric and adaptive modeling ducts and parts creation. Sketch drawing by help of geometric relations, parametric dimensions, creation of adaptive models fresterms. Fundamentals of assemblies creation. Foundation of MATLAB Programming	KZ RICHARD KZ	erinciples of 2D 2D and 3D 2 Inductors. 2 Inductor aerobation 2 Inport and expo
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6Y1ZL Vehicle Testing, Legislation and Construction KZ 2	6Y1ZG omputer graphics, d nd 3D generation, e raphics software. 1Y1ZF tructure of solids, cr lagnetism. 1Y1ZA he history, developmerobatics programs, 4Y1ZM asics of work at procom and to another s 1Y1ZM to explain the principle ontrol flow, inputs ar 2Y1ZU	Introduction to Solid State Physics Introduction to Solid State Physics Introduction, Brillouin zones, Bend theory of solids, Dynamics of 1D lattice, Phonons, Thermodynamic properties Basics of Aerobatics Internet and aerobatics in present, aerodynamics and mechanics of flight during marginal flight modes, piloting technique of individual preparation for practicing aerobatics and safety training, competitive psychology and concentration on performance. Fundamentals of parametric and adaptive modeling ducts and parts creation. Sketch drawing by help of geometric relations, parametric dimensions, creation of adaptive models from the systems. Fundamentals of assemblies creation. Foundation of MATLAB Programming le of algorithmization, flow charts, description of MATLAB environment and its settings, MATLAB help, mathematical operators, and outputs, graphics, optimization and program code debugging. Principles of Urbanism	KZ al elements, compet KZ KZ al elements, compet KZ MZ al elements and elements and elements and elements and elements KZ	rinciples of 2D 2D and 3D 2 Inductors. 2 Inductors aerobation 2 Inport and expo
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ehicle, bus and motorbike costruction, aggregate computing, driving resistance, build and parameters of traction, constructional arrangement of personal cars, trucks, buses, motorbike	6Y1ZG computer graphics, dependence of the computer of solids, or raphics software. 1Y1ZF tructure of solids, or ragnetism. 1Y1ZA he history, developmerobatics programs, and to another solids of work at procommand to another solids. 1Y1ZM to explain the principle ontrol flow, inputs and another solids of the principle ontrol flow, inputs and another solids.	Invision and applications with emphasis on transport, including development and research. Colours, colour perception, colour stementary algorithms for graphic data workout. Visualisation principles and tasks, technics, graphics and visualisation HW bas Introduction to Solid State Physics ystal lattice, Bloch function, Brillouin zones. Bend theory of solids. Dynamics of 1D lattice. Phonons. Thermodynamic properties Basics of Aerobatics lent and aerobatics in present, aerodynamics and mechanics of flight during marginal flight modes, piloting technique of individual preparation for practicing aerobatics and safety training, competitive psychology and concentration on performance. Fundamentals of parametric and adaptive modeling ducts and parts creation. Sketch drawing by help of geometric relations, parametric dimensions, creation of adaptive models from the systems. Fundamentals of assemblies creation. Foundation of MATLAB Programming le of algorithmization, flow charts, description of MATLAB environment and its settings, MATLAB help, mathematical operators, and outputs, graphics, optimization and program code debugging. Principles of Urbanism city and settlement building. Functional components and their mutual relations (working, living, recreation, transportation). Spaces with a certain prevailing function, forms of their development. Brief overview of land-use planning.	KZ al elements, competent of KZ KZ al elements, competent KZ matrices and elements of KZ	rinciples of 20 2D and 3D 2 Inductors. 2 Injury and exponents operation 3 Injury and exponents operation 4 Injury and exponents operation 2 Injury and exponents operation 2 Injury and exponents operation 3 Injury and exponents operation
	GY1ZG Computer graphics, of and 3D generation, eleraphics software. 1Y1ZF Structure of solids, or agnetism. 21Y1ZA The history, developmenobatics programs, elevatics programs, and to another size another size and to another size	Invision and applications with emphasis on transport, including development and research. Colours, colour perception, colour stementary algorithms for graphic data workout. Visualisation principles and tasks, technics, graphics and visualisation HW bas Introduction to Solid State Physics ystal lattice, Bloch function, Brillouin zones. Bend theory of solids. Dynamics of 1D lattice. Phonons. Thermodynamic properties Basics of Aerobatics lent and aerobatics in present, aerodynamics and mechanics of flight during marginal flight modes, piloting technique of individual preparation for practicing aerobatics and safety training, competitive psychology and concentration on performance. Fundamentals of parametric and adaptive modeling ducts and parts creation. Sketch drawing by help of geometric relations, parametric dimensions, creation of adaptive models from the systems. Fundamentals of assemblies creation. Foundation of MATLAB Programming le of algorithmization, flow charts, description of MATLAB environment and its settings, MATLAB help, mathematical operators, and outputs, graphics, optimization and program code debugging. Principles of Urbanism city and settlement building. Functional components and their mutual relations (working, living, recreation, transportation). Spaces with a certain prevailing function, forms of their development. Brief overview of land-use planning.	KZ al elements, competent of KZ KZ al elements, competent KZ matrices and elements of KZ	rinciples of 2D 2D and 3D 2 Inductors. 2 Injury and export and e
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Name of the block: Jazyky

Minimal number of credits of the block: 12

The role of the block: J

Code of the group: JZ-B-3.4 12/13

Name of the group: Jazyk bak. 5.6.sem. od 12/13

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
15JZ3A	Foreign Language - English 3 Eva Rezlerová, Jan Feit, Markéta Musilová, Lenka Monková, Marie Michlová, Peter Morpuss, Jitka He manová, Dana Boušová, Barbora Horá ková,	Z	3	0P+4C	Z	J
15JZ4A	Foreign Language - English 4 Eva Rezlerová, Jan Feit, Markéta Musilová, Lenka Monková, Marie Michlová, Peter Morpuss, Jitka He manová, Barbora Horá ková, Markéta Vojanová	Z,ZK	3	0P+4C	L	J
15JZ3F	Foreign Language - French 3 Eva Rezlerová, Irena Veselková	Z	3	0P+4C+10B	Z	J
15JZ4F	Foreign Language - French 4 Eva Rezlerová, Irena Veselková	Z,ZK	3	0P+4C+10B	L	J
15JZ3N	Foreign Language - German 3 Eva Rezlerová, Martina Navrátilová, Jana Štikarová	Z	3	0P+4C+10B	Z	J

15JZ4N	Foreign Language - German 4 Eva Rezlerová, Martina Navrátilová, Jana Štikarová	Z,ZK	3	0P+4C+10B	L	J
15JZ3R	Foreign Language - Russian 3 Eva Rezlerová, Marie Michlová	Z	3	0P+4C+10B	Z	J
15JZ4R	Foreign Language - Russian 4 Eva Rezlerová, Marie Michlová	Z,ZK	3	0P+4C+10B	L	J
15JZ3S	Foreign Language - Spanish 3 Eva Rezlerová, Nina Hricsina Puškinová	Z	3	0P+4C+10B	Z	J
15JZ4S	Foreign Language - Spanish 4 Eva Rezlerová, Nina Hricsina Puškinová	Z,ZK	3	0P+4C+10B	L	J

Characteristics of the courses of this group of Study Plan: Code=JZ-B-3.4 12/13 Name=Jazyk bak. 5.6.sem. od 12/13

15JZ3A Foreign Language - English 3

Z | 3

Grammar structure and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty's fields of study pilot. Focus on improvement in perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral and written form. Technical texts and their features; terminology.

15JZ4A Foreign Language - English 4

Z,ZK

| 3

Grammar structure and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty's fields of study - pilot. Focus on improvement in perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral and written form. Technical texts and their features; terminology.

15JZ3F Foreign Language - French 3

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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.

15JZ4F Foreign Language - French 4

.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.

15JZ3N 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

15JZ4N Foreign Language - German 4

features. Practice of oral and written presentation.

Z.ZK

ure knowledge

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

Z

3 re knowledge

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

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

Z

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.

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.

