Study plan

Name of study plan: PRE oboru DOS roz azení od 14-15 (skok z 1. r.)

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: 156

The role of the block: Z

Code of the group: 1S PRE 14-15 P

structures. Labour and capital, efficiency, ownership, public choice.

Name of the group: 1. sem. PRE 14-15 povinné p edm ty (spol. ást studia) Requirement credits in the group: In this group you have to gain 30 credits

Requirement courses in the group: In this group you have to complete 12 courses

Credits in the group: 30 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
611LA	Linear Algebra Romana Zibnerová Romana Zibnerová Martina Be vá ová (Gar.)	Z,ZK	3	2P+1C+10B	Z	Z
611MTA	Mathematical Analysis	Z,ZK	4	2+2	Z	Z
612ZADI	Introduction to Transportation Engineering	Z,ZK	3	2+1	Z	Z
617E	Economics	Z,ZK	3	2+1	Z	Z
618MRI1	Materials 1	Z,ZK	3	2+1	Z	Z
611GIE	Geometry Vít Malinovský Šárka Vorá ová (Gar.)	KZ	3	2P+2C+12B	Z	Z
614KSP	Constructing with Computer Aid Libor Žídek	KZ	2	0P+2C+8B	Z	Z
614ZINF	Fundamentals of Informatics	KZ	2	0+2	Z	Z
618TTED	Creation of Technical Documentation	KZ	2	2+1	Z	Z
621ZLD	Introduction to Air Transport	KZ	2	2+1	Z	Z
622UN	Traffic Accidents Introduction	Z	2	2+0	Z	Z
TV-1	Physical Education	Z	1		Z	Z

Characteristics of the courses of this group of Study Plan: Code=1S PRE 14-15 P Name=1. sem. PRE 14-15 povinné p edm ty (spol. ást studia)

611LA	Linear Algebra	Z,ZK	3					
Vector spaces (linear combinations, linear independence, dimension, basis, coordinates). Matrices and operations. Systems of linear equations and their solvability. Determinants and								
their applications. Scalar product. Similarity of matrices (eigenvalues and eigenvectors). Quadratic forms and their classification.								
611MTA	Mathematical Analysis	Z,ZK	4					
Sequences and series of	f real numbers and its convergence. Basic properties of functions. Differential and integral calculus of the real function of one i	real variable. Power	er series, Fourier					
series and foundations	of Fourier transform.							
612ZADI	Introduction to Transportation Engineering	Z,ZK	3					
Traffic survey. Terrestrial	Traffic survey. Terrestrial roads. Residential zone. Land - use planning. Railway transport. Public mass transport. Integrated traffic systems. Traffic prognosis. Traffic safety. Air transport.							
Traffic and environment.	Traffic and environment.							
617E	Economics	Z,ZK	3					
Microeconomic and macroeconomic interpretation of economic relations. Method and subject of the economics. Economic decision making of consumers and producers. Market								

618MRI1	Materials 1	Z,ZK	3
Crystal structure. Ba	sics of thermodynamics of metals and their alloys. Balanced binary diagrams. Alloys of iron with carbon. Deterioration of solid	solutions. Heating p	rocessing of
steel and cast irons.	Physical features. Mechanical features. Dephectostopic testing. Corosion.		
611GIE	Geometry	KZ	3
Orthographic and ob	lique projections, linear perspective. Topographic surfaces and their orthogonal projection. Differential geometry of curves - pa	rameterization, arc	of the curve,
torsion and curvatur	e, Frenet's trihedron. Kinematics - a curve as a trajectory of the motion, the velocity and acceleration of a particle moving on a	curved path.	
614KSP	Constructing with Computer Aid	KZ	2
"CAD systems" term	determination. 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	-ordinated systems, CAD environment skill (basics of constructing, dimensioning, modifications, user interfaces, projecting pos	ssibilites, AutoCAD	environment
profiles drawings wi	th raster foundaments).		
promes, drawings wi	,		
614ZINF	Fundamentals of Informatics	KZ	2
614ZINF			_
614ZINF Introduction to facult	Fundamentals of Informatics	Number systems in	ncl. arithmetic
614ZINF Introduction to facult	Fundamentals of Informatics y network, MS-Word and Open Office, use of styles and advanced features, computer functions and information transmission. ms and their proprieties. Flow charts for algorithms drawing. Mathematic and logic ordering algorithms incl. functions and proce	Number systems in	ncl. arithmetic
614ZINF Introduction to facult calculations. Algorith	Fundamentals of Informatics y network, MS-Word and Open Office, use of styles and advanced features, computer functions and information transmission. ms and their proprieties. Flow charts for algorithms drawing. Mathematic and logic ordering algorithms incl. functions and proce	Number systems in	ncl. arithmetic
614ZINF Introduction to facult calculations. Algorith graphs, calculations, 618TTED	Fundamentals of Informatics y network, MS-Word and Open Office, use of styles and advanced features, computer functions and information transmission. ms and their proprieties. Flow charts for algorithms drawing. Mathematic and logic ordering algorithms incl. functions and proce functions.	Number systems in dures. Work with M	ncl. arithmetic S-Excel - tables
614ZINF Introduction to facult calculations. Algorith graphs, calculations, 618TTED Technical standards,	Fundamentals of Informatics y network, MS-Word and Open Office, use of styles and advanced features, computer functions and information transmission. ms and their proprieties. Flow charts for algorithms drawing. Mathematic and logic ordering algorithms incl. functions and proce functions. Creation of Technical Documentation	Number systems in dures. Work with M	ncl. arithmetic S-Excel - tables
614ZINF Introduction to facult calculations. Algorith graphs, calculations, 618TTED Technical standards,	Fundamentals of Informatics y network, MS-Word and Open Office, use of styles and advanced features, computer functions and information transmission. ms and their proprieties. Flow charts for algorithms drawing. Mathematic and logic ordering algorithms incl. functions and proce functions. Creation of Technical Documentation international standardization, types of technical drawings, representation of technical objects, technical diagrams and charts, dim	Number systems in dures. Work with M	ncl. arithmetic S-Excel - tables
614ZINF Introduction to facult calculations. Algorith graphs, calculations, 618TTED Technical standards, arrangement of draw	Fundamentals of Informatics y network, MS-Word and Open Office, use of styles and advanced features, computer functions and information transmission. ms and their proprieties. Flow charts for algorithms drawing. Mathematic and logic ordering algorithms incl. functions and proce functions. Creation of Technical Documentation international standardization, types of technical drawings, representation of technical objects, technical diagrams and charts, dirring sheets, types of schemes and their creation.	Number systems in dures. Work with M	ncl. arithmetic S-Excel - tables, 2 netrical accuracy.
614ZINF Introduction to facult calculations. Algorith graphs, calculations, 618TTED Technical standards, arrangement of draw 621ZLD Air transport as a co	Fundamentals of Informatics y network, MS-Word and Open Office, use of styles and advanced features, computer functions and information transmission. ms and their proprieties. Flow charts for algorithms drawing. Mathematic and logic ordering algorithms incl. functions and proce functions. Creation of Technical Documentation international standardization, types of technical drawings, representation of technical objects, technical diagrams and charts, direction of the standardization of the standardization. Introduction to Air Transport	Number systems in dures. Work with M	ncl. arithmetic S-Excel - tables, 2 netrical accuracy.
614ZINF Introduction to facult calculations. Algorith graphs, calculations, 618TTED Technical standards, arrangement of draw 621ZLD Air transport as a co	Fundamentals of Informatics y network, MS-Word and Open Office, use of styles and advanced features, computer functions and information transmission. ms and their proprieties. Flow charts for algorithms drawing. Mathematic and logic ordering algorithms incl. functions and proce functions. Creation of Technical Documentation international standardization, types of technical drawings, representation of technical objects, technical diagrams and charts, dirring sheets, types of schemes and their creation. Introduction to Air Transport mponent of complex transport system. International status of civil aviation. International organizations in Europe and worldwide	Number systems in dures. Work with M	ncl. arithmetic S-Excel - tables, 2 netrical accuracy.

Code of the group: 2S PRE 14-15 P

Name of the group: 2. sem. PRE 14-15 povinné p edm ty (spol. ást studia) Requirement credits in the group: In this group you have to gain 30 credits

Requirement courses in the group: In this group you have to complete 12 courses

Credits in the group: 30 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
611FY1	Physics 1	Z,ZK	4	2+2	L	Z
611MVP	Mathematical Analysis of Function of More Variables	Z,ZK	3	2+2	L	Z
612PKD	Rail Transport Designing	Z,ZK	3	2+2	L	Z
617TDL	Transport Technology and Logistics	Z,ZK	3	2+2	L	Z
618ST	Statics	Z,ZK	3	2+1	L	Z
620UIS	Introduction to ITS	Z,ZK	3	2+1	L	Z
614SIAP	Networks and Protocols	KZ	2	1+1	L	Z
614UPRO	Introduction to Programming	KZ	2	0+2	L	Z
617EDOT	Economy, Transport, Telecommunications	KZ	2	2+0	L	Z
618MRI2	Materials 2	KZ	2	2+0	L	Z
611PT	Probability	Z	2	1+1	L	Z
TV-2	Physical Education	Z	1		L	Z

Characteristics of the courses of this group of Study Plan: Code=2S PRE 14-15 P Name=2. sem. PRE 14-15 povinné p edm ty (spol. ást studia)

611FY1	Physics 1	Z,ZK	4
Kinematics, particle	dynamics, dynamics of particle systems and rigid body. Continuum mechanics, thermodynamics, electric field, directed electric	current.	•
611MVP	Mathematical Analysis of Function of More Variables	Z,ZK	3
Metric spaces, sequ	uences in metric spaces, limit of sequence in metric space. Differential calculus of functions of several variables, differential of fur	iction, partial deri	vations, implicitly
defined functions, e	xtremes of functions of several variables. Integral calculus of functions of several variables, Riemann integral, integral over curve	s and surfaces in	R3, application
of integral calculus	in physics.		
612PKD	Rail Transport Designing	Z,ZK	3
Railway lines netwo	rk. Vehicle and track relation. Traction. Track geometrical parameters. Clearance profile. Railway lines routing. Superstructure and	substructure of t	he railway lines.
Switches. Railway s	tations. City rail transport.		
617TDL	Transport Technology and Logistics	Z,ZK	3
Basic terms in trans	port technology and logistics. Particular steps of transport planning. Quantification of carriage relations. Line planning. Timetabling	g. Planning in pas	anger and freight
transport. Organisa	tion of traffic in each transport means. Technological factors from the point of view of operator and client. Organisation of public c	ity transport. Logi	stic technologies
and their application	n using various transport means.		
618ST	Statics	Z,ZK	3
General system of f	orce's. Calculation of reactions of mass objects and compound systems. Assessment of internal forces on statically determinate	beam and simple	framework.
Principle of virtual w	works. Kinematic method for calculation of reactions of statically determinate systems. Determination of axial forces in truss constru	ction method of in	nints and method

General system of forces. Calculation of reactions of mass objects and compound systems. Assessment of internal forces on statically determinate beam and simple framework. Principle of virtual works. Kinematic method for calculation of reactions of statically determinate systems. Determination of axial forces in truss construction, method of joints and method of sections. Geometry of cross sections. Plane fiber polygons and catenary cables.

