Study plan

Name of study plan: PRE oboru DOS rozřazení 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
Name of the group: 1. sem. PRE 14-15 povinné předměty (spol. část 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 Bečvářová (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 Voráčová (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 předměty (spol. část 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 real numbers and its convergence. Basic properties of functions. Differential and integral calculus of the real function of one real variable. Power series, Fourier series and foundations of Fourier transform.			
612ZADI	Introduction to Transportation Engineering	Z,ZK	3
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.			
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 structures. Labour and capital, efficiency, ownership, public choice.			

618MRI1	Materials 1	Z,ZK	3
Crystal structure. Basics of thermodynamics of metals and their alloys. Balanced binary diagrams. Alloys of iron with carbon. Deterioration of solid solutions. Heating processing of steel and cast irons. Physical features. Mechanical features. Dephectostopic testing. Corosion.			
611GIE	Geometry	KZ	3
Orthographic and oblique projections, linear perspective. Topographic surfaces and their orthogonal projection. Differential geometry of curves - parameterization, arc of the curve, torsion and curvature, 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 graphic applications and CA systems. Co-ordinated systems, CAD environment skill (basics of constructing, dimensioning, modifications, user interfaces, projecting possibilites, AutoCAD environment profiles, drawings with raster foundaments).			
614ZINF	Fundamentals of Informatics	KZ	2
Introduction to faculty network, MS-Word and Open Office, use of styles and advanced features, computer functions and information transmission. Number systems incl. arithmetic calculations. Algorithms and their proprieties. Flow charts for algorithms drawing. Mathematic and logic ordering algorithms incl. functions and procedures. Work with MS-Excel - tables, graphs, calculations, functions.			
618TTED	Creation of Technical Documentation	KZ	2
Technical standards, international standardization, types of technical drawings, representation of technical objects, technical diagrams and charts, dimensional and geometrical accuracy, arrangement of drawing sheets, types of schemes and their creation.			
621ZLD	Introduction to Air Transport	KZ	2
Air transport as a component of complex transport system. International status of civil aviation. International organizations in Europe and worldwide. Characteristics of air transport. Commercial air transport. Technical operations of aeroplanes.			
622UN	Traffic Accidents Introduction	Z	2
TV-1	Physical Education	Z	1

Code of the group: 2S PRE 14-15 P
Name of the group: 2. sem. PRE 14-15 povinné předměty (spol. část 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 předměty (spol. část 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, sequences in metric spaces, limit of sequence in metric space. Differential calculus of functions of several variables, differential of function, partial derivations, implicitly defined functions, extremes of functions of several variables. Integral calculus of functions of several variables, Riemann integral, integral over curves and surfaces in R3, application of integral calculus in physics.			
612PKD	Rail Transport Designing	Z,ZK	3
Railway lines network. Vehicle and track relation. Traction. Track geometrical parameters. Clearance profile. Railway lines routing. Superstructure and substructure of the railway lines. Switches. Railway stations. City rail transport.			
617TDL	Transport Technology and Logistics	Z,ZK	3
Basic terms in transport technology and logistics. Particular steps of transport planning. Quantification of carriage relations. Line planning. Timetabling. Planning in pasanger and freight transport. Organisation of traffic in each transport means. Technological factors from the point of view of operator and client. Organisation of public city transport. Logistic technologies and their application using various transport means.			
618ST	Statics	Z,ZK	3
General system of forces. Calculation of reactions of mass objects and compound systems. Assessment of internal forces on statically determinate beam and simple 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 model, history and development of the Internet, principle of data transfer through computer networks (TCP/IP), performance of basic network protocols (ARP, RARP, TCP, UDP, Telnet, FTP, DNS, DHCP POP3, IMAP), data acquirement from the Internet sources, communicating ability via the Internet and fundamentals of own web presentation 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, variables, conditions, cycles, arrays, functions), programming techniques, complexity.			
617EDOT	Economy, Transport, Telecommunications	KZ	2
Transport, telecommunications, demand, supply, indicators, economic development, legislation, European union, regulation, liberalisation, transport modes, ITS, sustainability.			
618MRI2	Materials 2	KZ	2
Fundamental concepts, notions. The main materials groups. Semiconductors. Polymers. Special types of steel. Properties and application of the composite materials.			
611PT	Probability	Z	2
Descriptive statistics. Basic probability concepts: elementary events and events, definitions and interpretation of probability. Random variable, probability distribution, probability mass and density, moments, some discrete and continuous distributions. Random vectors: joint and marginal distributions, mean vector, covariance matrix. Mixed distributions, mixture of distributions. Law of large numbers, central limit theorem.			
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 předměty (spol. část 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 Padělek Josef Kocourek (Gar.)*	Z,ZK	3	2P+1C+8B	Z	z
612PPOK	**Designing Roads, Highways and Motorways** *Tomáš Padělek, Petr Kumpošt*	KZ	3	1P+2C+10B	Z	z
618PZP	**Elasticity and Strength** *Tomáš Doktor Ondřej 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 předměty (spol. část studia)