Code of the group: JZ-B-1,2 11/12

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:

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 Eva Rezlerová, Jan Feit, Markéta Musilová, Lenka Monková, Marie Michlová, Peter Morpuss, Jitka He manová, Dana Boušová, Barbora Horá ková,	Z	3	0P+4C+10B	Z	J
15JZ2A	Foreign Language - English 2 Eva Rezlerová, Jan Feit, Markéta Musilová, Lenka Monková, Marie Michlová, Peter Morpuss, Jitka He manová, Dana Boušová, Barbora Horá ková,	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

Characteristics of the courses of this group of Study Plan: Code=JZ-B-1,2 11/12 Name=Jazyk bak.3.4.sem.od	11/12	
15JZ1A Foreign Language - English 1	Z	3
Grammatical Structures and Style. Selection of conversation topics relating to transportation sciences. Extending vocabulary, developing perceptive and	communicative s	ı skills. Elementary
stylistics forms. Oral and written presentation of original research. Academic text principles and reading comprehension. Principles of rhetoric.		
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 s	kills. Elementary
stylistics forms. Oral 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 Faculty	s fields of study	/. Focus on
improvement in perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral	and written form	ns. Technical
texts and their features; 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 Faculty		
improvement in perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral	and written form	ns. Technical
texts and their features; practice of oral and written presentation.		
15JZ1N Foreign Language - German 1	Z	3
Grammar structure 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
improvement in perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral	and written form	ns. Technical
texts and their features; practice of oral and written presentation.		
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 Faculty	s fields of study	/. Focus on
improvement in perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral	and written form	ns. Technical
texts and their features; 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 Faculty	's fields of study	/. Focus on
improvement in perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral	and written form	ns. Technical
texts and their features; 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 Faculty		
improvement in perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral	and written form	ns. Technical
texts and their features; 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 Faculty		
improvement in perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral	and written form	ns. Technical
texts and their features; practice of oral and written presentation.		
15JZ2S Foreign Language - Spanish 2	Z,ZK	3
Crammar structure and abilistics. Convergational and appointed topics calcuted appoint to the language group level and with report to the Faculty	'a fields of atuals	, Fooulo on
Grammar structure and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty improvement in perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral	-	

List of courses of this pass:

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

Code	Name of the course	Completion	Credits
11DAD	Differential and Difference Equations	Z,ZK	3
Difference equation	is and its systems. Some solvable types of differential equations of the first order. Linear differential equations of the n-th order. Methods for	or solution of the ho	mogeneous
equation, solution of	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
Kinen	natics, particle dynamics, dynamics of particle systems and rigid body. Continuum mechanics, thermodynamics, electric field, directe	d electric current.	'
11FY2	Physics 2	Z,ZK	4
Magnetic field, elec	ctromagnetic field. Optics, quantum character of electromagnetic radiation. Introduction into quantization, hydrogen atom. Multi-electr	on atoms, the nucle	ei. Basics of
	solid body physics.		
11GIE	Geometry	KZ	3
Differential geome	etry of curves - parameterization, the arc of the curve, torsion and curvature, Frenet's trihedron. Kinematics - a curve as a trajectory of	f the motion, the ve	elocity, and
	acceleration of a particle moving on a curved path.		

11LA	Linear Algebra ar combinations, linear independence, dimension, basis, coordinates). Matrices and operations. Systems of linear equations and the	Z,ZK	3
vector spaces (inte	their applications. Scalar product. Similarity of matrices (eigenvalues and eigenvectors). Quadratic forms and their classificat	•	minanto and
11MDS Basic princ	Collection and Processing of Traffic Data ciples of traffic detection and data collection, specific problems of the field of traffic data. Data preprocessing and analysis for use in a	KZ additional application	ons.
11MSP	Modeling of Systems and Processes	Z,ZK	4
	tem, external and internal system description, continuous and discrete system, mathematics as a tool, examples of formulation of differe linear system, stationary and non-stationary system, causality. Convolutional integral. Laplace and Z transformations. Transfer function		
Linear and non	Discretization of continuous systems. System interconnection.	in. Otability of Erro	systems.
11MTA	Mathematical Analysis	Z,ZK	4
Sequences and ser	ries 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.	variable. Power se	eries, Fourier
11MVP	Mathematical Analysis of Function of More Variables	Z,ZK	3
	uences in metric spaces, limit of sequence in metric space. Differential calculus of functions of several variables, differential of functic extremes of functions of several variables. Integral calculus of functions of several variables, Riemann integral, integral over curves a	=	
	of integral calculus in physics.		
11PT	Probability cs. Basic probability concepts: elementary events and events, definitions and interpretation of probability. Random variable, probabilit	Z	2
•	ents, some discrete and continuous distributions. Random vectors: joint and marginal distributions, mean vector, covariance matrix. It distributions. Law of large numbers, central limit theorem.		-
11SIS	Statistics	Z,ZK	2
-	properties of point estimators, methods of point estimation. Testing statistical hypothesis. Fit test, independence test. Regression and ent, coefficient of determination, general linear model, statistical inference in linear regression, analysis of variance, multiple regression		-
11X31	Project 1	Z	2
11X32	Project 2	Z	2
11X33	Project 3	Z	2
11Y1MM	Mathematical Models in Economy	KZ	The outcom
The goal of the col	urse is to teach selected methods of linear programming, with theoretical procedures applicable for individual tasks and their progran of the course is the ability to implement and solve basic tasks from the queue theory, graph theory and both free and constrained of		rne outcom
11Y1PV	Parametrical and Multicriterial Programming	KZ	2
Solution to the prob	olem 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	ient solution.
11Y1SI	Transportation Software Engineering	KZ	2
Basic concepts of s	oftware engineering, ranging from domain analysis, requirement analysis and software architectures to analyses, design and implemen and practical usuage.	ntation using forma	al techniques
	and products accepts.		
11Y1TG	Graph Theory	KZ	2
Basic concepts and	Graph Theory d terminology of graph theory, graph representation. Problems of graph theory, problem instance. Graph search algorithms, trees, mirrian path, bipartite graph matching, flow networks, circulations, critical path method, traveling salesman problem. Problem of existence a	nimum spanning tr	ree, shortest
Basic concepts and path problem, Euler	Graph Theory d terminology of graph theory, graph representation. Problems of graph theory, problem instance. Graph search algorithms, trees, minimal path, bipartite graph matching, flow networks, circulations, critical path method, traveling salesman problem. Problem of existence a for their solving. Computational complexity, dealing with NP-complete problems, heuristic approach.	nimum spanning tr	ree, shortest and algorithms
Basic concepts and path problem, Euler	Graph Theory d terminology of graph theory, graph representation. Problems of graph theory, problem instance. Graph search algorithms, trees, minimal path, bipartite graph matching, flow networks, circulations, critical path method, traveling salesman problem. Problem of existence a for their solving. Computational complexity, dealing with NP-complete problems, heuristic approach. Introduction to Solid State Physics ds, crystal lattice, Bloch function, Brillouin zones. Bend theory of solids. Dynamics of 1D lattice. Phonons. Thermodynamic properties	nimum spanning tr nd optimization an	ree, shortest ad algorithms
Basic concepts and path problem, Euler 11Y1ZF Structure of soli	Graph Theory d terminology of graph theory, graph representation. Problems of graph theory, problem instance. Graph search algorithms, trees, minimal path, bipartite graph matching, flow networks, circulations, critical path method, traveling salesman problem. Problem of existence a for their solving. Computational complexity, dealing with NP-complete problems, heuristic approach. Introduction to Solid State Physics ds, crystal lattice, Bloch function, Brillouin zones. Bend theory of solids. Dynamics of 1D lattice. Phonons. Thermodynamic properties Magnetism.	inimum spanning tr ind optimization an KZ s of solids. Semico	ree, shortest ad algorithms 2 nductors.
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Basic concepts and path problem, Euler 11Y1ZF Structure of soli 11Y1ZM To explain the prince	Graph Theory d terminology of graph theory, graph representation. Problems of graph theory, problem instance. Graph search algorithms, trees, minimal path, bipartite graph matching, flow networks, circulations, critical path method, traveling salesman problem. Problem of existence a for their solving. Computational complexity, dealing with NP-complete problems, heuristic approach. Introduction to Solid State Physics ds, crystal lattice, Bloch function, Brillouin zones. Bend theory of solids. Dynamics of 1D lattice. Phonons. Thermodynamic properties Magnetism. Foundation of MATLAB Programming ciple of algorithmization, flow charts, description of MATLAB environment and its settings, MATLAB help, mathematical operators, mat control flow, inputs and outputs, graphics, optimization and program code debugging.	KZ sof solids. Semicor KZ rices and elements	ee, shortest da algorithms 2 nductors. 2 s operations,
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12SDK	Highways, Motorways and Intersections	Z,ZK	4
Roads and motorwa	ays network, transport output. Types of direction curves. Hairpin bend. Stopping sight distance and overtaking sight distance. Levels of ti	raffic service. Desi	gn elements
of crossroads and	I intersections. Crossroads. Roundabouts. Intersections. Special types of junctions. Capacity of crossroads and intersections. Structu	re of pavement of	roads and
	motorways. Road engineering structures. Assessment of route alternatives.		ı
12VDSR	Public Transport in Cities and Regions	Z	2
Landscape configu	ration and transport. Public transport and city extension. Traffic service in region. Public transport financing. Principles of traffic service	ce designing. Traffi	c service of
	recreation areas. Making transport terminals. Public transport and region expansion.		_
12X31	Project 1	Z	2
12X32	Project 2	Z	2
12X33	Project 3	Z	2
12Y1C1	Designing Roads in Civil 3D I	KZ	2
The course is dev	oted to the traffic buildings design field, specifically the design of roads as such, by the means of a 3D software. Students go through	the complete des	sign of this
particular linear bu	uilding, from the initial situation, over the longitudinal section, to the model and work sections and the cubic capacity calculation. The	course also includ	les a basic
	explanation of the traffic building design in the real-life profession.		
12Y1C2	Designing Roads in Civil 3D II	KZ	2
	oted to the traffic buildings design field, specifically the design of roads as such, by the means of a 3D software. Students go through	· · · · · · · · · · · · · · · · · · ·	-
particular linear bu	illding, from the initial situation, over the longitudinal section, to the model and work sections and the cubic capacity calculation. The	previously acquire	d skills are
	improved and developed. Students learn to design intersections.		_
12Y1DS	Project Documentation in Practice	KZ	2
Project documenta	ation creating. Project documentation types. Support materials for project documentation creating. Building permit obtaining process.	Budget and pricing	g. Practical
40)(4115	creation of some project documentation parts.	147	
12Y1HD	Traffic Noise	KZ	2
	on, basic terms, quantities. Basics of physiological acoustic, noise impacts on human body. Acoustic legislation, standarts, regulations		
area, principles	of urban acoustic, noise transmission, soundproofing. Types of noise sources in area. Determination of acoustic situation in the area computing and measurement of transport noise. Acoustic studies, measuring protocol.	of interest. Method	dology of
40)/41/01		KZ	
12Y1KN	Combined Transportation ort strategy and legislation. Load units. Means of transport in combined transport. Combined transport systems. Transshipping areas.	· · · · · ·	2
12Y1PC		KZ	
_	Pedestrian and Cycling Transport ans. Pedestrian crossings. Modifications for blind, dim-sighted and disabled people. Design of cycle routes network. Ways of cycle route		2
	ation of cyclists from other transport modes. Cycle tracks and its design - one way streets, reserved traffic lanes, bus stops, crossings		-
lor cyclicio. Copare	crossroads. Traffic signs and road marking for cyclists.	o mar outor transp	ort modoo,
12Y1PD	Assessment of Transport Structures	KZ	2
	·		1
l Assessment of trans	sport structures, the EIA process. Multicriteria assessment methods, risk analysis. SWOT analysis, Landscape character, possibilities of	fits protection and	assessment
	sport structures, the EIA process. Multicriteria assessment methods, risk analysis, SWOT analysis. Landscape character, possibilities of on the landscape. Rating fragmentation and landscape connectivity in the preparation of linear structures. Practical examples of ass	•	
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model. History, trends, and practise exercise.