620UIS	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.							
614SIAP	Networks and Protocols	KZ	2				
Basic communication m	odel, history and development of the Internet, principle of data transfer through computer networks (TCP/IP), performance of	f basic network p	rotocols (ARP,				
RARP, TCP, UDP, Telnet	, FTP, DNS, DHCP POP3, IMAP), data acquirement from the Internet sources, communicating ability via the Internet and func	amentals of own v	veb presentation				
design by the means of	web sites.						
614UPRO	Introduction to Programming	KZ	2				
Algorithm development,	methods of structured programming, high-level programming languages, basics of C programming languages (types, variable)	les, conditions, cy	cles, arrays,				
functions), programming	g techniques, complexity.						
617EDOT	Economy, Transport, Telecommunications	KZ	2				
Transport, telecommuni	cations, demand, supply, indicators, economic development, legislation, European union, regulation, liberalisation, transport	modes, ITS, susta	ainability.				
618MRI2	Materials 2	KZ	2				
Fundamental concepts,	notions. The main materials groups. Semiconductors. Polymers. Special types of steel. Properties and application of the con	nposite materials.					
611PT	Probability	Z	2				
Descriptive statistics. Ba	asic probability concepts: elementary events and events, definitions and interpretation of probability. Random variable, proba	bility distribution, p	probability mass				
and density, moments, some discrete and continuous distributions. Random vectors: joint and marginal distributions, mean vector, covariance matrix. Mixed distributions, mixture of							
distributions. Law of larg	ge numbers, central limit theorem.						
TV-2	Physical Education	Z	1				

Code of the group: 3S PRE 14-15 P

Name of the group: 3. sem. PRE 14-15 povinné p edm ty (spol. ást studia) 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:

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
611DAD	Differential and Difference Equations	Z,ZK	3	2+1	Z	Z
611FY2	Physics 2	Z,ZK	4	2+2	Z	Z
612MDE	Transport Models and Transport Excesses Josef Kocourek, Tomáš Pad lek Josef Kocourek (Gar.)	Z,ZK	3	2P+1C+8B	Z	Z
612PPOK	Designing Roads, Highways and Motorways Tomáš Pad lek, Petr Kumpošt	KZ	3	1P+2C+10B	Z	Z
618PZP	Elasticity and Strength Tomáš Doktor Ond ej Jiroušek (Gar.)	Z,ZK	3	2P+1C+10B	Z	Z
611SIS	Statistics	Z,ZK	2	1+1	Z	Z
620SSA	Systems Analysis	Z,ZK	3	2+1	Z	Z
614UATT	Introduction to Automatization and Telecommunication Systems	KZ	2	3+0	Z	Z
616UDDM	Introduction to Transportation and Manipulation Technics	ZK	2	2+0	Z	Z
614ZAET	Fundamentals of Electrotechnics	KZ	2	2+1	Z	Z

Characteristics of the courses of this group of Study Plan: Code=3S PRE 14-15 P Name=3. sem. PRE 14-15 povinné p edm ty (spol. ást studia)

ást studia)			
611DAD	Differential and Difference Equations	Z,ZK	3
Concept of a different	ial equation of the first order and some methods of its solution. Differential equations of the n-th order, linear diferential equations	ons. Initial and boun	dary conditions
for ordinary linear diffe	prential equation of the second order. Systems of linear differential equations. Difference equations, linear difference equations	s and their systems	-
611FY2	Physics 2	Z,ZK	4
Magnetic field, electro	magnetic field. Optics, quantum character of electromagnetic radiation. Introduction into quantization, hydrogen atom. Multi-el	ectron atoms, the r	nuclei. Basics of
solid body physics.			
612MDE	Transport Models and Transport Excesses	Z,ZK	3
Parameters of the traf	fic flow and methods for their measurement. Models of the traffic flow, communications load, line and urban systems. Theory o	of queues, shock wa	aves. Quality of
transport and its asse	ssment. Statistical characteristics of transport. Transport excesses, their analysis, the causes, identify and minimize the conse	quences. Improvinç	g of transport
safety and fluency.			
612PPOK	Designing Roads, Highways and Motorways	KZ	3
Definition, types, own	ership, maintenance, management and categorization of roads and highways. Curve and transition curve. Sinuosity and stand	ard speed. Route in	n rural areas.
Range of vision for sto	opping and overtaking. Road body - shapes and proportions, bottom and superstructure. Drainage and components of roads. S	Safety device. Cross	sings, junctions
intersections.			
618PZP	Elasticity and Strength	Z,ZK	3
Tension and compress	sion. Bending of beam. Shear stress during bending of beam. Design and analysis of cross section of beam. Design of riveted, b	oolted and welded jo	oint of structure
Analysis of deflection	curve of beam. Torsion of circle cross section. Combined loading. Stability of compressed bar and buckling. Beam on elastic for	oundation. Strength	analysis.
611SIS	Statistics	Z,ZK	2
Point estimation, prop	erties of point estimators, methods of point estimation. Testing statistical hypothesis. Fit test, independence test. Regression a	ind correlation, line	ar regression,
correlation coefficient	coefficient of determination, general linear model, statistical inference in linear regression, analysis of variance, multiple regression.	sion use of matrice	s in regression

620SSA Systems Analysis Systems identification. Typical tasks of systems analysis: on the interface, routes in system, decomposition and integration, on systems feedback. Capacity tasks, process analysis. Task about behaviour, aim behaviour, the genetic code, architecture and identity of systems. Fundamentals of technical cybernetics, stability and reliability of systems **614UATT** Introduction to Automatization and Telecommunication Systems ΚZ Basic axioms of technical cybernetics, automatization in transportation, human as the weakest element, signalling in transportation, modelling and projecting of transport systems, integrated technological and infromation system in post, principle of telecommunication signal transmission, solving of telecommunication networks, modulating methods, multimedial networks and services, NGN networks. 616UDDM Introduction to Transportation and Manipulation Technics Means of transportation and transportation systems. Principles, functions and arrangement of means of transportation. Motors and their characteristics. Water transportation. Manipulating technics. Principles of lifting machines and conveyors. Legislature. 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

Code of the group: 4S P DOS 14-15 P

and principle of superposition in direct current circuits.

Name of the group: 4. sem. PREZ DOS 14-15 povinné p edm ty

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:

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
612DPZ	Traffic Surveys	KZ	2	2+0	L	Z
618KIAD	Kinematics and Dynamics	Z,ZK	2	2+1	L	Z
611MDS	Collection and Processing of Traffic Data	KZ	2	2P+0C	L	Z
622MMT	Measurement Methods and Technology in Transportation	KZ	3	2+2	L	Z
611MSP	Modeling of Systems and Processes Jana Kuklová, Bohumil Ková Bohumil Ková (Gar.)	Z,ZK	4	2P+2C+12B	L	Z
612OMHD	Public Transport Operation	Z,ZK	4	2P+2C	L	Z
614PPD	Computer Aid of Transportation Projecting	KZ	2	0P+2C	L	Z
612SDK	Highways, Motorways and Intersections Josef Kocourek, Tomáš Pad lek, Petr Kumpošt Josef Kocourek (Gar.)	Z,ZK	4	2P+2C	L	Z

612DPZ	Traffic Surveys	KZ	2
Fundamental means	of traffic surveys, project of skills of counting vehicles at all types of road junction, car park surveys to determine accumulation	n and length of stay	of each vehicle
statistical analysis, s	imulation models, etc.		
618KIAD	Kinematics and Dynamics	Z,ZK	2
Notion along a line,	notion along a curve. Kinematics of rigid plane, kinematics of rigid body. Point mass kinematics, system of point masses. Point	mass dynamics and	system of poin
nasses, equation of	motion. Method of Newton. Princle of D'Alembert. Free and forced vibration with one degree of freedom. Viscous damping. In	npact theory. Introdu	ction to the
olution of vibration	with multiple degrees of freedom.		
S11MDS	Collection and Processing of Traffic Data	KZ	2
Basic principles of tr	affic detection and data collection, specific problems of the field of traffic data. Data preprocessing and analysis for use in add	litional applications.	
S22MMT	Measurement Methods and Technology in Transportation	KZ	3
Seodetic base in CR	, mapping principles, measurement errors in geodesy, angular and linear measurement, measurement of height, location and r	anging, photogramm	etry, high spee
amera, acceleration	measurement in road traffic dynamic processes.		
611MSP	Modeling of Systems and Processes	Z,ZK	4
system and subsyste	em, external and internal system description, continuous and discrete system, mathematics as a tool, examples of formulation of	differential and differen	ential equations
inear and nonlinear	system, stationary and non-stationary system, causality. Convolutional integral. Laplace and Z transformations. Transfer func	tion. Stability of LTI s	ystems.
Discretization of con	tinuous systems. System interconnection.		
120MHD	Public Transport Operation	Z,ZK	4
roject of public tran	sport organisation, project of city public transport network, transportation survey, project of transport parametres, transport gr	aph, route and stops	of line, public
ransport priority, fina	ancing of public transport, quality of public transport.		
614PPD	Computer Aid of Transportation Projecting	KZ	2
verview of CAx app	lication for transportation projecting aid. AutoCAD environment possibilities of basic tasks automatizing (programming, scriptir	g, data exchange). A	dvanced block
nodification (attribut	es, relation to databases). Work in projecting group, external references. Basic tasks for cummunication projecting (clotoidic tra	nsition curve, cross-	and longitudin
ection). Basics of 3	D modelling.		
100011			

Code of the group: 5S P DOS 15-16 P

motorways. Road engineering structures. Assessment of route alternatives.

612SDK

Name of the group: 5. sem. bak. PRE DOS 15-16 povinné p edm ty

Highways, Motorways and Intersections

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

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
614DB	Database Systems	KZ	2	0+2	Z	Z
614DIVT	Transportation Engineering with Computation Technique Aid	KZ	2	0+2	Z	Z
616DOPY	Vehicle Technology	KZ	3	3+0	Z	Z
612MKDP	Urban Rail Transport	Z,ZK	3	2+1	Z	Z
617TGA	Graph Theory and its Applications in Transport Alexandra Dvo á ková Denisa Mocková (Gar.)	Z,ZK	4	2P+2C+12B	Z	Z
622UAN	Road Traffic Accidents Analysis Introduction	KZ	2	1P+2C	Z	Z
612ZELP	Railway Operation Tomáš Javo ík	Z,ZK	4	2P+2C	Z	Z

Characteristics of the courses of this group of Study Plan: Code=5S P DOS 15-16 P Name=5. sem. bak. PRE DOS 15-16 povinné p edm ty

614DB **Database Systems** Dbf. terminology, fundamentals of relational and object database systems, database structure, relations modelling, relation algebra, dbf. tools, database design process, user interface, remote data access. Basic statement of SQL language. Expert systems and knowledge based applications, knowledge representation, methods of derivating and implementating, interface for knowledge systems design, certainty and uncertainty in knowledge systems. 614DIVT Transportation Engineering with Computation Technique Aid

Overview of transport models for micro-simulation. Application working environment. Vehicles movement within system. Creation and simulation of microsopic traffic model. Output characteristics evaluation. 4D transport model visualization. Comparison with static model. Principles, elements, and construction of supply and demand models. Stochastic gravitational model. History, trends, and practise exercise.

616DOPY Vehicle Technology

Terminology in transportation technology. Vehicle in the terms of legislation. Construction, operation, environmental influence. Vehicles and ecology. Traction engines characteristics. Combustion and electrical engines. Power train construction. Power transmisssion. Conducting properties of railroad vehicles. Resistance to disrailing. Transportation technology in water transport. Transportation technology in aviation.