611DAD	Differential and Difference Equations	Z,ZK	3
Concept of a differential equation of the first order and some methods of its solution. Differential equations of the n-th order, linear diferential equations. Initial and boundary conditions for ordinary linear differential equation of the second order. Systems of linear differential equations. Difference equations, linear difference equations and their systems.			
611FY2	Physics 2	Z,ZK	4
Magnetic field, electromagnetic field. Optics, quantum character of electromagnetic radiation. Introduction into quantization, hydrogen atom. Multi-electron atoms, the nuclei. Basics of solid body physics.			
612MDE	Transport Models and Transport Excesses	Z,ZK	3
Parameters of the traffic flow and methods for their measurement. Models of the traffic flow, communications load, line and urban systems. Theory of queues, shock waves. Quality of transport and its assessment. Statistical characteristics of transport. Transport excesses, their analysis, the causes, identify and minimize the consequences. Improving of transport safety and fluency.			
612PPOK	Designing Roads, Highways and Motorways	KZ	3
Definition, types, ownership, maintenance, management and categorization of roads and highways. Curve and transition curve. Sinuosity and standard speed. Route in rural areas. Range of vision for stopping and overtaking. Road body - shapes and proportions, bottom and superstructure. Drainage and components of roads. Safety device. Crossings, junctions, intersections.			
618PZP	Elasticity and Strength	Z,ZK	3
Tension and compression. Bending of beam. Shear stress during bending of beam. Design and analysis of cross section of beam. Design of riveted, bolted and welded joint of structure. Analysis of deflection curve of beam. Torsion of circle cross section. Combined loading. Stability of compressed bar and buckling. Beam on elastic foundation. Strength analysis.			
611SIS	Statistics	Z,ZK	2
Point estimation, properties of point estimators, methods of point estimation. Testing statistical hypothesis. Fit test, independence test. Regression and correlation, linear regression, correlation coefficient, coefficient of determination, general linear model, statistical inference in linear regression, analysis of variance, multiple regression, use of matrices in regression.			

620SSA	Systems Analysis	Z,ZK	3
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	KZ	2
Basic axioms of technical cybernetics, automatization in transportation, human as the weakest element, signalling in transpotation, 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	ZK	2
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.			
614ZAET	Fundamentals of Electrotechnics	KZ	2
Basic electrotechnic terms, circuit quantities. Periodic courses characteristics. Electric circuits elements and basic circuit members. Assignating of bipoles and basic circuit elements. Solution to direct current circuits with a help of circuit analysis elementar methods: method of consecutive reduction, unloaded voltage divider, current divider. Transfiguration star-triplangel and principle of superposition in direct current circuits.			

Code of the group: 4S P DOS 14-15 P
Name of the group: 4. sem. PREZ DOS 14-15 povinné předměty
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 Kovář Bohumil Kovář (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 Padělek, Petr Kumpošt Josef Kocourek (Gar.)*	Z,ZK	4	2P+2C	L	z

Characteristics of the courses of this group of Study Plan: Code=4S P DOS 14-15 P Name=4. sem. PREZ DOS 14-15 povinné předměty