14KSP	Constructing with Computer Aid	KZ	2
"CAD systems" ter	m determination. CAD role in projecting system model. Existing CAD systems on Czech market. Project creation, basic common wor	k rules in graphic a	pplications
and CA systems.	Co-ordinated systems, CAD environment skill (basics of constructing, dimensioning, modifications, user interfaces, projecting possib	ilites, AutoCAD en	vironment
	profiles, drawings with raster foundaments).		
14PPD	Computer Aid of Transportation Projecting	KZ	2
Overview of CAx ap	plication for transportation projecting aid. AutoCAD environment possibilities of basic tasks automatizing (programming, scripting, dat	a exchange). Advai	nced blocks
modification (attribu	utes, relation to databases). Work in projecting group, external references. Basic tasks for cummunication projecting (clotoidic transition	n curve, cross and	longitudinal
	section). Basics of 3D modelling.		
14SIAP	Networks and Protocols	KZ	2
Basic communica	tion model, history and development of the Internet, principle of data transfer through computer networks (TCP/IP), performance of b	asic network proto	cols (ARP,
RARP, TCP, UDP, T	elnet, FTP, DNS, DHCP POP3, IMAP), data acquirement from the Internet sources, communicating ability via the Internet and fundame	entals of own web p	resentation
	design by the means of web sites.		
14UATT	Introduction to Automatization and Telecommunication Systems	KZ	2
Basic axioms of t	echnical cybernetics, automatization in transportation, human as the weakest element, signalling in transpotation, modelling and proj	ecting of transport	systems,
integrated technological	gical and infromation system in post, principle of telecommunication signal transmission, solving of telecommunication networks, mo	dulating methods,	multimedial
	networks and services, NGN networks.		
14UPRO	Introduction to Programming	KZ	2
Algorithm develor	oment, methods of structured programming, high-level programming languages, basics of C programming languages (types, variable	s, conditions, cycle	s, arrays,
	functions), programming techniques, complexity.		
14X31	Project 1	Z	2
14X32	Project 2	Z	2
14X33	Project 3	Z	2
14Y1AP	Automatization in Mail	KZ	2
Technology of p	ost shipment submission, transport, and delivery via physic and electronic way, virtual post operation. Technology of information trans		nic way,
application of new i	nformation and communication technologies in an offer of permanent, mobile, and NGN e-communication networks, solutions to e-com	munication network	cinterfaces,
	technological principles of end telecommunication devices.		
14Y1AV	Animation and Visualization	KZ	2
Advanced modifica	tions and modeling of NURBS, Patch objects, selection of objects (according to filter and properties). 3D Studio MAX systems and Spa	ice Warp objects. A	tmospheric
and other effect	s, rendering filters, Motion blur, advanced animations, Motion panel. Modeling for morphing and animation, bone formation, animatior	using Inverse Kin	ematics.
14Y1BE	Barrierless Transport	KZ	2
The issue of barrier	less accessible public transportation in terms of architectural barriers and also for transportation-technological point of view. Students	will gain theoretical	knowledge
of barrierless enviro	onment 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.		
14Y1BM	Biometric Methods	KZ	2
	rms, authentication methods, principles and performance measurement of biometric systems, overview of biometric technologies, ha		-
retina recognition n	nethod, 2D and 3D face recognition, vein patterns on the wrist, ear biometrics, fingerprint recognition, skin spectroscopy, behavioral r	nethods, the use of	f biometrics
	in transport applications, safety and risks of biometric technologies.		
14Y1GD	GIS and Maps Digitalization	KZ	2
Work with map sou	rces and their creating. Maps digitalization and creation. Use and creation of other (non-graphic) information with use of databases. In	nterlinking external	references
4.43/41.04/	with drawings containing maps.	1/7	
14Y1HW	Computer Hardware	KZ	2
Computer archite	ecture, basics of logical circuits design and their realization using FPGA. In detail, description of computer architecture and separate parithmetic and logical units, I/O subsystem.	parts designing - co	ontrollers,
1.4V4MD		KZ	
14Y1MP	Modeling Complex Assemblies and Models in Parametric Modeller gramming - tools and methodology of working subassemblies and assemblies, sheet metal parts modelling, welded assemblies, pipel		2 on lines
Assemblies proj	Photorealistic output rendering - physical and material properties, lighting sources. MKP - visual example.	ines, and distributi	on inics.
14Y1NP	Non-parametric 3D Modelling	KZ	2
	arametricmodeller (AutoCAD) environment, scenes rendering, creation of planar and volumetric objects, user setup creation, object		
Work in ob horr p	connected with external database. Basic definition of work with lights, materials and reflexes. Models presentation.	zata oroation, work	will data
14Y1OL	Linux Operating System	KZ	2
	Linux system installation. X-window system. Rights - Users and Groups, ACL rights. Filesystems and file attributes. Programs and pro		
	mands. Configuration files. Managing SW system. Programs in graphic mode - tools for text, graphics, sound, video, communication. Sei		
	of OS secure configuration. Remote administration.	ŭ	
14Y1OP	Operating System	KZ	2
	tallation GNU/Linux OS. X-window system. Rights management - users and groups, ACL rights. Filesystems and attributes. Programs	s and processess.	OS boot,
runlevels. Basic o	console programs / commands. Config files. SW management, package systems. Programs in graphic shell - text, spreadsheet, graph	ic editors, sound, v	/ideo and
	communication. Services management. Safe and secure configuration of OS. Remote administration.		
14Y1P2	Computer Aid of Transportation Projecting 2	KZ	2
Overview of CAx ap	pplication for transportation projecting aid. AutoCAD environment possibilities of basic tasks automatizing (programming, scripting, data	a exchange). Advar	nced blocks
modification (attribu	utes, relation to databases). Work in projecting group, external references. Basic tasks for cummunication projecting (clotoidic transition	n curve, cross-and	longitudinal
	section). Basics of 3D modelling.		
14Y1PA	3D Modeling in AutoCAD	KZ	2
vvork in 3D non-p	arametric modeller (AutoCAD) environment, scenes rendering, creation of planar and volumetric objects, user setup creation, object	data creation, work	with data
10450	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 and possible of their editing and mutual conversion.		n the user
441451	level scope) using layers, DPI, colors. Basics of digital photography, scanning and computer technology like monitors and graphic:		
14Y1PI	Corporate Information System	KZ	2
	n-knowledge, components of information system, syntatic and semantic sense of data, structure of corporate information system, pa uction, storage, etc.), corporate information politic and information control, risks of information system operation, legal environment of		
(personalistic, prod	state information system, information system security, data protection, safety politics.	miormation system	i operation,