ΚZ

3

612MKDP Z,ZK **Urban Rail Transport** Transport in the town. Tramway transport and vehicles. Geometrical setting of tramway tracks. Tramway construction. Subway. Geometrical setting of subway tracks. Subway construction **617TGA** Graph Theory and its Applications in Transport Z.ZK

Basic terms of graph theory, paths in graphs, flows in networks, location problems, design problems on graphs, optimum routing, use of graphs in other scientific disciplines

622UAN Road Traffic Accidents Analysis Introduction ΚZ Important parameters of road infrastructure, typical vehicle dimensions, distance-time diagram, response time components, backward projection of accidental process, vehicle body post-crash deformation, impact influence on passengers, video documentation, problem who was the driver, documentation, marks analysis, limits of accidental analysis, cornering,

critical maneuvring, technical view hindrances, visibility and discriminability, nightfall. 6127FIP Railway Operation Z,ZK

Legislation in railway transport. Railway vehicles. Railway signals and signal devices. Railway traffic organisation and operation. Simplified railway traffic operation. Railway vehicles brakes. Railway vehicles marking. Operation intervals. Theoretical graph of train running.

Code of the group: 5S P DOS 15-16 PV

Name of the group: 5. sem. PRE DOS 15-16 povinné p edm ty - výb r 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
616PBV	Passive Vehicle Safety	Z,ZK	3	2+1	Z	Z
620RU	Control of Traffic Node and Line	Z,ZK	3	2+1	Z	Z

Characteristics of the courses of this group of Study Plan: Code=5S P DOS 15-16 PV Name=5. sem. PRE DOS 15-16 povinné p edm ty výb r

616PBV	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 collision
of various vehicle types	Safety of traffic participants. Mathematic modeling. E-call.		
620RU	Control of Traffic Node and Line	Z,ZK	3

Basic concepts, terms, principles and requirements for documentation. Criteria of design light signaling equipment. Hardware and software of transport node. Traffic detectors. Proposal for construction works, horizontal and vertical markings. Calculation of intersection design and its wider relations. Line management. Proposal for traffic management and current trends in transport management.

Code of the group: 6S P DOS 15-16 PV

Name of the group: 6. sem. PRE bak. DOS 15-16 povinné p edm ty-výb r 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
616DYJ	Vehicle Dynamics	Z,ZK	3	2P+1C	Z	Z
620RM	Urban Concentration and Motorway Control	Z,ZK	3	2+1	L	Z

Characteristics of the courses of this group of Study Plan: Code=6S P DOS 15-16 PV Name=6. sem. PRE bak. DOS 15-16 povinné p edm ty-výb r

616DYJ Vehicle Dynamics

Application of mechanics. Wheel and axle suspension mechanism. Wheel to road positioning characteristics. Wheel - road contact. Skid and its characteristics. Longitudinal dynamics, acceleration and deceleration. Vertical dynamics, spring suspension, driving characteristics. Directional dynamics, gyroscopical characteristics. Driving stability conditions. Aerodynamic forces. Driving and feedback. ABS, ESP.

620RM | 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.

Code of the group: 6S P DOS 15-16 P

Name of the group: 6. sem. PRE DOS 15-16 povinné p edm ty

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:

solid hindrances

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
617DAS	Transportation and Communication Law	Z	1	2+0	L	Z
612ECO	Ecology	KZ	2	1+1	L	Z
617ERP	Company Economy and Management	Z,ZK	3	2+1	L	Z
617GEDS	Geography of Transport Systems Milan K iż	KZ	2	2P+0C+8B	L	Z
622PSN	Road Traffic Accidents Prevention	KZ	2	2+1	L	Z
612PPMK	Urban Road Traffic and Design	Z,ZK	4	2P+2C	L	Z
618TK	Theory of Structures	KZ	2	2P+0C	L	Z
612VDSR	Public Transport in Cities and Regions	Z	2	2+0	L	Z
612ZAPR	Introduction to Architectural Design	ZK	2	2+0	L	Z

Characteristics of the courses of this group of Study Plan: Code=6S P DOS 15-16 P Name=6, sem, PRE DOS 15-16 poyinné p edm ty

Characteristics of	the courses of this group of Study Plan: Code=6S P DOS 15-16 P Name=6. sem. PRE DOS	15-16 povini	ne p edm ty				
617DAS	Transportation and Communication Law	Z	1				
Transportation and communication law - railway, road transport, ropeway, water road, air transport, telecommunication, post, patent.							
612ECO	Ecology	KZ	2				
Basic ecological terms and principles. Ecosystem. Ecological factors, ecological limits. Energy in ecosystem, food pyramid, photosynthesis, ecological effectiveness and production.							
Applied ecology. Enviro	nment. Greenhouse effect. Environment protection. Landscape ecology.						
617ERP	Company Economy and Management	Z,ZK	3				
Company and its neight	bourhood, structure of assets and liabilities, depreciation, costs, revenues and profit, break-even point, costing, inventory, fina	ancial manageme	nt, investment				
appraisal, basics of ma	nagement, organizational structures, human resources management, marketing, company strategy, business plan.						
617GEDS	Geography of Transport Systems	KZ	2				
Regional differentiation	of the transport system. Sociogeographic regionalization and its relation to transport. Transport and local and regional develo	ppment. Spatial in	teraction -				
theoretical and methodo	ological framework. Mobility research - travel behavior, mode choice and the influence onto "modal-split." Modal competition. Prac	ctical use of transp	ort-geographical				
analysis in transportation	on planning.						
622PSN	Road Traffic Accidents Prevention	KZ	2				
Basic relation: causes -	prevention, collision diagrams, causes of not giving way, initial speed and breaking influence on speed of impact, downhill gr	ade, load transpo	rt and fixation,				
collisions with pedestria	ans, cyclists and motorcyclists, construction of vehicle breaks, winter conditions, inconvenient road parameters, visibility, anti-	slide properties o	f road surface,				

612PPMK	Urban Road Traffic and Design	Z,ZK	4					
Composition of urban road, elements and routes for traffic, pedestrian and cycling transport, projection of intersections, roundabouts, calming of traffic, parking, precaution for blind								
Ramp; partially-sighted, induction of traffic, organization and regulation of transport.								
618TK	Theory of Structures	KZ	2					
Deformation in plane, p	inciple of virtual work. Force (flexibility) method. Aplication of force method to frame analysis. Displacement (stiffness) metho	d. Simplified and	general stiffness					
method. Mathematical f	oundations of elasticity. Static analysis of complex statically indeterminate structure. Energy methods for beam analysis. Lagi	range variational p	rinciple. Winkler					
model of elastic foundate	ion. Pasternak model of elastic foundation.							
612VDSR	Public Transport in Cities and Regions	Z	2					
Landscape configuratio	n and transport. Public transport and city extension. Traffic service in region. Public transport financing. Principles of traffic se	rvice designing. T	raffic service of					
recreation areas. Makin	g transport terminals. Public transport and region expansion.							
612ZAPR	Introduction to Architectural Design	ZK	2					
Lirbaniam and arabitant	we of traffic systems. But and traffic has transport Tramping and town trade. Design of validate Cultural Pailway transport	D-11	1 1					

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

The role of the block: ZP

Code of the group: PROJ 14-15

Name of the group: projekty 14-15 (4., 5., 6. sem.)

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
616X31	Project 1	Z	2	0P+1C	L	ZP
615X31	Project 1	Z	2	0P+1C	L	ZP
612X31	Project 1	Z	2	0P+1C	L	ZP
622X31	Project 1	Z	2	0P+1C	L	ZP
617X31	Project 1	Z	2	0P+1C	L	ZP
617X32	Project 2	Z	2	0P+2C	Z	ZP
612X32	Project 2	Z	2	0P+2C	Z	ZP
622X32	Project 2	Z	2	0P+2C	Z	ZP
615X32	Project 2	Z	2	0P+2C	Z	ZP
616X32	Project 2	Z	2	0P+2C	Z	ZP
615X33	Project 3	Z	2	0P+1C	L	ZP
616X33	Project 3	Z	2	0P+1C	L	ZP
612X33	Project 3	Z	2	0P+1C	L	ZP
617X33	Project 3	Z	2	0P+1C	L	ZP
622X33	Project 3	Z	2	0P+1C	L	ZP

Characteristics of the courses of this group of Study Plan: Code=PROJ 14-15 Name=projekty 14-15 (4., 5., 6. sem.)

616X31	Project 1	Z		2
615X31	Project 1	Z		2
612X31	Project 1	Z		2
622X31	Project 1	Z		2
617X31	Project 1	Z		2
617X32	Project 2	Z		2
612X32	Project 2	Z		2
622X32	Project 2	Z		2
615X32	Project 2	Z		2
616X32	Project 2	Z		2
615X33	Project 3	Z		2
616X33	Project 3	Z		2
612X33	Project 3	Z		2
617X33	Project 3	Z	-	2
622X33	Project 3	Z		2

Name of the block: Compulsory elective courses

Minimal number of credits of the block: 6

The role of the block: PV

Code of the group: PVP PRE 14-15

Name of the group: PVP pro PREZ DOS+MED 14-15 (ZS+LS+ZS)

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:

(retirement savings and insurance).

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
617Y1AF	Alternative Forms of Transportation Project Financing	KZ	2	2+0	Z	PV
614Y1AV	Animation and Visualization	KZ	2	2P+0C	L	PV
615Y1BO	Work Safety and Health Protection in Transportation	KZ	2	2P+0C	L	PV
615Y1DZ	History of Railway	KZ	2	2P+0C	L	PV
617Y1DZ	Transported Commodities Cognization	KZ	2	2+0	L	PV
615Y1HE	Work Hygiene and Ergonomics in Traffic Petr Musil	KZ	2	2P+0C	Z	PV
617Y1OF	Personal Finance Alexandra Dvo á ková	KZ	2	2P+0C	Z	PV
617Y1PM	Personnel Management Stanislava Holíková	KZ	2	2P+0C	L	PV
613Y1PM	Personal Management	KZ	2	2+0	L	PV
612Y1PC	Pedestrian and Cycling Transport	KZ	2	2P+0C	L	PV
614Y1PG	Computer Graphics	KZ	2	2P+0C	L	PV
614Y1PM	Advanced Techniques of Parametric and Adaptive Modeling	KZ	2	2+0	L	PV
612Y1PD	Assessment of Transport	KZ	2	2P+0C	Z	PV
612Y1PU	Organization Disposition of Railway Stations	KZ	2	2P+0C	L	PV
617Y1ST	Titan Simulation	KZ	2	2P+0C	L	PV
612Y1SU	Management and Maintenance of Roads	KZ	2	2P+0C	L	PV
612Y1VC	Waterways and Shipping	KZ	2	2P+0C	Z	PV
612Y1VD	Water Transport and Transportation	KZ	2	2+0	L	PV
614Y1ZM	Fundamentals of parametric and adaptive modeling	KZ	2	2P+0C	L	PV
616Y1ZL	Vehicle Testing, Legislation and Construction	KZ	2	2P+0C	Z	PV