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 and length of stay of each vehicle, statistical analysis, simulation models, etc.			
618KIAD	Kinematics and Dynamics	Z,ZK	2
Motion along a line, motion along a curve. Kinematics of rigid plane, kinematics of rigid body. Point mass kinematics, system of point masses. Point mass dynamics and system of point masses, equation of motion. Method of Newton. Princle of D´Alembert. Free and forced vibration with one degree of freedom. Viscous damping. Impact theory. Introduction to the solution of vibration with multiple degrees of freedom.			
611MDS	Collection and Processing of Traffic Data	KZ	2
Basic principles of traffic detection and data collection, specific problems of the field of traffic data. Data preprocessing and analysis for use in additional applications.			
622MMT	Measurement Methods and Technology in Transportation	KZ	3
Geodetic base in CR, mapping principles, measurement errors in geodesy, angular and linear measurement, measurement of height, location and ranging, photogrammetry, high speed camera, acceleration measurement in road traffic dynamic processes.			
611MSP	Modeling of Systems and Processes	Z,ZK	4
System and subsystem, external and internal system description, continuous and discrete system, mathematics as a tool, examples of formulation of differential and differential equations. Linear and nonlinear system, stationary and non-stationary system, causality. Convolutional integral. Laplace and Z transformations. Transfer function. Stability of LTI systems. Discretization of continuous systems. System interconnection.			
612OMHD	Public Transport Operation	Z,ZK	4
Project of public transport organisation, project of city public transport network, transportation survey, project of transport parametres, transport graph, route and stops of line, public transport priority, financing of public transport, quality of public transport.			
614PPD	Computer Aid of Transportation Projecting	KZ	2
Overview of CAx application for transportation projecting aid. AutoCAD environment possibilities of basic tasks automatizing (programming, scripting, data exchange). Advanced blocks modification (attributes, relation to databases). Work in projecting group, external references. Basic tasks for cummunication projecting (clotoidic transition curve, cross-and longitudinal section). Basics of 3D modelling.			
612SDK	Highways, Motorways and Intersections	Z,ZK	4
Roads and motorways network, transport output. Types of direction curves. Hairpin bend. Stopping sight distance and overtaking sight distance. Levels of traffic service. Design elements of crossroads and intersections. Crossroads. Roundabouts. Intersections. Special types of junctions. Capacity of crossroads and intersections. Structure of pavement of roads and motorways. Road engineering structures. Assessment of route alternatives.			

Code of the group: 5S P DOS 15-16 P
Name of the group: 5. sem. bak. PRE DOS 15-16 povinné předměty

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 Dvořáčková 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 Javořík*	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 předměty

614DB	Database Systems	KZ	2
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	KZ	2
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	KZ	3
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.			
612MKDP	Urban Rail Transport	Z,ZK	3
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	4
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	KZ	2
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.			
612ZELP	Railway Operation	Z,ZK	4
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 předměty - výběr
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 předměty - výběr

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 předměty-výběr
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 předměty-výběr

616DYJ	Vehicle Dynamics	Z,ZK	3
Application of mechanics. Wheel and axle suspension mechanism. Wheel to road positioning characteristics. Wheel - road contact. Skid and its characteristics. Longitudinal 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 předměty
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:

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 Kříž*	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 povinné předměty

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. Environment. Greenhouse effect. Environment protection. Landscape ecology.			
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, financial management, investment appraisal, basics of management, 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 development. Spatial interaction - theoretical and methodological framework. Mobility research - travel behavior, mode choice and the influence onto "modal-split." Modal competition. Practical use of transport-geographical analysis in transportation 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 grade, load transport and fixation, collisions with pedestrians, cyclists and motorcyclists, construction of vehicle breaks, winter conditions, inconvenient road parameters, visibility, anti-slide properties of road surface, solid hindrances			

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 & partially-sighted, induction of traffic, organization and regulation of transport.			
618TK	Theory of Structures	KZ	2
Deformation in plane, principle of virtual work. Force (flexibility) method. Aplication of force method to frame analysis. Displacement (stiffness) method. Simplified and general stiffness method. Mathematical foundations of elasticity. Static analysis of complex statically indeterminate structure. Energy methods for beam analysis. Lagrange variational principle. Winkler model of elastic foundation. Pasternak model of elastic foundation.			
612VDSR	Public Transport in Cities and Regions	Z	2
Landscape configuration and transport. Public transport and city extension. Traffic service in region. Public transport financing. Principles of traffic service designing. Traffic service of recreation areas. Making transport terminals. Public transport and region expansion.			
612ZAPR	Introduction to Architectural Design	ZK	2
Urbanism and architecture of traffic systems. Bus and trolley-bus transport. Tramway and town tracks. Design of vehicles. Subway. Railway transport. Railway stations. Local communications. International airports.			

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:

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 Dvořáčková*	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

Characteristics of the courses of this group of Study Plan: Code=PVP PRE 14-15 Name=PVP pro PREZ DOS+MED 14-15 (ZS+LS+ZS)

617Y1AF	Alternative Forms of Transportation Project Financing	KZ	2

There will be specifed such forms of financing in transportation, where the public sector body perform the final debtor, i. e. debtor payments come from its budget, but the final debtor is not a direct participant of the transaction and it is not the counterparty of the financial institute which provides the funding. Issue of securities as an alternative source of transportation project.