4.0/45.1			
14Y1PJ	C Programming Language	KZ	2 and unions
	Implementations of abstract data types (FIFO, LIFO, list), programming techniques (sorting, searching, recursion), using bitwise op	rerators.	
14Y1TI	Creating Interactive Internet Applications	KZ	2
Possibilities of scri	ipting language PHP. Overview of PHP language syntax, and functions. Analysis of finished scripts and demonstration of solutions. Your	own application p	orogrammed
14Y1VM	in PHP language. Development of Applications for Mobile Devices	KZ	2
	programming, Java programming language, development environment, operating system Android, development application - widgets,		1
object enemed	permissions, services, GUI.		ao,oa,
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 accessibility	and usability, CS	S properties
and selectors	s, the issue of web browsers, creating one to three column layout pages, sites validation, conditional comments. Topics will be practiced	d on practical exa	mples.
14Y1W2	Webdesign 2	KZ	2
Students will learn	advanced techniques CSS, responsive webdesign, CSS frontends, content management systems, JavaScript, jQuery, SEO, web serv	er installation + o	configuration
4 43 44 73 4	directives. Topics will be practiced on practical examples.		
14Y1ZM	Fundamentals of parametric and adaptive modeling	KZ	2
basics of work at p	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.	J sketches. Impor	t and export
14ZAET	Fundamentals of Electrotechnics	KZ	2
	nic terms, circuit quantities. Periodic courses characteristics. Electric circuits elements and basic circuit members. Assignating of bipole		_
	urrent 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.	Ü	
14ZINF	Fundamentals of Informatics	KZ	2
Introduction to fa	iculty network, MS-Word and Open Office, use of styles and advanced features, computer functions and information transmission. Num	nber systems incl.	arithmetic
calculations. Algor	ithms and their proprieties. Flow charts for algorithms drawing. Mathematic and logic ordering algorithms incl. functions and procedures	. Work with MS-Ex	xcel - tables,
	graphs, calculations, functions.		
15JZ1A	Foreign Language - English 1	Z	3
Grammatical Struc	tures and Style. Selection of conversation topics relating to transportation sciences. Extending vocabulary, developing perceptive and constylistics forms. Oral and written presentation of original research. Academic text principles and reading comprehension. Principles o		. Elementary
15JZ1F	Foreign Language - French 1	Z	3
	ture and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty	_	_
	perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral a	=	
	texts and their features; practice of oral and written presentation.		
15JZ1N	Foreign Language - German 1	Z	3
Grammar struc	ture 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
improvement in	perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral a	and written forms.	Technical
	texts and their features; practice of oral and written presentation.		
15JZ1R	Foreign Language - Russian 1	Z	3
	ture and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral a		
improvement in	texts and their features; practice of oral and written presentation.	and wither forms.	. Iecillicai
15JZ1S	Foreign Language - Spanish 1	7	3
	ture and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty	's fields of study.	1
	perceptive 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.		
15JZ2A	Foreign Language - English 2	Z,ZK	3
Grammatical struc	tures 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 o		T
15JZ2F	Foreign Language - French 2	Z,ZK	3
	ture and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty	-	
improvement in	perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral attention texts and their features; practice of oral and written presentation.	and written forms.	. recrinicai
15JZ2N	Foreign Language - German 2	Z,ZK	3
	ture and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty		_
	perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral a	=	
<u> </u>	texts and their features; practice of oral and written presentation.		
15JZ2R	Foreign Language - Russian 2	Z,ZK	3
	ture and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty		Focus on
improvement in	perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral a	and written forms.	Technical
4	texts and their features; practice of oral and written presentation.		_
15JZ2S	Foreign Language - Spanish 2	Z,ZK	3
	ture and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty	-	
improvement in	perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral a texts and their features; practice of oral and written presentation.	and wither forms.	. recrimical
15JZ3A	Foreign Language - English 3	Z	3
	re and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty's		_
	erceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral an		
	and their features; terminology.		