017112101	Fundamentals of parametric and adaptive modeling	1\2	_	21 +00	_	F V
616Y1ZL	Vehicle Testing, Legislation and Construction	KZ	2	2P+0C	Z	PV
Characteristics o	f the courses of this group of Study Plan: Code=PVP PRE 14-15	Name=PVP pro	PREZ	DOS+MED	14-15 (Z	S+LS+ZS)
617Y1AF	Alternative Forms of Transportation Project Financing			h	(Z	2
There will be specifed	such forms of financing in transportation, where the public sector body perform the final d	ebtor, i. e. debtor pa	ayments co	me from its bu	dget, but the	e final debtor
is not a direct participal project.	nt of the transaction and it is not the counterparty of the financial institute which provides th	e funding. Issue of	securities a	s an alternativ	e source of	transportation
614Y1AV	Animation and Visualization			ŀ	(Z	2
Advanced modification	s and modeling of NURBS, Patch objects, selection of objects (according to filter and prope	erties). 3D Studio M	IAX system	s and Space W	/arp objects	s. Atmospheric
and other effects, rend	ering filters, Motion blur, advanced animations, Motion panel. Modeling for morphing and	animation, bone for	mation, an	imation using I	nverse Kine	matics.
615Y1BO	Work Safety and Health Protection in Transportation			ŀ	(Z	2
Fundamental legislative	e, definition of terms, risks and possible health damage, working conditions and health pro	otection with focus	on transpo	rtation. Health	protection p	orogrammes,
health insurance of hor	me and foreign business trips, statistics, working practice.					
615Y1DZ	History of Railway			l k	(Z	2
Horse-drawn railways,	steam railways, railway network development in the 2nd half of 19th century, regional railw	vays epoch, railway	s of the "F	irst Republic",	electric trac	tion, World
War II railways, railway	development in the 2nd half of 20th century, high-speed railway origins, railway lines closing	g, important long-di	stance traii	connections,	railway lines	s construction,
railway accidents, railw	yay junctions. Excursions and projections.					
617Y1DZ	Transported Commodities Cognization			ŀ	(Z	2
615Y1HE	Work Hygiene and Ergonomics in Traffic			h	(Z	2
Basic knowledge of oc	cupational hygiene and ergonomics, and their application in transport. Working environme	nt factors, and the	influence o	f these factors	on health o	of workers.
•	n of working conditions that do not damage public health. Mutual links man-machine-envir m the field of transportation; relevant legislative.	onment. Adaptation	of techno	logy to possibil	ities and sk	ills of man.
617Y1OF	Personal Finance			l h	ΚZ	2
Personal finance (budg	get, financing of basic living needs), debt (loans and credits, payment instruments, interest	and fees, debt tra	p), financin	g of housing (r	ent, mortga	ge, savings,
consumer loans, refina	ncing), savings and investments (investment horizon, return, risk, investment strategy), ins	urance (insurance	types, suita	bility and adeq	uacy), secu	ring the future

617Y1PM	Personnel Management	KZ	2
Human sources, wo	rk group, man as personality, planning, choice, evaluation and education of human sources, work adaptation, teamwork, in	ntercultural communicat	ion.
613Y1PM	Personal Management	KZ	2
612Y1PC	Pedestrian and Cycling Transport	KZ	2
	ns. Pedestrian crossings. Modifications for blind, dim-sighted and disabled people. Design of cycle routes network. Ways of		
for cyclists. Separati	on of cyclists from other transport modes. Cycle tracks and its design - one way streets, reserved traffic lanes, bus stops,	crossings with other tran	nsport modes,
crossroads. Traffic si	igns and road marking for cyclists.		
614Y1PG	Computer Graphics	KZ	2
Basic formats of gra	phic and possibilities of their editing and mutual conversion. Use of individual types according to character of work. Work was a conversion of their editing and mutual conversion.	with editing programs (w	ithin the user
level scope) using la	yers, DPI, colors. Basics of digital photography, scanning and computer technology like monitors and graphics cards.		
614Y1PM	Advanced Techniques of Parametric and Adaptive Modeling	KZ	2
612Y1PD	Assessment of Transport	KZ	2
Assessment of trans	port structures, the EIA process. Multicriteria assessment methods, risk analysis, SWOT analysis. Landscape character, pos	ssibilities of its protection	and assessmen
transport structures	on the landscape. Rating fragmentation and landscape connectivity in the preparation of linear structures. Practical examp	ples of assessment of tra	affic buildings or
the environment.			
612Y1PU	Organization Disposition of Railway Stations	KZ	2
Connecting station.	Passenger transport equipment. Freight transport equipment. Branch lines and railway traffic inside industrial company are	eas. Zone stations. Form	nation yards.
Reserve stations. Te	chnology of work in railway station with regard to its disposition. Railway station documentations in the Czech Republic ra	ilway network.	
Reserve stations. Te 617Y1ST	chnology of work in railway station with regard to its disposition. Railway station documentations in the Czech Republic rail Titan Simulation	ilway network.	2
617Y1ST		KZ	_
617Y1ST Titan is a manageme	Titan Simulation	KZ e product. Students set a	a price and
617Y1ST Titan is a management determine the quant	Titan Simulation ent game simulating the business decisions. Lets 2-8 student groups to produce and compete in the market with the same	KZ e product. Students set a	a price and
617Y1ST Titan is a management determine the quant	Titan Simulation ent game simulating the business decisions. Lets 2-8 student groups to produce and compete in the market with the same ity and capacity of production, plan budgets for marketing, research and development. They become familiar with the cons	KZ e product. Students set a	a price and
617Y1ST Titan is a management determine the quant of financial corporate 612Y1SU	Titan Simulation ent game simulating the business decisions. Lets 2-8 student groups to produce and compete in the market with the same ity and capacity of production, plan budgets for marketing, research and development. They become familiar with the conse reports and they use this information for other business decisions.	KZ e product. Students set a sequences of their decis	a price and ions by the forn
617Y1ST Titan is a management of the quant of financial corporate 612Y1SU Getting familiar with	Titan Simulation ent game simulating the business decisions. Lets 2-8 student groups to produce and compete in the market with the same ity and capacity of production, plan budgets for marketing, research and development. They become familiar with the conse reports and they use this information for other business decisions. Management and Maintenance of Roads	KZ e product. Students set a sequences of their decis KZ development of road ne	a price and ions by the form 2 twork, short,
617Y1ST Titan is a management of financial corporate 612Y1SU Getting familiar with medium and long-terms.	Titan Simulation ent game simulating the business decisions. Lets 2-8 student groups to produce and compete in the market with the same ity and capacity of production, plan budgets for marketing, research and development. They become familiar with the conse reports and they use this information for other business decisions. Management and Maintenance of Roads ownership of roads in the Czech Republic and the administration of the road at the state and county level. It is presented	KZ e product. Students set a sequences of their decis KZ development of road ne	a price and ions by the form 2 twork, short,
617Y1ST Titan is a management of financial corporate 612Y1SU Getting familiar with medium and long-terms.	Titan Simulation ent game simulation ent game simulating the business decisions. Lets 2-8 student groups to produce and compete in the market with the same ity and capacity of production, plan budgets for marketing, research and development. They become familiar with the conse reports and they use this information for other business decisions. Management and Maintenance of Roads ownership of roads in the Czech Republic and the administration of the road at the state and county level. It is presented rm strategy of the Ministry of Transport. Maintenance of roads winter and summer, its requirements, specifics, possibilities	KZ e product. Students set a sequences of their decis KZ development of road ne	a price and ions by the form 2 twork, short,
617Y1ST Titan is a management determine the quant of financial corporate 612Y1SU Getting familiar with medium and long-tectlassroom as well as 612Y1VC	Titan Simulation ent game simulating the business decisions. Lets 2-8 student groups to produce and compete in the market with the same sity and capacity of production, plan budgets for marketing, research and development. They become familiar with the conse reports and they use this information for other business decisions. Management and Maintenance of Roads ownership of roads in the Czech Republic and the administration of the road at the state and county level. It is presented rm strategy of the Ministry of Transport. Maintenance of roads winter and summer, its requirements, specifics, possibilities is investment activity in highway engineering.	KZ e product. Students set a sequences of their decis KZ development of road ne and repair methods are	a price and ions by the form 2 twork, short, discussed in the
617Y1ST Titan is a management determine the quant of financial corporate 612Y1SU Getting familiar with medium and long-teclassroom as well as 612Y1VC Basic modes of transof waterways in Euro	Titan Simulation ent game simulating the business decisions. Lets 2-8 student groups to produce and compete in the market with the same ity and capacity of production, plan budgets for marketing, research and development. They become familiar with the conse reports and they use this information for other business decisions. Management and Maintenance of Roads ownership of roads in the Czech Republic and the administration of the road at the state and county level. It is presented rm strategy of the Ministry of Transport. Maintenance of roads winter and summer, its requirements, specifics, possibilities investment activity in highway engineering. Waterways and Shipping sport. The position of water transport in the transport system of the Czech Republic and the EU. Advantages and disadvar ope, a network of waterways in the Czech Republic. Construction of the waterway and its equipment. Management of water	KZ e product. Students set a sequences of their decis KZ development of road ne and repair methods are KZ ntages of water transpor	a price and ions by the form 2 twork, short, discussed in the 2 t. Basic systems
617Y1ST Titan is a management determine the quant of financial corporate 612Y1SU Getting familiar with medium and long-teclassroom as well as 612Y1VC Basic modes of transof waterways in Euro	Titan Simulation ent game simulating the business decisions. Lets 2-8 student groups to produce and compete in the market with the same ity and capacity of production, plan budgets for marketing, research and development. They become familiar with the conse reports and they use this information for other business decisions. Management and Maintenance of Roads ownership of roads in the Czech Republic and the administration of the road at the state and county level. It is presented rm strategy of the Ministry of Transport. Maintenance of roads winter and summer, its requirements, specifics, possibilities investment activity in highway engineering. Waterways and Shipping sport. The position of water transport in the transport system of the Czech Republic and the EU. Advantages and disadvar	KZ e product. Students set a sequences of their decis KZ development of road ne and repair methods are KZ ntages of water transpor	a price and ions by the form 2 twork, short, discussed in the 2 t. Basic systems
617Y1ST Titan is a management determine the quant of financial corporate 612Y1SU Getting familiar with medium and long-teclassroom as well as 612Y1VC Basic modes of transof waterways in Euro	Titan Simulation ent game simulating the business decisions. Lets 2-8 student groups to produce and compete in the market with the same ity and capacity of production, plan budgets for marketing, research and development. They become familiar with the conse reports and they use this information for other business decisions. Management and Maintenance of Roads ownership of roads in the Czech Republic and the administration of the road at the state and county level. It is presented rm strategy of the Ministry of Transport. Maintenance of roads winter and summer, its requirements, specifics, possibilities investment activity in highway engineering. Waterways and Shipping sport. The position of water transport in the transport system of the Czech Republic and the EU. Advantages and disadvar ope, a network of waterways in the Czech Republic. Construction of the waterway and its equipment. Management of water	KZ e product. Students set a sequences of their decis KZ development of road ne and repair methods are KZ ntages of water transpor	a price and ions by the form 2 twork, short, discussed in the 2 t. Basic systems
617Y1ST Titan is a management determine the quant of financial corporate 612Y1SU Getting familiar with medium and long-teclassroom as well as 612Y1VC Basic modes of transof waterways in Euro in inland navigation, 612Y1VD	Titan Simulation ent game simulating the business decisions. Lets 2-8 student groups to produce and compete in the market with the same ity and capacity of production, plan budgets for marketing, research and development. They become familiar with the conse reports and they use this information for other business decisions. Management and Maintenance of Roads ownership of roads in the Czech Republic and the administration of the road at the state and county level. It is presented must strategy of the Ministry of Transport. Maintenance of roads winter and summer, its requirements, specifics, possibilities investment activity in highway engineering. Waterways and Shipping sport. The position of water transport in the transport system of the Czech Republic and the EU. Advantages and disadvar ope, a network of waterways in the Czech Republic. Construction of the waterway and its equipment. Management of water navigation rules of operation, navigation maps.	KZ e product. Students set a sequences of their decis KZ development of road ne and repair methods are KZ ntages of water transpor rways and its operation.	a price and ions by the form 2 twork, short, discussed in the 2 t. Basic system: The legal regime 2
617Y1ST Titan is a management of financial corporate of fin	Titan Simulation ent game simulating the business decisions. Lets 2-8 student groups to produce and compete in the market with the same ity and capacity of production, plan budgets for marketing, research and development. They become familiar with the conse reports and they use this information for other business decisions. Management and Maintenance of Roads ownership of roads in the Czech Republic and the administration of the road at the state and county level. It is presented must rategy of the Ministry of Transport. Maintenance of roads winter and summer, its requirements, specifics, possibilities investment activity in highway engineering. Waterways and Shipping sport. The position of water transport in the transport system of the Czech Republic and the EU. Advantages and disadvar ope, a network of waterways in the Czech Republic. Construction of the waterway and its equipment. Management of water navigation rules of operation, navigation maps. Water Transport and Transportation	KZ e product. Students set a sequences of their decis KZ development of road ne and repair methods are KZ ntages of water transpor rways and its operation. KZ tavby plavidel. Efektivnos	a price and ions by the form 2 twork, short, discussed in the 2 t. Basic system: The legal regime 2 st vodní dopravy
617Y1ST Titan is a management determine the quant of financial corporate 612Y1SU Getting familiar with medium and long-teclassroom as well as 612Y1VC Basic modes of transof waterways in Euro in inland navigation, 612Y1VD Technologické možna finan ní náro nost	Titan Simulation ent game simulating the business decisions. Lets 2-8 student groups to produce and compete in the market with the same ity and capacity of production, plan budgets for marketing, research and development. They become familiar with the conse reports and they use this information for other business decisions. Management and Maintenance of Roads ownership of roads in the Czech Republic and the administration of the road at the state and county level. It is presented in strategy of the Ministry of Transport. Maintenance of roads winter and summer, its requirements, specifics, possibilities investment activity in highway engineering. Waterways and Shipping sport. The position of water transport in the transport system of the Czech Republic and the EU. Advantages and disadvar ope, a network of waterways in the Czech Republic. Construction of the waterway and its equipment. Management of water navigation rules of operation, navigation maps. Water Transport and Transportation nosti vnitrozemské plavby. Základní rozd lení vnitrozemských plavidel a jejich základní parametry. Základy konstrukce a st t výstavby infrastruktury vodní dopravy. Poptávka po vodní doprav v eské republice. Zp soby financování investi ních a y, p ístavy lod nice apod.). Námo ní doprava obecn a v podmínkách R.	KZ e product. Students set a sequences of their decis KZ development of road ne and repair methods are KZ ntages of water transpor rways and its operation. KZ tavby plavidel. Efektivnos provozních náklad infr	a price and ions by the form 2 twork, short, discussed in the 2 t. Basic systems The legal regime 2 st vodní dopravy
617Y1ST Titan is a management determine the quant of financial corporate 612Y1SU Getting familiar with medium and long-terclassroom as well as 612Y1VC Basic modes of transof waterways in Euro in inland navigation, 612Y1VD Technologické možna finan ní náro nost dopravy (vodní cesty 614Y1ZM	Titan Simulation ent game simulating the business decisions. Lets 2-8 student groups to produce and compete in the market with the same ity and capacity of production, plan budgets for marketing, research and development. They become familiar with the conse reports and they use this information for other business decisions. Management and Maintenance of Roads ownership of roads in the Czech Republic and the administration of the road at the state and county level. It is presented my strategy of the Ministry of Transport. Maintenance of roads winter and summer, its requirements, specifics, possibilities investment activity in highway engineering. Waterways and Shipping sport. The position of water transport in the transport system of the Czech Republic and the EU. Advantages and disadvar ope, a network of waterways in the Czech Republic. Construction of the waterway and its equipment. Management of water navigation rules of operation, navigation maps. Water Transport and Transportation losti vnitrozemské plavby. Základní rozd lení vnitrozemských plavidel a jejich základní parametry. Základy konstrukce a st t výstavby infrastruktury vodní dopravy. Poptávka po vodní doprav v eské republice. Zp soby financování investi ních a y, p ístavy lod nice apod.). Námo ní doprava obecn a v podmínkách R. Fundamentals of parametric and adaptive modeling	KZ e product. Students set a sequences of their decis KZ development of road ne and repair methods are KZ ntages of water transpor rways and its operation. KZ tavby plavidel. Efektivnos provozních náklad infr	a price and ions by the form 2 twork, short, discussed in the 2 t. Basic system: The legal regime 2 st vodní dopravy astruktury vodn
617Y1ST Titan is a management determine the quant of financial corporate 612Y1SU Getting familiar with medium and long-terclassroom as well as 612Y1VC Basic modes of transof waterways in Euro in inland navigation, 612Y1VD Technologické možna finan ní náro nost dopravy (vodní cesty 614Y1ZM	Titan Simulation ent game simulating the business decisions. Lets 2-8 student groups to produce and compete in the market with the same ity and capacity of production, plan budgets for marketing, research and development. They become familiar with the conse reports and they use this information for other business decisions. Management and Maintenance of Roads ownership of roads in the Czech Republic and the administration of the road at the state and county level. It is presented in strategy of the Ministry of Transport. Maintenance of roads winter and summer, its requirements, specifics, possibilities investment activity in highway engineering. Waterways and Shipping sport. The position of water transport in the transport system of the Czech Republic and the EU. Advantages and disadvar ope, a network of waterways in the Czech Republic. Construction of the waterway and its equipment. Management of water navigation rules of operation, navigation maps. Water Transport and Transportation nosti vnitrozemské plavby. Základní rozd lení vnitrozemských plavidel a jejich základní parametry. Základy konstrukce a st t výstavby infrastruktury vodní dopravy. Poptávka po vodní doprav v eské republice. Zp soby financování investi ních a y, p ístavy lod nice apod.). Námo ní doprava obecn a v podmínkách R.	KZ e product. Students set a sequences of their decis KZ development of road ne and repair methods are KZ ntages of water transpor rways and its operation. KZ tavby plavidel. Efektivnos provozních náklad infr	a price and ions by the form 2 twork, short, discussed in the 2 t. Basic system: The legal regime 2 st vodní dopravy astruktury vodn
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617Y1ST Titan is a management determine the quant of financial corporate 612Y1SU Getting familiar with medium and long-terclassroom as well as 612Y1VC Basic modes of transof waterways in Euro in inland navigation, 612Y1VD Technologické možn a finan ní náro nost dopravy (vodní cesty 614Y1ZM Basics of work at profrom and to another 616Y1ZL	Titan Simulation ent game simulating the business decisions. Lets 2-8 student groups to produce and compete in the market with the same ity and capacity of production, plan budgets for marketing, research and development. They become familiar with the conse reports and they use this information for other business decisions. Management and Maintenance of Roads ownership of roads in the Czech Republic and the administration of the road at the state and county level. It is presented rm strategy of the Ministry of Transport. Maintenance of roads winter and summer, its requirements, specifics, possibilities investment activity in highway engineering. Waterways and Shipping sport. The position of water transport in the transport system of the Czech Republic and the EU. Advantages and disadvar ope, a network of waterways in the Czech Republic. Construction of the waterway and its equipment. Management of water navigation rules of operation, navigation maps. Water Transport and Transportation sosti vnitrozemské plavby. Základní rozd lení vnitrozemských plavidel a jejich základní parametry. Základy konstrukce a sta výstavby infrastruktury vodní dopravy. Poptávka po vodní doprav v eské republice. Zp soby financování investi ních a vy pístavy lod nice apod.). Námo ní doprava obecn a v podmínkách R. Fundamentals of parametric and adaptive modeling oducts and parts creation. Sketch drawing by help of geometric relations, parametric dimensions, creation of adaptive modesystems. Fundamentals of assemblies creation.	kZ e product. Students set a sequences of their decise sequences of their decise kZ development of road ne and repair methods are kZ ntages of water transport rways and its operation. kZ tavby plavidel. Efektivnos a provozních náklad infrokZ dels from 2D sketches. Ir	a price and ions by the form 2 twork, short, discussed in the 2 t. Basic system: The legal regime 2 st vodní dopravy astruktury vodn 2 nport and expor