15JZ3F	Foreign Language - French 3	Z	3
Grammar and styli	istics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of k		
-	d communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work v		_
	features. Practice of oral and written presentation.		
15JZ3N	Foreign Language - German 3	Z	3
Grammar and styli	stics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of la	anguage structure	knowled
and perceptive and	d communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work v	with (professional)	text and
	features. Practice of oral and written presentation.		
15JZ3R	Foreign Language - Russian 3	Z	3
-	istics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language level and study focus at the Faculty. Improvement of language level and study focus at the Faculty. Improvement of language level and study focus at the Faculty. Improvement of language level and study focus at the Faculty. Improvement of language level and study focus at the Faculty.		-
ind perceptive and	d communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work v features. Practice of oral and written presentation.	with (professional)	text and i
15JZ3S	Foreign Language - Spanish 3	Z	3
	istics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of k		_
	d communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work v		
	features. Practice of oral and written presentation.	,	
15JZ4A	Foreign Language - English 4	Z,ZK	3
rammar structure	and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty's	fields of study - pi	ot. Focus
nprovement in per	ceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral ar and their features; terminology.	nd written form. Te	chnical te
15JZ4F	Foreign Language - French 4	Z,ZK	3
-	stics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of la		_
nd perceptive and	d communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work v features. Practice of oral and written presentation.	with (professional)	text and
15JZ4N	Foreign Language - German 4	Z,ZK	3
-	stics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of la		
nd perceptive and	d communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work v	with (professional)	text and
	features. Practice of oral and written presentation.		T -
15JZ4R	Foreign Language - Russian 4	Z,ZK	3
-	istics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of lad communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work was a communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work was a communicative skills, vocabulary development.		
ind perceptive and	features. Practice of oral and written presentation.	with (professional)	text and
15JZ4S	Foreign Language - Spanish 4	Z,ZK	3
	istics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of k		_
	d communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work v		
	features. Practice of oral and written presentation.	. ,	
15X31	Project 1		_
	1 10/600 1	Z	2
15X32	,	Z 	2
	Project 2	Z	2
15X33	Project 2 Project 3	Z Z	
15X33 15Y1BO	Project 2	Z Z KZ	2 2 2
15X33 15Y1BO	Project 2 Project 3 Work Safety and Health Protection in Transportation	Z Z KZ	2 2 2
15X33 15Y1BO	Project 2 Project 3 Work Safety and Health Protection in Transportation lative, definition of terms, risks and possible health damage, working conditions and health protection with focus on transportation. H	Z Z KZ	2 2 2
15X33 15Y1BO Fundamental legis	Project 2 Project 3 Work Safety and Health Protection in Transportation lative, definition of terms, risks and possible health damage, working conditions and health protection with focus on transportation. Health insurance of home and foreign business trips, statistics, working practice.	Z Z KZ ealth protection p	2 2 2 rogramme
15X33 15Y1BO Fundamental legis 15Y1DU History of art - d	Project 2 Project 3 Work Safety and Health Protection in Transportation lative, definition of terms, risks and possible health damage, working conditions and health protection with focus on transportation. Health insurance of home and foreign business trips, statistics, working practice. History of Art and Society	Z Z KZ ealth protection p KZ Stations, bridges,	2 2 2 rogramme 2 industrial
15X33 15Y1BO Fundamental legis 15Y1DU History of art - d	Project 2 Project 3 Work Safety and Health Protection in Transportation lative, definition of terms, risks and possible health damage, working conditions and health protection with focus on transportation. Health insurance of home and foreign business trips, statistics, working practice. History of Art and Society lefinitions, terminology, division into periods. Architecture, fine arts, design. Situation in Central Europe, today in the Czech Republic. buildings. Design of transport vehicles. History of Railway	Z Z KZ ealth protection p KZ Stations, bridges,	2 2 2 rogramme 2 industrial 2
15X33 15Y1BO Fundamental legis 15Y1DU History of art - d 15Y1DZ Horse-drawn raily	Project 2 Project 3 Work Safety and Health Protection in Transportation lative, definition of terms, risks and possible health damage, working conditions and health protection with focus on transportation. Health insurance of home and foreign business trips, statistics, working practice. History of Art and Society efinitions, terminology, division into periods. Architecture, fine arts, design. Situation in Central Europe, today in the Czech Republic. buildings. Design of transport vehicles. History of Railway vays, steam railways, railway network development in the 2nd half of 19th century, regional railways epoch, railways of the "First Repu	Z Z KZ ealth protection p KZ Stations, bridges, KZ ublic", electric trace	2 2 2 rogramme 2 industrial 2 stion, Worl
15X33 15Y1BO fundamental legis 15Y1DU History of art - d 15Y1DZ Horse-drawn raily	Project 2 Project 3 Work Safety and Health Protection in Transportation lative, definition of terms, risks and possible health damage, working conditions and health protection with focus on transportation. Health insurance of home and foreign business trips, statistics, working practice. History of Art and Society efinitions, terminology, division into periods. Architecture, fine arts, design. Situation in Central Europe, today in the Czech Republic. buildings. Design of transport vehicles. History of Railway vays, steam railways, railway network development in the 2nd half of 19th century, regional railways epoch, railways of the "First Repulyay development in the 2nd half of 20th century, high-speed railway origins, railway lines closing, important long-distance train connections."	Z Z KZ ealth protection p KZ Stations, bridges, KZ ublic", electric trace	2 2 2 rogramme 2 industrial 2 stion, Worl
15X33 15Y1BO fundamental legis 15Y1DU History of art - d 15Y1DZ Horse-drawn railv ar II railways, railv	Project 2 Project 3 Work Safety and Health Protection in Transportation lative, definition of terms, risks and possible health damage, working conditions and health protection with focus on transportation. Health insurance of home and foreign business trips, statistics, working practice. History of Art and Society efinitions, terminology, division into periods. Architecture, fine arts, design. Situation in Central Europe, today in the Czech Republic. buildings. Design of transport vehicles. History of Railway vays, steam railways, railway network development in the 2nd half of 19th century, regional railways epoch, railways of the "First Repuivay development in the 2nd half of 20th century, high-speed railway origins, railway lines closing, important long-distance train connection railway accidents, railway junctions. Excursions and projections.	Z Z KZ ealth protection p KZ Stations, bridges, KZ ublic", electric traceons, railway lines of	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
15X33 15Y1BO fundamental legis 15Y1DU History of art - d 15Y1DZ Horse-drawn railv far II railways, railv	Project 2 Project 3 Work Safety and Health Protection in Transportation lative, definition of terms, risks and possible health damage, working conditions and health protection with focus on transportation. Health insurance of home and foreign business trips, statistics, working practice. History of Art and Society efinitions, terminology, division into periods. Architecture, fine arts, design. Situation in Central Europe, today in the Czech Republic. buildings. Design of transport vehicles. History of Railway vays, steam railways, railway network development in the 2nd half of 19th century, regional railways epoch, railways of the "First Repuly development in the 2nd half of 20th century, high-speed railway origins, railway lines closing, important long-distance train connection railway accidents, railway junctions. Excursions and projections. European Integration within Historical Context	Z Z KZ ealth protection p KZ Stations, bridges, KZ ublic", electric traceons, railway lines o	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
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15X33 15Y1BO fundamental legis 15Y1DU History of art - d 15Y1DZ Horse-drawn railv far II railways, railv 15Y1EH fersailles system,	Project 2 Project 3 Work Safety and Health Protection in Transportation lative, definition of terms, risks and possible health damage, working conditions and health protection with focus on transportation. Health insurance of home and foreign business trips, statistics, working practice. History of Art and Society efinitions, terminology, division into periods. Architecture, fine arts, design. Situation in Central Europe, today in the Czech Republic. buildings. Design of transport vehicles. History of Railway vays, steam railways, railway network development in the 2nd half of 19th century, regional railways epoch, railways of the "First Repuly development in the 2nd half of 20th century, high-speed railway origins, railway lines closing, important long-distance train connection railway accidents, railway junctions. Excursions and projections. European Integration within Historical Context formation of new states. Europe and the powers, League of Nations. European policy in the 1920s. Fascism, nacism, communism. Lier Hitler's getting to power, system of bilateral agreements. Decline of the LN. Rearrangement of powers during WWII. Cold war and in	Z Z KZ ealth protection p KZ Stations, bridges, KZ ublic", electric traceons, railway lines o KZ ttle Entente, its pr	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