Name of the block: Jazyky

Minimal number of credits of the block: 12

The role of the block: J

Code of the group: JAZ 1 PRE (3.-4.SEM)

Name of the group: Jazyky bak. PRE pro 3. a 4. sem. (1.cizí jazyk)

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
615JZ1A	Foreign Language - English 1 V ra Pastorková	Z	3	0P+4C+10B	Z	J
615JZ2A	Foreign Language - English 2 V ra Pastorková	Z,ZK	3	0P+4C+10B	L	J
615JZ1N	Foreign Language - German 1	Z	3	0+4	Z	J
615JZ2N	Foreign Language - German 2	Z,ZK	3	0+4	L	J
615JZ1R	Foreign Language - Russian 1	Z	3	10	Z	J
615JZ2R	Foreign Language - Russian 2	Z,ZK	3	0+4	L	J

Characteristics of the courses of this group of Study Plan: Code=JAZ 1 PRE (3.-4.SEM) Name=Jazyky bak. PRE pro 3. a 4. sem. (1.cizí jazyk)

615JZ1A Foreign Language - English 1 Grammatical structures and style. Selection of conversation topics relating to transportation sciences. Extending vocabulary, developing perceptive and communicative skills. Elementary stylistics forms. Oral and written presentation of original research. Academic text principles and reading comprehension. Principles of rhetoric.

615JZ2A Foreign Language - English 2 Z,ZK 3

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

Foreign Language - German 1

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

615JZ2N Foreign Language - German 2

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

615JZ1R Foreign Language - Russian 1

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

615JZ2R 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'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 forms. Technical texts and their features; practice of oral and written presentation.

Code of the group: JAZ 2 PRE (5.-6.SEM)

Name of the group: Jazyky bak. PRE pro 5. a 6. sem. (2.cizí jazyk)

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
615JZ3A	Foreign Language - English 3	Z	3	0P+4C	Z	J
615JZ4A	Foreign Language - English 4	Z,ZK	3	0+4	L	J
615JZ3N	Foreign Language - German 3 René Skalický	Z	3	0P+4C+10B	Z	J
615JZ4N	Foreign Language - German 4 René Skalický, Sv tlana Petrová, Eva Rezlerová	Z,ZK	3	0P+4C+10B	L	J
615JZ3R	Foreign Language - Russian 3 Vilma Gottwaldová	Z	3	0P+4C+10B	Z	J
615JZ4R	Foreign Language - Russian 4 Vilma Gottwaldová	Z,ZK	3	0P+4C+10B	L	J

Characteristics of the courses of this group of Study Plan: Code=JAZ 2 PRE (5.-6.SEM) Name=Jazyky bak. PRE pro 5. a 6. sem. (2.cizí jazyk)

615JZ3A Foreign Language - English 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 forms. Technical

texts and their features; practice of oral and written presentation. Foreign Language - English 4

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

615JZ3N Foreign Language - German 3 Ζ

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

Foreign Language - German 4

Z.ZK

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

615JZ3R Foreign Language - Russian 3 Ζ

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.