15X33 15Y1BO Fundamental legis 15Y1DU History of art - d 15Y1DZ Horse-drawn railv /ar II railways, railv /ersailles system, goals. Europe afte	Project 2 Project 3 Work Safety and Health Protection in Transportation lative, definition of terms, risks and possible health damage, working conditions and health protection with focus on transportation. Health insurance of home and foreign business trips, statistics, working practice. History of Art and Society efinitions, terminology, division into periods. Architecture, fine arts, design. Situation in Central Europe, today in the Czech Republic. buildings. Design of transport vehicles. History of Railway vays, steam railways, railway network development in the 2nd half of 19th century, regional railways epoch, railways of the "First Repuly development in the 2nd half of 20th century, high-speed railway origins, railway lines closing, important long-distance train connection railway accidents, railway junctions. Excursions and projections. European Integration within Historical Context formation of new states. Europe and the powers, League of Nations. European policy in the 1920s. Fascism, nacism, communism. Lier Hitler's getting to power, system of bilateral agreements. Decline of the LN. Rearrangement of powers during WWII. Cold war and it New quality of French-German relationship - a driving power of starting European integration.	Z Z KZ ealth protection p KZ Stations, bridges, KZ ublic", electric traceons, railway lines of KZ ttle Entente, its protections of the consequences of the consequence	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
15X33 15Y1BO fundamental legis 15Y1DU History of art - d 15Y1DZ Horse-drawn railv far II railways, railv 15Y1EH fersailles system, goals. Europe after	Project 2 Project 3 Work Safety and Health Protection in Transportation lative, definition of terms, risks and possible health damage, working conditions and health protection with focus on transportation. Health insurance of home and foreign business trips, statistics, working practice. History of Art and Society efinitions, terminology, division into periods. Architecture, fine arts, design. Situation in Central Europe, today in the Czech Republic. buildings. Design of transport vehicles. History of Railway vays, steam railways, railway network development in the 2nd half of 19th century, regional railways epoch, railways of the "First Repulyange of the 2nd half of 20th century, high-speed railway origins, railway lines closing, important long-distance train connection railway accidents, railway junctions. Excursions and projections. European Integration within Historical Context formation of new states. Europe and the powers, League of Nations. European policy in the 1920s. Fascism, nacism, communism. Lier Hitler's getting to power, system of bilateral agreements. Decline of the LN. Rearrangement of powers during WWII. Cold war and in New quality of French-German relationship - a driving power of starting European integration. French Area Studies and Transportation	Z Z KZ ealth protection p KZ Stations, bridges, KZ ublic", electric traceons, railway lines of KZ ttle Entente, its prosecute consequences of KZ KZ	2 2 2 2 2 2 2 2 2 2 2 2 3 2 3 2 3 2 3 2
15X33 15Y1BO fundamental legis 15Y1DU History of art - d 15Y1DZ Horse-drawn railv far II railways, railv 15Y1EH ersailles system, goals. Europe after 15Y1FD France - geograf	Project 2 Project 3 Work Safety and Health Protection in Transportation lative, definition of terms, risks and possible health damage, working conditions and health protection with focus on transportation. Health insurance of home and foreign business trips, statistics, working practice. History of Art and Society efinitions, terminology, division into periods. Architecture, fine arts, design. Situation in Central Europe, today in the Czech Republic. buildings. Design of transport vehicles. History of Railway vays, steam railways, railway network development in the 2nd half of 19th century, regional railways epoch, railways of the "First Repuly development in the 2nd half of 20th century, high-speed railway origins, railway lines closing, important long-distance train connection railway accidents, railway junctions. Excursions and projections. European Integration within Historical Context formation of new states. Europe and the powers, League of Nations. European policy in the 1920s. Fascism, nacism, communism. Lier Hitler's getting to power, system of bilateral agreements. Decline of the LN. Rearrangement of powers during WWII. Cold war and it New quality of French-German relationship - a driving power of starting European integration.	Z Z KZ ealth protection p KZ Stations, bridges, KZ ublic", electric traceons, railway lines of KZ ttle Entente, its pr ts consequences of KZ KZ	2 2 2 2 2 2 2 2 2 2 2 2 3 2 3 2 3 2 3 2
15X33 15Y1BO fundamental legis 15Y1DU History of art - d 15Y1DZ Horse-drawn railv far II railways, railv 15Y1EH fersailles system, goals. Europe after 15Y1FD France - geograp	Project 2 Project 3 Work Safety and Health Protection in Transportation lative, definition of terms, risks and possible health damage, working conditions and health protection with focus on transportation. Health insurance of home and foreign business trips, statistics, working practice. History of Art and Society lefinitions, terminology, division into periods. Architecture, fine arts, design. Situation in Central Europe, today in the Czech Republic. buildings. Design of transport vehicles. History of Railway lays, steam railways, railway network development in the 2nd half of 19th century, regional railways epoch, railways of the "First Republic very development in the 2nd half of 20th century, high-speed railway origins, railway lines closing, important long-distance train connection railway accidents, railway junctions. Excursions and projections. European Integration within Historical Context formation of new states. Europe and the powers, League of Nations. European policy in the 1920s. Fascism, nacism, communism. Lieter Hitler's getting to power, system of bilateral agreements. Decline of the LN. Rearrangement of powers during WWII. Cold war and in New quality of French-German relationship - a driving power of starting European integration. French Area Studies and Transportation Only and regions, transport infrastructure. Paris and its sights, city public transport. Road traffic, motorways, railway traffic, TGV, air traffich society and culture. Current political system. System of education, studying in France. Selected authors of French literature. French	Z Z KZ ealth protection p KZ Stations, bridges, KZ ublic", electric traceons, railway lines of KZ ttle Entente, its pr ts consequences of KZ KZ	2 2 2 2 2 2 2 2 2 2 2 2 3 2 3 2 3 2 3 2
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15X33 15Y1BO undamental legis 15Y1DU History of art - d 15Y1DZ Horse-drawn railv ar II railways, railv 15Y1EH ersailles system, goals. Europe after 15Y1FD France - geograp Frei 15Y1HD istory of city mass	Project 2 Project 3 Work Safety and Health Protection in Transportation lative, definition of terms, risks and possible health damage, working conditions and health protection with focus on transportation. Health insurance of home and foreign business trips, statistics, working practice. History of Art and Society efinitions, terminology, division into periods. Architecture, fine arts, design. Situation in Central Europe, today in the Czech Republic. buildings. Design of transport vehicles. History of Railway vays, steam railways, railway network development in the 2nd half of 19th century, regional railways epoch, railways of the "First Repulvay development in the 2nd half of 20th century, high-speed railway origins, railway lines closing, important long-distance train connection railway accidents, railway junctions. Excursions and projections. European Integration within Historical Context formation of new states. Europe and the powers, League of Nations. European policy in the 1920s. Fascism, nacism, communism. Liester Hitler's getting to power, system of bilateral agreements. Decline of the LN. Rearrangement of powers during WWII. Cold war and in New quality of French-German relationship - a driving power of starting European integration. French Area Studies and Transportation only and regions, transport infrastructure. Paris and its sights, city public transport. Road traffic, motorways, railway traffic, TGV, air transport of City Mass Transport	Z Z KZ ealth protection p KZ Stations, bridges, KZ ublic", electric traceons, railway lines of KZ ttle Entente, its pr ts consequences of KZ ffic, specialised te ch gastronomy. KZ and developments	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
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16DOPY	Vehicle Technology	KZ	3
	sportation technology. Vehicle in the terms of legislation. Construction, operation, environmental influence. Vehicles and ecology. Tra	1	
Combustion and e	lectrical engines. Power train construction. Power transmisssion. Conducting properties of railroad vehicles. Resistance to disrailing. water transport. Transportation technology in aviation.	. Transportation te	chnology in
16DYJ	Vehicle Dynamics	Z,ZK	3
pplication of mech	anics. Wheel and axle suspension mechanism. Wheel to road positioning characteristics. Wheel - road contact. Skid and its character		al dynamics
cceleration and de	celeration. Vertical dynamics, spring suspension, driving characteristics. Directional dynamics, gyroscopical characteristics. Driving st forces. Driving and feedback. ABS, ESP.	ability conditions.	Aerodynami
16PBV	Passive Vehicle Safety	Z,ZK	3
egislation and test	ing processes. Barrier tests. Car body properties. Injury mechanism. Critical limits for evaluation of injury seriousness. Retaining sys	tems. Airbags. Ris	k of collisio
40110014	of various vehicle types. Safety of traffic participants. Mathematic modeling. E-call.	714	
16UDDM eans of transporta	Introduction to Transportation and Manipulation Technics tion and transportation systems. Principles, functions and arrangement of means of transportation. Motors and their characteristics. Wa	ZK ater transportation.	2 Manipulatir
	technics. Principles of lifting machines and conveyors. Legislature.		
16X31	Project 1	Z	2
16X32	Project 2	Z	2
16X33	Project 3	Z	2
16Y1EN	Energy Requirements of Vehicles	KZ	2
Dynamics and the	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 ana	-	ine, electric
16Y1IS	Interactive simulators and simulations	KZ	2
Simulation theor	y and application of computing equipment. Creating computing models. Mechanical and dynamic systems and their mathematical mation of vehicle dynamics, on-land carriage in particular. Virtual reality systems. Practical exercise with simulation software and interactions.	nodels. Computing	
16Y1KS	Quality and Reliability of Vehicles	KZ	2
	lity theory in design, development, production and operation of vehicles. Definition and possible approach to quality and reliability. K	I	1
-	Analysis), QFD (Quality Function Deployment), DFx (Design for Assamly, Manufacturying, Quality, Services) and other methods u		
16Y1PV	Knowledge-based systems of quality and reliability, data collection.	KZ	2
	Operation, Construction and Maintenance of Vehicles production. Vehicle maintenance. Vehicle diagnostics. Maintenence and repair plans. Engine maintenance and emission measurem	1	1
lethous of verticle	General principles of engine diagnostics.	ent. nansmission	medianisn
16Y1RE	Control and Electronic Vehicle Systems	KZ	2