615JZ4R Foreign Language - Russian 4 Z.ZK

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

List of courses of this pass:

Code	Name of the course	Completion	Credits
611DAD	Differential and Difference Equations	Z,ZK	3
•	ential equation of the first order and some methods of its solution. Differential equations of the n-th order, linear diferential equations.		•
	linear differential equation of the second order. Systems of linear differential equations. Difference equations, linear difference equations	-	ems.
611FY1	Physics 1	Z,ZK	4
	natics, particle dynamics, dynamics of particle systems and rigid body. Continuum mechanics, thermodynamics, electric field, directed		
611FY2	Physics 2	Z,ZK	4
lagnetic field, elec	ctromagnetic field. Optics, quantum character of electromagnetic radiation. Introduction into quantization, hydrogen atom. Multi-electro	on atoms, the nucle	ei. Basics o
	solid body physics.		
611GIE	Geometry	KZ	3
· ·	d oblique projections, linear perspective. Topographic surfaces and their orthogonal projection. Differential geometry of curves - param		
	and curvature, Frenet's trihedron. Kinematics - a curve as a trajectory of the motion, the velocity and acceleration of a particle moving		
611LA	Linear Algebra ear combinations, linear independence, dimension, basis, coordinates). Matrices and operations. Systems of linear equations and thei	Z,ZK	3
rector spaces (inte	their applications. Scalar product. Similarity of matrices (eigenvalues and eigenvectors). Quadratic forms and their classificati		IIIIIai ils ai i
611MDS	Collection and Processing of Traffic Data	KZ	2
	collection and Frocessing of frame Data ciples of traffic data. Data preprocessing and analysis for use in a		
611MSP	Modeling of Systems and Processes	Z.ZK	4
	stem, 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		
	Discretization of continuous systems. System interconnection.	,	,
611MTA	Mathematical Analysis	Z,ZK	4
	ries of real numbers and its convergence. Basic properties of functions. Differential and integral calculus of the real function of one real	,	ries, Fourie
·	series and foundations of Fourier transform.		
611MVP	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 function	,	ns, implicitl
defined functions,	extremes of functions of several variables. Integral calculus of functions of several variables, Riemann integral, integral over curves a	nd surfaces in R3,	application
	of integral calculus in physics.		
611PT			
01111	Probability	Z	2
	Probability cs. Basic probability concepts: elementary events and events, definitions and interpretation of probability. Random variable, probability		_
Descriptive statistic	cs. Basic probability concepts: elementary events and events, definitions and interpretation of probability. Random variable, probability ents, some discrete and continuous distributions. Random vectors: joint and marginal distributions, mean vector, covariance matrix. N	distribution, prob	ability mass
Descriptive statistic and density, mom	cs. Basic probability concepts: elementary events and events, definitions and interpretation of probability. Random variable, probability	distribution, probablished distributions,	ability mass mixture of
Descriptive statistic and density, mom	cs. Basic probability concepts: elementary events and events, definitions and interpretation of probability. Random variable, probability ents, some discrete and continuous distributions. Random vectors: joint and marginal distributions, mean vector, covariance matrix. No distributions. Law of large numbers, central limit theorem. Statistics	/ distribution, probatived distributions,	ability mass mixture of
Descriptive statistic and density, mom 611SIS Point estimation, p	cs. Basic probability concepts: elementary events and events, definitions and interpretation of probability. Random variable, probability lents, some discrete and continuous distributions. Random vectors: joint and marginal distributions, mean vector, covariance matrix. Note that the distributions is a continuous distribution. Law of large numbers, central limit theorem. Statistics Droperties of point estimators, methods of point estimation. Testing statistical hypothesis. Fit test, independence test. Regression and	y distribution, probadized distributions, Z,ZK correlation, linear	ability mass mixture of 2 regression,
Descriptive statistic and density, mom 611SIS Point estimation, p correlation coefficie	cs. Basic probability concepts: elementary events and events, definitions and interpretation of probability. Random variable, probability lents, some discrete and continuous distributions. Random vectors: joint and marginal distributions, mean vector, covariance matrix. Moreover distributions. Law of large numbers, central limit theorem. Statistics Droperties of point estimators, methods of point estimation. Testing statistical hypothesis. Fit test, independence test. Regression and lent, coefficient of determination, general linear model, statistical inference in linear regression, analysis of variance, multiple regression	y distribution, proba dixed distributions, Z,ZK correlation, linear , use of matrices in	ability mass mixture of 2 regression, regression
Descriptive statistic and density, mom 611SIS Point estimation, p correlation coefficie 612DPZ	cs. Basic probability concepts: elementary events and events, definitions and interpretation of probability. Random variable, probability tents, some discrete and continuous distributions. Random vectors: joint and marginal distributions, mean vector, covariance matrix. Market distributions. Law of large numbers, central limit theorem. Statistics properties of point estimators, methods of point estimation. Testing statistical hypothesis. Fit test, independence test. Regression and ent, coefficient of determination, general linear model, statistical inference in linear regression, analysis of variance, multiple regression. Traffic Surveys	y distribution, probablished distributions, Z,ZK correlation, linear is, use of matrices in	ability mass mixture of 2 regression, regression 2
Descriptive statistic and density, mom 611SIS Point estimation, p correlation coefficie 612DPZ	cs. Basic probability concepts: elementary events and events, definitions and interpretation of probability. Random variable, probability tents, some discrete and continuous distributions. Random vectors: joint and marginal distributions, mean vector, covariance matrix. Material distributions. Law of large numbers, central limit theorem. Statistics properties of point estimators, methods of point estimation. Testing statistical hypothesis. Fit test, independence test. Regression and ent, coefficient of determination, general linear model, statistical inference in linear regression, analysis of variance, multiple regression. Traffic Surveys as of traffic surveys, project of skills of counting vehicles at all types of road junction, car park surveys to determine accumulation and	y distribution, probablished distributions, Z,ZK correlation, linear is, use of matrices in	ability mass mixture of 2 regression, regression 2
Descriptive statistic and density, mom 611SIS Point estimation, p correlation coefficie 612DPZ Fundamental mear	cs. Basic probability concepts: elementary events and events, definitions and interpretation of probability. Random variable, probability tents, some discrete and continuous distributions. Random vectors: joint and marginal distributions, mean vector, covariance matrix. Material distributions. Law of large numbers, central limit theorem. Statistics properties of point estimators, methods of point estimation. Testing statistical hypothesis. Fit test, independence test. Regression and ent, coefficient of determination, general linear model, statistical inference in linear regression, analysis of variance, multiple regression. Traffic Surveys as of traffic surveys, project of skills of counting vehicles at all types of road junction, car park surveys to determine accumulation and statistical analysis, simulation models, etc.	y distribution, probablished distributions, Z,ZK correlation, linear in, use of matrices in KZ length of stay of e	ability mass mixture of 2 regression, regression 2 ach vehicle
Descriptive statistic and density, mom 611SIS Point estimation, p correlation coefficie 612DPZ Fundamental mear	cs. Basic probability concepts: elementary events and events, definitions and interpretation of probability. Random variable, probability tents, some discrete and continuous distributions. Random vectors: joint and marginal distributions, mean vector, covariance matrix. Material distributions. Law of large numbers, central limit theorem. Statistics properties of point estimators, methods of point estimation. Testing statistical hypothesis. Fit test, independence test. Regression and ent, coefficient of determination, general linear model, statistical inference in linear regression, analysis of variance, multiple regression. Traffic Surveys as of traffic surveys, project of skills of counting vehicles at all types of road junction, car park surveys to determine accumulation and statistical analysis, simulation models, etc. Ecology	y distribution, probablished distributions, Z,ZK correlation, linear in, use of matrices in KZ length of stay of e	ability mass mixture of 2 regression, regression 2 ach vehicle
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Descriptive statistic and density, mome 611SIS Point estimation, proceedings of 612DPZ Fundamental mear 612ECO Basic ecological to	cs. Basic probability concepts: elementary events and events, definitions and interpretation of probability. Random variable, probability tents, some discrete and continuous distributions. Random vectors: joint and marginal distributions, mean vector, covariance matrix. Material distributions. Law of large numbers, central limit theorem. Statistics properties of point estimators, methods of point estimation. Testing statistical hypothesis. Fit test, independence test. Regression and ent, coefficient of determination, general linear model, statistical inference in linear regression, analysis of variance, multiple regression. Traffic Surveys as of traffic surveys, project of skills of counting vehicles at all types of road junction, car park surveys to determine accumulation and statistical analysis, simulation models, etc. Ecology erms and principles. Ecosystem. Ecological factors, ecological limits. Energy in ecosystem, food pyramid, photosynthesis, ecological Applied ecology. Environment. Greenhouse effect. Environment protection. Landscape ecology.	y distribution, probablished distributions, Aixed distributions, Aixed distributions, Linear III, use of matrices in KZ length of stay of e	ability mass mixture of 2 regression, regression 2 ach vehicle 2 production.
Descriptive statistic and density, momentum 611SIS Point estimation, proceedings of 12DPZ Fundamental mear 612ECO Basic ecological to 612MDE	cs. Basic probability concepts: elementary events and events, definitions and interpretation of probability. Random variable, probability tents, some discrete and continuous distributions. Random vectors: joint and marginal distributions, mean vector, covariance matrix. Material distributions. Law of large numbers, central limit theorem. Statistics properties of point estimators, methods of point estimation. Testing statistical hypothesis. Fit test, independence test. Regression and ent, coefficient of determination, general linear model, statistical inference in linear regression, analysis of variance, multiple regression. Traffic Surveys as of traffic surveys, project of skills of counting vehicles at all types of road junction, car park surveys to determine accumulation and statistical analysis, simulation models, etc. Ecology erms and principles. Ecosystem. Ecological factors, ecological limits. Energy in ecosystem, food pyramid, photosynthesis, ecological Applied ecology. Environment. Greenhouse effect. Environment protection. Landscape ecology. Transport Models and Transport Excesses	y distribution, proby Aixed distributions, Aixed distributions, Aixed distributions, Aixed distributions, Aixed distribution, proby Aixed distributions, proby Aixed distributions	ability mass mixture of 2 regression, regression 2 ach vehicle 2 production.
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612SDK	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 tr	raffic service. Design	gn elements
of crossroads and	d intersections. Crossroads. Roundabouts. Intersections. Special types of junctions. Capacity of crossroads and intersections. Structu	re of pavement of	roads and
040)/D0D	motorways. Road engineering structures. Assessment of route alternatives.		
612VDSR	Public Transport in Cities and Regions arration and transport. Public transport and city extension. Traffic service in region. Public transport financing. Principles of traffic servic	Z	2
Lanuscape configu	recreation areas. Making transport terminals. Public transport and region expansion.	e designing. Iranii	c service or
612X31	Project 1	Z	2
612X32	Project 2	Z	2
612X33	Project 3	Z	2
612Y1PC	Pedestrian and Cycling Transport	KZ	2
	ans. Pedestrian crossings. Modifications for blind, dim-sighted and disabled people. Design of cycle routes network. Ways of cycle route		_
for cyclists. Separ	ation of cyclists from other transport modes. Cycle tracks and its design - one way streets, reserved traffic lanes, bus stops, crossings	s with other transp	ort modes,
	crossroads. Traffic signs and road marking for cyclists.		
612Y1PD	Assessment of Transport	KZ	2
	sport structures, the EIA process. Multicriteria assessment methods, risk analysis, SWOT analysis. Landscape character, possibilities of s on the landscape. Rating fragmentation and landscape connectivity in the preparation of linear structures. Practical examples of ass	•	
transport structures	s on the landscape. Rating fragmentation and landscape connectivity in the preparation of linear structures. Practical examples of ass the environment.	essment of traffic	bulldings on
612Y1PU	Organization Disposition of Railway Stations	KZ	2
	on. Passenger transport equipment. Freight transport equipment. Branch lines and railway traffic inside industrial company areas. Zon		l
_	ve stations. Technology of work in railway station with regard to its disposition. Railway station documentations in the Czech Republic		•
612Y1SU	Management and Maintenance of Roads	KZ	2
	rith ownership of roads in the Czech Republic and the administration of the road at the state and county level. It is presented developed		
medium and long-to	erm strategy of the Ministry of Transport. Maintenance of roads winter and summer, its requirements, specifics, possibilities and repair	methods are disc	ussed in the
040)/4)/0	classroom as well as investment activity in highway engineering.	1/7	
612Y1VC	Waterways and Shipping nsport. The position of water transport in the transport system of the Czech Republic and the EU. Advantages and disadvantages of v	KZ	2
	rope, a network of waterways in the Czech Republic. Construction of the waterway and its equipment. Management of waterways and		-
	in inland navigation, navigation rules of operation, navigation maps.		-9
612Y1VD	Water Transport and Transportation	KZ	2
Technologické mož	nosti vnitrozemské plavby. Základní rozd lení vnitrozemských plavidel a jejich základní parametry. Základy konstrukce a stavby plavi	del. Efektivnost vo	dní dopravy
a finan ní náro nos	st výstavby infrastruktury vodní dopravy. Poptávka po vodní doprav v eské republice. Zp soby financování investi ních a provozníc	h náklad infrastru	uktury vodní
	dopravy (vodní cesty, p ístavy lod nice apod.). Námo ní doprava obecn a v podmínkách R.		
612ZADI	Introduction to Transportation Engineering	Z,ZK	3
Traffic survey. Terre	strial roads. Residential zone. Land - use planning. Railway transport. Public mass transport. Integrated traffic systems. Traffic progno- Traffic and environment.	sis. Iraffic safety. A	ur transport.
612ZAPR	Introduction to Architectural Design	ZK	2
	architecture of traffic systems. Bus and trolley-bus transport. Tramway and town tracks. Design of vehicles. Subway. Railway transport		l
	communications. International airports.	-	
612ZELP	Railway Operation	Z,ZK	4
Legislation in railv	vay transport. Railway vehicles. Railway signals and signal devices. Railway traffic organisation and operation. Simplified railway traffic	c operation. Railwa	ay vehicles
040)/4514	brakes. Railway vehicles marking. Operation intervals. Theoretical graph of train running.	1/7	
613Y1PM	Personal Management	KZ	2
614DB	Database Systems	KZ	2 or interfess
	ndamentals of relational and object database systems, database structure, relations modelling, relation algebra, dbf. tools, database o ess. Basic statement of SQL language. Expert systems and knowledge based applications, knowledge representation, methods of de		
Tomoto data dooc	interface for knowledge systems design, certainty and uncertainty in knowledge systems.	rvating and implor	nontating,
614DIVT	Transportation Engineering with Computation Technique Aid	KZ	2
Overview of trans	port models for micro-simulation. Application working environment. Vehicles movement within system. Creation and simulation of micro-simulation of micro-simulation.	rosopic traffic mod	lel. Output
characteristics eval	uation. 4D transport model visualization. Comparison with static model. Principles, elements, and construction of supply and demand m	odels. Stochastic	gravitational
04.41/.00	model. History, trends, and practise exercise.	1/7	
614KSP	Constructing with Computer Aid m determination. CAD role in projecting system model. Existing CAD systems on Czech market. Project creation, basic common wor	KZ	2
<u>-</u>	Co-ordinated systems, CAD environment skill (basics of constructing, dimensioning, modifications, user interfaces, projecting possib		
and or coyotomor	profiles, drawings with raster foundaments).		
614PPD	Computer Aid of Transportation Projecting	KZ	2
Overview of CAx ap	oplication for transportation projecting aid. AutoCAD environment possibilities of basic tasks automatizing (programming, scripting, data	a exchange). Adva	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
04.4014.5	section). Basics of 3D modelling.		
614SIAP	Networks and Protocols	KZ	2
	tion model, history and development of the Internet, principle of data transfer through computer networks (TCP/IP), performance of b elnet, FTP, DNS, DHCP POP3, IMAP), data acquirement from the Internet sources, communicating ability via the Internet and fundame	•	
, , , ,	design by the means of web sites.	or own wob p	. Joshianon
614UATT	Introduction to Automatization and Telecommunication Systems	KZ	2
	echnical cybernetics, automatization in transportation, human as the weakest element, signalling in transpotation, modelling and proj		l
integrated technolo	gical and infromation system in post, principle of telecommunication signal transmission, solving of telecommunication networks, mo	dulating methods,	multimedial
	networks and services, NGN networks.		_
614UPRO	Introduction to Programming	KZ	2
Algorithm develop	pment, methods of structured programming, high-level programming languages, basics of C programming languages (types, variable	s, conditions, cycle	es, arrays,