	s of regulation. Tools for analytical solution, linear system description. Basic types of a regulator (PID), properties, advantages, disadva	1	1
	control. Electric drive. Vehicle communication bus (CAN, LIN, FlexRay, ISObus, KWP2000 protocole etc.). Vehicle electronic control, comfort systems.	-	
16Y1TJ	Technological Quality Aspects	KZ	2
	editation. Quality management. Standards of Quality Management and its application. Quality system creation. Tools and methods of q verification. Environmental certification. Workplace certification. QMS integration. Classification, certification of products and pro	ı luality improvemer	1
16Y1VT	Development in Railroad Vehicles	KZ	2
	traction. Railroad vehicle parametres regulation. Control and driving of railroad vehicles. Importance in heavy duty and personal trailroad vehicles.	1	_
ramoda vornoico	assesment. New materials in design. International standardization.	noportation: Ortio	ar ortudulori
16Y1ZG	Introduction into Applied Computer Graphics	KZ	2
	, division and applications with emphasis on transport, including development and research. Colours, colour perception, colour sche	I	ciples of 20
and 3D generation	n, elementary algorithms for graphic data workout. Visualisation principles and tasks, technics, graphics and visualisation HW basic graphics software.	s. Introduction to 2	2D and 3D
16Y1ZL	Vehicle Testing, Legislation and Construction	KZ	2
	torbike costruction, aggregate computing, driving resistance, build and parameters of traction, constructional arrangement of personal	I	1
legis	lation in the EU and in the world, technical legislation creation, testing methods, vehicle tests, accelerated tests, mathematical mode	elling in testing.	
17DAS	Transportation and Communication Law	Z	1
1	Transportation and communication law - railway, road transport, ropeway, water road, air transport, telecommunication, post, p		
17C	Economics	Z,ZK	3
17E	or the control of the	more and produce	rs. Market
	nd macroeconomic interpretation of economic relations. Method and subject of the economics. Economic decision making of consu	mers and produce	1 2
Microeconomic a	structures. Labour and capital, efficiency, ownership, public choice.		
Microeconomic a	structures. Labour and capital, efficiency, ownership, public choice. Economy, Transport, Telecommunications	KZ	2 ainahility
Microeconomic a	structures. Labour and capital, efficiency, ownership, public choice. Economy, Transport, Telecommunications ommunications, demand, supply, indicators, economic development, legislation, European union, regulation, liberalisation, transport	KZ modes, ITS, sust	ainability.
17EDOT Transport, telect	structures. Labour and capital, efficiency, ownership, public choice. Economy, Transport, Telecommunications ommunications, demand, supply, indicators, economic development, legislation, European union, regulation, liberalisation, transport Company Economy and Management leighbourhood, structure of assets and liabilities, depreciation, costs, revenues and profit, break-even point, costing, inventory, finan	KZ modes, ITS, sust Z,ZK cial management,	ainability.
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17EDOT Transport, telect 17ERP Company and its r 17GEDS Regional differer eoretical and metr	structures. Labour and capital, efficiency, ownership, public choice. Economy, Transport, Telecommunications ommunications, demand, supply, indicators, economic development, legislation, European union, regulation, liberalisation, transport Company Economy and Management eighbourhood, structure of assets and liabilities, depreciation, costs, revenues and profit, break-even point, costing, inventory, finan appraisal, basics of management, organizational structures, human resources management, marketing, company strategy, busine Geography of Transport Systems entiation of the transport system. Sociogeographic regionalization and its relation to transport. Transport and local and regional development of the transport system. Mobility research - travel behavior, mode choice and the influence onto "modal-split." Modal competition. Practice analysis in transportation planning.	KZ modes, ITS, sust Z,ZK cial management, ess plan. KZ pment. Spatial int al use of transport-	ainability. 3 investment 2 eraction - geographic
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17Y1AF	Alternative Forms of Transportation Project Financing	KZ	2
	cifed such forms of financing in transportation, where the public sector body perform the final debtor, i. e. debtor payments come from	-	
is not a direct parti	cipant of the transaction and it is not the counterparty of the financial institute which provides the funding. Issue of securities as an alter	rnative source of tra	ansportation
17Y1EV	project. Public Sector Economy	KZ	2
	Public Sector Economy ancial theory of public sector, public choice theory, externalites, decisions about public finance allocation, economic assesment of pub		_
	CR, state budget, management of public projects a their economic efficiency assessment, way of elaboration of PPP projects, funding fr		
17Y1LL	Logistics of Passenger and Freight Air Transport	KZ	2
	assenger and cargo. Aircraft and airport terminals for passenger and cargo transport. Airlines in terms of logistics systems. Aerial tran	1	
-	air cargo. Information systems in air transport. Global distribution systems.		
17Y1ND	Maritime Transportation	KZ	2
	tance of the maritime transportation, theoretical discipline in maritime transportation, seafaring vessels, maritime ports and their utilization.	_	
maritime ports, tra	nsport corridors and link by maritime, river and rail transport I and II, global maritime corridors, logistics of maritime transportation, man	ritime transportation	n and smart
17/105	containers, ITS in maritime transport.	V7	2
17Y10F	Personal Finance (budget, financing of basic living needs), debt (loans and credits, payment instruments, interest and fees, debt trap), financing of house	KZ	2 a savings
	efinancing), savings and investments (investment horizon, return, risk, investment strategy), insurance (insurance types, suitability and		
,	(retirement savings and insurance).	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	J · · · · · ·
17Y1PM	Personnel Management	KZ	2
Human sou	rces, work group, man as personality, planning, choice, evaluation and education of human sources, work adaptation, teamwork, inter	rcultural communic	ation.
17Y1ST	Titan Simulation	KZ	2
	gement game simulating the business decisions. Lets 2-8 student groups to produce and compete in the market with the same produ	-	
determine the qua	intity and capacity of production, plan budgets for marketing, research and development. They become familiar with the consequence	s of their decisions	by the form
401/14 D	of financial corporate reports and they use this information for other business decisions.	7.71	-
18KIAD	Kinematics and Dynamics e, motion along a curve. Kinematics of rigid plane, kinematics of rigid body. Point mass kinematics, system of point masses. Point mass	Z,ZK	2 tom of point
_	e, motion along a curve. Ninematics of rigid plane, kinematics of rigid body. Point mass kinematics, system of point masses. Point mass on of motion. Method of Newton. Princle of D´Alembert. Free and forced vibration with one degree of freedom. Viscous damping. Impa		•
masses, equalic	solution of vibration with multiple degrees of freedom.	iot tricory. mitroduct	ion to the
18MRI1	Materials 1	Z,ZK	3
	Basics of thermodynamics of metals and their alloys. Balanced binary diagrams. Alloys of iron with carbon. Deterioration of solid soli		_
	steel and cast irons. Physical features. Mechanical features. Dephectostopic testing. Corosion.		
18MRI2	Materials 2	KZ	2
	ntal concepts, notions. The main materials groups. Semiconductors. Polymers. Special types of steel. Properties and application of the		
18PZP			
	Elasticity and Strength	Z,ZK	3
	ression. Bending of beam. Shear stress in bending of beam. Design and analysis of cross section of beam. Design of riveted, bolted a	1 ' 1	_
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18Y1SN	Statically Nondeterminated Structures	KZ	2
Deformations of t	he beam element, virtual work. Strength method. Frame analysis by strength method. Deformation method. Frame analysis by deform	nation method. Sim	ple planar
grid. Beam on el	astic Winkler's foundation. Calculation beam on elastic foundation. Basement of the mathematical elasticity. Calculation of walls. Calc	culation of plates. C	Cylindrical
	shells. Examples of calculations.		
18Y1UK	Introduction of Rail Vehicles	KZ	2
	ics and parameters rail transport systems - railway and urban transport. Basis driving mechanics rail vehicles - equation of motion tra		-
track resistance. 10	tal 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.	nyaromecnanic, ny	aroaynamic
20RM		Z,ZK	3
	Urban Concentration and Motorway Control agement. Overall transport management. Stationary transport. Information panels, variable traffic signs. Transport system control includ	'	_
Oity transport mane	tunnels and their technological equipment, control and safety systems. Emergency situations in transport and their solution		isport. Road
20RU	Control of Traffic Node and Line	Z,ZK	3
	ms, principles and requirements for documentation. Criteria of design light signaling equipment. Hardware and software of transport no		_
	rks, horizontal and vertical markings. Calculation of intersection design and its wider relations. Line management. Proposal for traffic m		
	in transport management.	_	
20SSA	Systems Analysis	Z,ZK	3
Systems identification	ation. Typical tasks of systems analysis: on the interface, routes in system, decomposition and integration, on systems feedback. Capa	acity tasks, proces	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	ems.
20UIS	Introduction to ITS	Z,ZK	3
1 -	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		
	stems. ITS in road, rail and combine transport. Design of ITS, organization, preparation and implementation of the project. Current pr	ojects in the Czech	n Republic.
20X31	Project 1	Z	2
20X32	Project 2	Z	2
20X33	Project 3	Z	2
20Y1AE	Applied Electronics	KZ	2
	semiconductor components, their principles, characteristics and typical connection diagrams. Semiconductor PN junction diodes, trans	-	
amplifiers, basic lo	ogic gates. Functions of basic electronic circuits and methods for their designs (rectifiers, voltage regulator with Zener diode, transisto	or as an amplifier, o	operational
>//	amplifier as an inverting and noninverting amplifier).		_
20Y1EA	Environmental Aspects of Transport bere, weather observation network, weather in transportation, road meteorology. Weather forecasting, data assimilation, probabilistic	KZ	2
	priete, weather observation network, weather in transportation, road meteorology, weather lorecasting, data assimilation, probabilistic In pollutants and their effects, atmospheric chemistry, traffic emissions. Greenhouse gasses, carbon cycle, a role of energy and transp		