614Y1AV Advanced modifica	Animation and Visualization tions and modeling of NURBS, Patch objects, selection of objects (according to filter and properties). 3D Studio MAX systems and Spa	KZ ace Warp objects. A	2 Atmospheric
and other effect	s, rendering filters, Motion blur, advanced animations, Motion panel. Modeling for morphing and animation, bone formation, animatior	n using Inverse Kir	ematics.
614Y1PG	Computer Graphics	KZ	2
Basic formats of g	graphic and possibilities of their editing and mutual conversion. Use of individual types according to character of work. Work with editi level scope) using layers, DPI, colors. Basics of digital photography, scanning and computer technology like monitors and graphic		in the user
614Y1PM	Advanced Techniques of Parametric and Adaptive Modeling	KZ	2
614Y1ZM	Fundamentals of parametric and adaptive modeling	KZ	2
Basics of work at p	roducts and parts creation. Sketch drawing by help of geometric relations, parametric dimensions, creation of adaptive models from 2 from and to another systems. Fundamentals of assemblies creation.	D sketches. Impor	t and expor
614ZAET	Fundamentals of Electrotechnics	KZ	2
Basic electrotechn	ic terms, circuit quantities. Periodic courses characteristics. Electric circuits elements and basic circuit members. Assignating of bipol irrent circuits with a help of circuit analysis elementar methods: method of consecutive reduction, unloaded voltage divider, current divide		it elements.
04.471115	and principle of superposition in direct current circuits.	1/7	
614ZINF	Fundamentals of Informatics culty network, MS-Word and Open Office, use of styles and advanced features, computer functions and information transmission. Nur	KZ	2
	thms and their proprieties. Flow charts for algorithms drawing. Mathematic and logic ordering algorithms incl. functions and procedures graphs, calculations, functions.	•	
615JZ1A	Foreign Language - English 1	Z	3
	ures and style. Selection of conversation topics relating to transportation sciences. Extending vocabulary, developing perceptive and col stylistics forms. Oral and written presentation of original research. Academic text principles and reading comprehension. Principles of	mmunicative skills.	-
615JZ1N	Foreign Language - German 1	Z	3
Grammar structu	ure 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 texts and their features; practice of oral and written presentation.		
615JZ1R	Foreign Language - Russian 1	Z	3
	ure and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty		
improvement in p	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.	and written forms.	Technical
615JZ2A	Foreign Language - English 2	Z,ZK	3
Grammatical struct	ures and style. Selection of conversation topics relating to transportation sciences. Extending vocabulary, developing perceptive and coustylistics forms. Oral and written presentation of original research. Academic text principles and reading comprehension. Principles of		Elementary
615JZ2N	Foreign Language - German 2	Z,ZK	3
	ure 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 texts and their features; practice of oral and written presentation.	-	
615JZ2R	Foreign Language - Russian 2	Z.ZK	3
Grammar structi	ure 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 texts and their features; practice of oral and written presentation.	y's fields of study.	Focus on
615JZ3A	Foreign Language - English 3	Z	3
Grammar structi	ure 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	y's fields of study.	Focus on
	texts and their features; practice of oral and written presentation.		
-	Foreign Language - German 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 v		_
	features. Practice of oral and written presentation.	,	
615JZ3R	Foreign Language - Russian 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 la	anguage structure	knowledge
and 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 its
615JZ4A	Foreign Language - English 4	Z,ZK	3
	ure 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		
045 1741	texts and their features; practice of oral and written presentation.	7 71/	
615JZ4N	Foreign Language - German 4	Z,ZK	3
Giaminar and styli	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 value features. Practice of oral and written presentation.		-
and perceptive and		7.714	3
	· · · · · · · · · · · · · · · · · · ·	l Z.ZK	
615JZ4R Grammar and styli	Foreign Language - Russian 4 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.		_
615JZ4R Grammar and styli and perceptive and	Foreign Language - Russian 4 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 vote features. Practice of oral and written presentation.	anguage structure with (professional)	text and its
615JZ4R Grammar and styli and perceptive and 615X31	Foreign Language - Russian 4 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 very features. Practice of oral and written presentation. Project 1	anguage structure with (professional)	_
615JZ4R Grammar and styli and perceptive and	Foreign Language - Russian 4 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 of features. Practice of oral and written presentation. Project 1 Project 2	anguage structure with (professional)	text and its
615JZ4R Grammar and styli and perceptive and 615X31	Foreign Language - Russian 4 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 very features. Practice of oral and written presentation. Project 1	anguage structure with (professional)	text and its
615JZ4R Grammar and styli and perceptive and 615X31 615X32 615X33 615Y1BO	Foreign Language - Russian 4 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 of features. Practice of oral and written presentation. Project 1 Project 2	z Z Z Z KZ	text and its

615Y1DZ	History of Railway	KZ	2
Horse-drawn raily	vays, steam railways, railway network development in the 2nd half of 19th century, regional railways epoch, railways of the "First Rep	ublic", electric tract	tion, World
War II railways, railv	way development in the 2nd half of 20th century, high-speed railway origins, railway lines closing, important long-distance train connect	ions, railway lines o	construction,
	railway accidents, railway junctions. Excursions and projections.		
615Y1HE	Work Hygiene and Ergonomics in Traffic	KZ	2
_	of occupational hygiene and ergonomics, and their application in transport. Working environment factors, and the influence of these ection of working conditions that do not damage public health. Mutual links man-machine-environment. Adaptation of technology to p		
Creation and prot	Practical examples from the field of transportation; relevant legislative.	oosibilities and ski	ilis oi man.
616DOPY	Vehicle Technology	KZ	3
	nsportation technology. Vehicle in the terms of legislation. Construction, operation, environmental influence. Vehicles and ecology. Tra	I	
	electrical engines. Power train construction. Power transmisssion. Conducting properties of railroad vehicles. Resistance to disrailing.	_	
	water transport. Transportation technology in aviation.		
616DYJ	Vehicle Dynamics	Z,ZK	3
Application of mech	nanics. Wheel and axle suspension mechanism. Wheel to road positioning characteristics. Wheel - road contact. Skid and its character	eristics. Longitudina	al dynamics,
acceleration and de	eceleration. Vertical dynamics, spring suspension, driving characteristics. Directional dynamics, gyroscopical characteristics. Driving st	ability conditions. A	erodynamic
0.1000)/	forces. Driving and feedback. ABS, ESP.	7 714	
616PBV	Passive Vehicle Safety	Z,ZK	3
Legislation and tes	ting processes. Barrier tests. Car body properties. Injury mechanism. Critical limits for evaluation of injury seriousness. Retaining sys of various vehicle types. Safety of traffic participants. Mathematic modeling. E-call.	tems. Airbags. Risi	k of collision
616UDDM	Introduction to Transportation and Manipulation Technics	ZK	2
	ation and transportation systems. Principles, functions and arrangement of means of transportation. Motors and their characteristics. Wa		
mound of transports	technics. Principles of lifting machines and conveyors. Legislature.	tor transportation.	viainpalating
616X31	Project 1	Z	2
616X32	Project 2	Z	2
616X33	Project 3	Z	2
616Y1ZL	Vehicle Testing, Legislation and Construction	KZ	2
	n, aggregate computing, driving resistance, building and parameters of traction, constructional arrangement of personal cars, trucks,	I	
	in the EU and in the world, creation of technical legislation, testing methods, vehicle tests, accelerated tests, mathematical modelling		, . 5
617DAS	Transportation and Communication Law	Z	1
	Transportation and communication law - railway, road transport, ropeway, water road, air transport, telecommunication, post, p	atent.	'
617E	Economics	Z,ZK	3
Microeconomic a	and macroeconomic interpretation of economic relations. Method and subject of the economics. Economic decision making of consu	mers and producer	rs. Market
	structures. Labour and capital, efficiency, ownership, public choice.		
617EDOT	Economy, Transport, Telecommunications	KZ	2
· · · · · · · · · · · · · · · · · · ·	communications, demand, supply, indicators, economic development, legislation, European union, regulation, liberalisation, transport		
617ERP	Company Economy and Management	Z,ZK	3
Company and its	neighbourhood, structure of assets and liabilities, depreciation, costs, revenues and profit, break-even point, costing, inventory, finan	-	investment
617GEDS	appraisal, basics of management, organizational structures, human resources management, marketing, company strategy, busine Geography of Transport Systems	KZ	2
	ntiation of the transport system. Sociogeographic regionalization and its relation to transport. Transport and local and regional develo	I	
-	hodological framework. Mobility research - travel behavior, mode choice and the influence onto "modal-split." Modal competition. Practica		
	analysis in transportation planning.		, , ,
617TDL	Transport Technology and Logistics	Z,ZK	3
	sport technology and logistics. Particular steps of transport planning. Quantification of carriage relations. Line planning. Timetabling. P		
transport. Organisa	tion of traffic in each transport means. Technological factors from the point of view of operator and client. Organisation of public city t	ransport. Logistic t	echnologies
	and their application using various transport means.		
617TGA	Graph Theory and its Applications in Transport	Z,ZK	4
	graph theory, paths in graphs, flows in networks, location problems, design problems on graphs, optimum routing, use of graphs in o	_	
617X31	Project 1	Z	2
617X32	Project 2	Z	2
617X33	Project 3	Z	2
617Y1AF	Alternative Forms of Transportation Project Financing	KZ	2
•	fed 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 partic	cipant of the transaction and it is not the counterparty of the financial institute which provides the funding. Issue of securities as an alter project.	native source of tra	arisportation
617Y1DZ	Transported Commodities Cognization	KZ	2
617Y10F	Personal Finance	KZ KZ	2
	Personal Finance budget, financing of basic living needs), debt (loans and credits, payment instruments, interest and fees, debt trap), financing of hou	I	1
	financing), savings and investments (investment horizon, return, risk, investment strategy), insurance (insurance types, suitability and		- 1
, -	(retirement savings and insurance).	÷ •••	
617Y1PM	Personnel Management	KZ	2
	ces, work group, man as personality, planning, choice, evaluation and education of human sources, work adaptation, teamwork, intel	cultural communic	'
617Y1ST	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 quar	ntity and capacity of production, plan budgets for marketing, research and development. They become familiar with the consequence	s of their decisions	by the form
0401/145	of financial corporate reports and they use this information for other business decisions.	7 711	
618KIAD	Kinematics and Dynamics motion along a curve Kinematics of rigid plane, kinematics of rigid body. Point mass kinematics, system of point masses. Point mass	Z,ZK	2
=	, motion along a curve. Kinematics of rigid plane, kinematics of rigid body. Point mass kinematics, system of point masses. Point mass n of motion. Method of Newton. Princle of D´Alembert. Free and forced vibration with one degree of freedom. Viscous damping. Impa	-	- 1
macoco, equalio	solution of vibration with multiple degrees of freedom.	anoony. maroudot	