20Y1EK	Qualification in Electrical Engineering	KZ	2
	e with measurements in laboratories, electrical equipment, power supply, electrical installation of low voltage, electric shock hazard,	l	_
-	allowed currents, electrical equipment protection against short circuit and overload protection, control and revision, first aid, legislation	-	-
]		. ,	
	in relation to health and safety and electrical engineering.		
20Y1K		KZ	2
20Y1K Fundamentals of in	in relation to health and safety and electrical engineering. Cybernetics formation theory, dynamic systems, the principle of feedback, logical systems. Finite automata as a special case of dynamical systems		
	Cybernetics		
	Cybernetics formation theory, dynamic systems, the principle of feedback, logical systems. Finite automata as a special case of dynamical systems		
Fundamentals of in 20Y1LN	Cybernetics formation theory, dynamic systems, the principle of feedback, logical systems. Finite automata as a special case of dynamical systems and automata. Location and Navigation examples of road networks, localization on the network. Routing algorithms, their properties and implementation. Description and examples	Relations between	languages 2
Fundamentals of in 20Y1LN Description and 6	Cybernetics formation theory, dynamic systems, the principle of feedback, logical systems. Finite automata as a special case of dynamical systems and automata. Location and Navigation examples of road networks, localization on the network. Routing algorithms, their properties and implementation. Description and exa transport connections, routing algorithms, their properties and implementation.	Relations between KZ mples of datasets	n languages 2 for finding
Fundamentals of in 20Y1LN Description and 6	Cybernetics formation theory, dynamic systems, the principle of feedback, logical systems. Finite automata as a special case of dynamical systems and automata. Location and Navigation examples of road networks, localization on the network. Routing algorithms, their properties and implementation. Description and exa transport connections, routing algorithms, their properties and implementation. Neural Networks	Relations between KZ mples of datasets	languages 2 for finding
Fundamentals of in 20Y1LN Description and 6	Cybernetics formation theory, dynamic systems, the principle of feedback, logical systems. Finite automata as a special case of dynamical systems and automata. Location and Navigation examples of road networks, localization on the network. Routing algorithms, their properties and implementation. Description and exa transport connections, routing algorithms, their properties and implementation. Neural Networks e and function of human brain and its main functional blocks and building elements - neurons. Models of neurons, modelling their networks	Relations between KZ mples of datasets	languages 2 for finding
20Y1LN Description and a 20Y1NS The basic structure	Cybernetics formation theory, dynamic systems, the principle of feedback, logical systems. Finite automata as a special case of dynamical systems and automata. Location and Navigation examples of road networks, localization on the network. Routing algorithms, their properties and implementation. Description and exa transport connections, routing algorithms, their properties and implementation. Neural Networks e and function of human brain and its main functional blocks and building elements - neurons. Models of neurons, modelling their networks.	KZ mples of datasets KZ vorks and the basic	for finding 2 for gradigms
20Y1LN Description and 6 20Y1NS The basic structure	Cybernetics formation theory, dynamic systems, the principle of feedback, logical systems. Finite automata as a special case of dynamical systems and automata. Location and Navigation examples of road networks, localization on the network. Routing algorithms, their properties and implementation. Description and exa transport connections, routing algorithms, their properties and implementation. Neural Networks e and function of human brain and its main functional blocks and building elements - neurons. Models of neurons, modelling their networks. Fare Collection and Information Systems	KZ mples of datasets KZ vorks and the basic	for finding 2 for finding 2 c paradigms
20Y1LN Description and e 20Y1NS The basic structure 20Y1OI Fare collection sy	Cybernetics formation theory, dynamic systems, the principle of feedback, logical systems. Finite automata as a special case of dynamical systems and automata. Location and Navigation examples of road networks, localization on the network. Routing algorithms, their properties and implementation. Description and exa transport connections, routing algorithms, their properties and implementation. Neural Networks e and function of human brain and its main functional blocks and building elements - neurons. Models of neurons, modelling their networks of artificial neural networks. Fare Collection and Information Systems externs in public transport and their components (on-board units, validators, turnstiles,). Information systems and their components	KZ mples of datasets KZ vorks and the basic	for finding 2 for finding 2 c paradigms
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21Y1MZ	Managerial Ethics	KZ	2
The basic terminological	ogy of managerial ethics. Basics of etiquette and rules of social contact. Social events. Etiquette of working contacts. The art of present	tation and negotiati	ion. Personal
	image. Diplomatic protocol. Managerial ethics. Business ethics.		
21Y1OL	Security of Air Transport	KZ	2
The development	of civil aviation. Definitions and regulations. History of acts of unlawful interference. Terrorism in aviation. National security program.	Orisis management	t. Protection
	at airports - operational procedures. Modern means of protection and control.		
21Y1RZ	Human Resources Management	KZ	2
•	human resources in the organization and related disciplines file. Substance, importance and challenges of human resources manag		
environment of hun	nan resource management. Human resource planning. Search, recruitment and selection of employees. Motivation, evaluation and re dismissal and redundancies of employees. Education of employees. Planning career management.	muneration of staff.	. Positioning,
21Y1TH	Aircraft Technical Handling	KZ	2
Aircraft towing	, and pushing tractors. GPU. Air conditioning and heating units. Aircraft fuel equipment. De-acing and anti-icing units. Loading and unl	oading units. Equip	ment for
ра	assangers onboarding and offboarding. Operational processes of aircraft technical handling and regulations. Modernization and tech	nical progress.	
21Y1UT	Airports Maintenance	KZ	2
Summer airport ma	aintenance. Summer maintenance equipment. Winter airport maintenance. Winter maintenance equipment. De-icing / anti-icing of air	craft. De-icing / ant	i-icing liquid.
	Operating procedures, limitations, practices.		
21Y1ZA	Basics of Aerobatics	KZ	2
The history, develop	pment and aerobatics in present, aerodynamics and mechanics of flight during marginal flight modes, piloting technique of individual ele	ements, competition	n aerobatics,
	aerobatics programs, preparation for practicing aerobatics and safety training, competitive psychology and concentration on perfe		
21ZLD	Introduction to Air Transport	KZ	2
Air transport as a	component of complex transport system. International status of civil aviation. International organizations in Europe and worldwide. Component of complex transport system.	haracteristics of ai	ir transport.
	Commercial air transport. Technical operations of aeroplanes.		
22MMT	Measurement Methods and Technology in Transportation	KZ	3
Geodetic base in C	R, mapping principles, measurement errors in geodesy, angular and linear measurement, measurement of height, location and ranging	g, photogrammetry	y, high speed
	camera, acceleration measurement in road traffic dynamic processes.		
22PSN	Road Traffic Accidents Prevention	KZ	2
	ises - prevention, collision diagrams, causes of not giving way, initial speed and breaking influence on speed of impact, downhill grad		
collisions with ped	destrians, cyclists and motorcyclists, construction of vehicle breaks, winter conditions, inconvenient road parameters, visibility, anti-sl	ide properties of ro	ad surface,
	solid barriers, assist systems, technical fault of vehicles.		
22UAN	Road Traffic Accidents Analysis Introduction	KZ	2
	ters of road infrastructure, typical vehicle dimensions, distance-time diagram, response time components, backward projection of ac		
post-crash deform	nation, impact influence on passengers, video documentation, problem who was the driver, documentation, marks analysis, limits of	accidental analysis	s, cornering,
001111	critical maneuvring, technical view hindrances, visibility and discriminability, nightfall.		
22UN	Traffic Accidents Introduction	Z	2
framic accident as	a physical process, systematic submission, vehicle x human x infrastructure interaction, accidents statistics, aircraft accidents, accidents, accidents, accidents, accidents, accidents, accidents, accidental prevention.	ienis on railways, a	accidents on
22724		7	
22X31	Project 1	Z	2
22X32	Project 2	Z	2
22X33	Project 3	Z	2
22Y1SZ	Forensic Expertise	KZ	2
	n of forensic engineering, forensic activity, current legislature in the Czech Republic, different disciplines, notion of forensic, forensic	=	
expert role in the	obtaining proofs, forensic methodology. Notion of the evidence, general principles of evidence obtaining, metrology, protocol, eviden	ces collection, site	inspection,
00)/04	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
Courses of risk, ba	asic terms, data collection, data sets, data random uncertainty and data epistemic uncertainty, data processing, hazard, risk, value s	cales, analytical, er	mpirical and
	heuristic methods, hazard determination and risk determination, methods for variants' creation, decision support systems		
23Y1KO	Quantum Physics and Optoelectronics Ground of quantum physics. Application of quantum physics in practice. Optoelectronics. Production of optoelectronics compo	KZ nents.	2
23Y1OK	Protection of Critical Objects and Infrastructures	KZ	2
	ical systems, critical item, risks and their courses, criticality, vulnerability, connectivity, dependability, resilience, failure, protection, safe infrastructures.	1	1
23Y1VS	Negotiation and Cooperation	KZ	2
	INEGOLIATION AND COOPERATION or negotiation. The influence of personality traits on the negotiations. Negotiation and commanding. Teamwork. Variants teams. Inforn	1	1
	iation, the essence of negotiation, the differences in negotiation in business and in crisis situations, the principle of "win both", specification, the essence of negotiation, the differences in negotiation in business and in crisis situations, the principle of "win both", specification, the essence of negotiation is negotiated in the critical state of the critical state		
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Physical Education