618MRI1	Materials 1	Z,ZK	3
Crystal structure. Ba	asics of thermodynamics of metals and their alloys. Balanced binary diagrams. Alloys of iron with carbon. Deterioration of solid solutions. I steel and cast irons. Physical features. Mechanical features. Dephectostopic testing. Corosion.	Heating pro	cessing of
618MRI2	Materials 2	KZ	2
Fundamental	concepts, notions. The main materials groups. Semiconductors. Polymers. Special types of steel. Properties and application of the compo	osite materi	als.
618PZP	Elasticity and Strength	Z,ZK	3
•	sion. Bending of beam. Shear stress during bending of beam. Design and analysis of cross section of beam. Design of riveted, bolted and w	-	
Analysis of deflection	ion curve of beam. Torsion of circle cross section. Combined loading. Stability of compressed bar and buckling. Beam on elastic foundation	n. Strength	analysis.
618ST	Statics 2	Z,ZK	3
=	forces. Calculation of reactions of mass objects and compound systems. Assessment of internal forces on statically determinate beam an	-	
Principle of virtual wor	rks. Kinematic method for calculation of reactions of statically determinate systems. Determination of axial forces in truss construction, meth	od of joints	and method
0.4.0.7.1.6	of sections. Geometry of cross sections. Plane fiber polygons and catenary cables.	1.77	
618TK	Theory of Structures	KZ .	2
· · · · · · · · · · · · · · · · · · ·	principle of virtual work. Force (flexibility) method. Aplication of force method to frame analysis. Displacement (stiffness) method. Simplifie	_	
method. Mathematical	I foundations of elasticity. Static analysis of complex statically indeterminate structure. Energy methods for beam analysis. Lagrange varia	itional princi	ipie. winkier
CAOTTED	model of elastic foundation. Pasternak model of elastic foundation.	1/7	
618TTED	Creation of Technical Documentation	KZ	2
recrimical standards, ii	nternational standardization, types of technical drawings, representation of technical objects, technical diagrams and charts, dimensional and arrangement of drawing sheets, types of schemes and their creation.	u geometric	ai accuracy,
620RM		Z,ZK	3
	Urban Concentration and Motorway Control 2 Jament. Overall transport management. Stationary transport. Information panels, variable traffic signs. Transport system control including city		_
City transport manage	tunnels and their technological equipment, control and safety systems. Emergency situations in transport and their solutions.	y public trail	isport. Road
620RU		Z,ZK	3
020110			
Basic concents, terms			_
•	s, principles and requirements for documentation. Criteria of design light signaling equipment. Hardware and software of transport node. Tra	affic detecto	rs. Proposal
•	s, principles and requirements for documentation. Criteria of design light signaling equipment. Hardware and software of transport node. Tra s, horizontal and vertical markings. Calculation of intersection design and its wider relations. Line management. Proposal for traffic manager	affic detecto	rs. Proposal
for construction works	s, principles and requirements for documentation. Criteria of design light signaling equipment. Hardware and software of transport node. Tra s, horizontal and vertical markings. Calculation of intersection design and its wider relations. Line management. Proposal for traffic manager in transport management.	affic detecto ment and cu	rs. Proposal irrent trends
for construction works.	s, principles and requirements for documentation. Criteria of design light signaling equipment. Hardware and software of transport node. Tra s, horizontal and vertical markings. Calculation of intersection design and its wider relations. Line management. Proposal for traffic manager in transport management.	affic detecto ment and cu Z,ZK	rs. Proposal irrent trends
for construction works 620SSA Systems identificatio	s, principles and requirements for documentation. Criteria of design light signaling equipment. Hardware and software of transport node. Tra s, horizontal and vertical markings. Calculation of intersection design and its wider relations. Line management. Proposal for traffic manager in transport management. Systems Analysis	affic detecto ment and cu Z,ZK sks, proces	rs. Proposal irrent trends 3 s analysis.
for construction works 620SSA Systems identificatio	s, principles and requirements for documentation. Criteria of design light signaling equipment. Hardware and software of transport node. Trass, horizontal and vertical markings. Calculation of intersection design and its wider relations. Line management. Proposal for traffic manager in transport management. Systems Analysis on. Typical tasks of systems analysis: on the interface, routes in system, decomposition and integration, on systems feedback. Capacity task and reliable that one of the control of the con	affic detecto ment and cu Z,ZK sks, proces	rs. Proposal irrent trends 3 s analysis.
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620SSA Systems identificatio Task about be 620UIS Intelligent Transport S	s, principles and requirements for documentation. Criteria of design light signaling equipment. Hardware and software of transport node. Trass, horizontal and vertical markings. Calculation of intersection design and its wider relations. Line management. Proposal for traffic manager in transport management. Systems Analysis on. Typical tasks of systems analysis: on the interface, routes in system, decomposition and integration, on systems feedback. Capacity task thaviour, aim behaviour, the genetic code, architecture and identity of systems. Fundamentals of technical cybernetics, stability and reliable Introduction to ITS Systems (ITS), their objectives and vision. ITS in the world, in Europe and in the Czech Republic. Architecture of ITS and the role of stand	affic detector ment and cu Z,ZK sks, proces illity of syste Z,ZK dardization.	rs. Proposal urrent trends 3 s analysis. ems. 3 Information
for construction works 620SSA Systems identificatio Task about be 620UIS Intelligent Transport S and navigation system 621ZLD	s, principles and requirements for documentation. Criteria of design light signaling equipment. Hardware and software of transport node. Trais, horizontal and vertical markings. Calculation of intersection design and its wider relations. Line management. Proposal for traffic manager in transport management. Systems Analysis on. Typical tasks of systems analysis: on the interface, routes in system, decomposition and integration, on systems feedback. Capacity task ehaviour, aim behaviour, the genetic code, architecture and identity of systems. Fundamentals of technical cybernetics, stability and reliable Introduction to ITS Systems (ITS), their objectives and vision. ITS in the world, in Europe and in the Czech Republic. Architecture of ITS and the role of standams. ITS in road, rail and combine transport. Design of ITS, organization, preparation and implementation of the project. Current projects in	affic detectorment and curent and	rs. Proposal surrent trends 3 s analysis. ems. 3 Information in Republic. 2
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for construction works 620SSA Systems identificatio Task about be 620UIS Intelligent Transport S and navigation system 621ZLD Air transport as a core 622MMT	s, principles and requirements for documentation. Criteria of design light signaling equipment. Hardware and software of transport node. Training status of transport node. Training status of camera, acceleration design and its wider relations. Line management. Proposal for traffic management in transport management. Systems Analysis Systems Analysis On. Typical tasks of systems analysis: on the interface, routes in system, decomposition and integration, on systems feedback. Capacity tasks of systems analysis: on the interface, routes in system, decomposition and integration, on systems feedback. Capacity tasks of systems analysis: on the interface, routes in system, decomposition and integration, on systems feedback. Capacity tasks of systems (ITS), their objectives and vision. ITS in the world, in Europe and in the Czech Republic. Architecture of ITS and the role of stand arms. ITS in road, rail and combine transport. Design of ITS, organization, preparation and implementation of the project. Current projects in Introduction to Air Transport Introduction to Air Transport mponent of complex transport system. International status of civil aviation. International organizations in Europe and worldwide. Characte Commercial air transport. Technical operations of aeroplanes. Measurement Methods and Technology in Transportation mapping principles, measurement errors in geodesy, angular and linear measurement, measurement of height, location and ranging, photocamera, acceleration measurement in road traffic dynamic processes.	affic detectorment and curent and	rs. Proposal urrent trends 3 s analysis. ems. 3 Information n Republic. 2 r transport.
for construction works 620SSA Systems identificatio Task about be 620UIS Intelligent Transport S and navigation system 621ZLD Air transport as a core 622MMT	s, principles and requirements for documentation. Criteria of design light signaling equipment. Hardware and software of transport node. Trais, horizontal and vertical markings. Calculation of intersection design and its wider relations. Line management. Proposal for traffic manager in transport management. Systems Analysis on. Typical tasks of systems analysis: on the interface, routes in system, decomposition and integration, on systems feedback. Capacity task ehaviour, aim behaviour, the genetic code, architecture and identity of systems. Fundamentals of technical cybernetics, stability and reliable Introduction to ITS Systems (ITS), their objectives and vision. ITS in the world, in Europe and in the Czech Republic. Architecture of ITS and the role of stand elems. ITS in road, rail and combine transport. Design of ITS, organization, preparation and implementation of the project. Current projects in Introduction to Air Transport Introduction to Air Transport mponent of complex transport system. International status of civil aviation. International organizations in Europe and worldwide. Characte Commercial air transport. Technical operations of aeroplanes. Measurement Methods and Technology in Transportation mapping principles, measurement errors in geodesy, angular and linear measurement, measurement of height, location and ranging, photogeness.	affic detectorment and curent and	rs. Proposal urrent trends 3 s analysis. ems. 3 Information n Republic. 2 r transport.
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