614Y1AV	Animation and Visualization	KZ	2

Advanced modifications and modeling of NURBS, Patch objects, selection of objects (according to filter and properties). 3D Studio MAX systems and Space Warp objects. Atmospheric and other effects, rendering filters, Motion blur, advanced animations, Motion panel. Modeling for morphing and animation, bone formation, animation using Inverse Kinematics.

615Y1BO	Work Safety and Health Protection in Transportation	KZ	2

Fundamental legislative, definition of terms, risks and possible health damage, working conditions and health protection with focus on transportation. Health protection programmes, health insurance of home and foreign business trips, statistics, working practice.

615Y1DZ	History of Railway	KZ	2

Horse-drawn railways, steam railways, railway network development in the 2nd half of 19th century, regional railways epoch, railways of the "First Republic", electric traction, World War II railways, railway development in the 2nd half of 20th century, high-speed railway origins, railway lines closing, important long-distance train connections, railway lines construction, railway accidents, railway junctions. Excursions and projections.

617Y1DZ	Transported Commodities Cognization	KZ	2
615Y1HE	Work Hygiene and Ergonomics in Traffic	KZ	2

Basic knowledge of occupational hygiene and ergonomics, and their application in transport. Working environment factors, and the influence of these factors on health of workers. Creation and protection of working conditions that do not damage public health. Mutual links man-machine-environment. Adaptation of technology to possibilities and skills of man. Practical examples from the field of transportation; relevant legislative.

617Y1OF	Personal Finance	KZ	2

Personal finance (budget, financing of basic living needs), debt (loans and credits, payment instruments, interest and fees, debt trap), financing of housing (rent, mortgage, savings, consumer loans, refinancing), savings and investments (investment horizon, return, risk, investment strategy), insurance (insurance types, suitability and adequacy), securing the future (retirement savings and insurance).

617Y1PM	Personnel Management	KZ	2
Human sources, work group, man as personality, planning, choice, evaluation and education of human sources, work adaptation, teamwork, intercultural communication.			
613Y1PM	Personal Management	KZ	2
612Y1PC	Pedestrian and Cycling Transport	KZ	2
Routes for pedestrians. Pedestrian crossings. Modifications for blind, dim-sighted and disabled people. Design of cycle routes network. Ways of cycle route layout and design parameters for cyclists. Separation of cyclists from other transport modes. Cycle tracks and its design - one way streets, reserved traffic lanes, bus stops, crossings with other transport modes, crossroads. Traffic signs and road marking for cyclists.			
614Y1PG	Computer Graphics	KZ	2
Basic formats of graphic and possibilities of their editing and mutual conversion. Use of individual types according to character of work. Work with editing programs (within the user level scope) using layers, 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 transport structures, the EIA process. Multicriteria assessment methods, risk analysis, SWOT analysis. Landscape character, possibilities of its protection and assessment transport structures on the landscape. Rating fragmentation and landscape connectivity in the preparation of linear structures. Practical examples of assessment of traffic buildings on 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 areas. Zone stations. Formation yards. Reserve stations. Technology of work in railway station with regard to its disposition. Railway station documentations in the Czech Republic railway network.			
617Y1ST	Titan Simulation	KZ	2
Titan is a management game simulating the business decisions. Lets 2-8 student groups to produce and compete in the market with the same product. Students set a price and determine the quantity and capacity of production, plan budgets for marketing, research and development. They become familiar with the consequences of their decisions by the form of financial corporate reports and they use this information for other business decisions.			
612Y1SU	Management and Maintenance of Roads	KZ	2
Getting familiar with ownership of roads in the Czech Republic and the administration of the road at the state and county level. It is presented development of road network, short, medium and long-term strategy of the Ministry of Transport. Maintenance of roads winter and summer, its requirements, specifics, possibilities and repair methods are discussed in the classroom as well as investment activity in highway engineering.			
612Y1VC	Waterways and Shipping	KZ	2
Basic modes of transport. The position of water transport in the transport system of the Czech Republic and the EU. Advantages and disadvantages of water transport. Basic systems of waterways in Europe, a network of waterways in the Czech Republic. Construction of the waterway and its equipment. Management of waterways and its operation. The legal regime in inland navigation, navigation rules of operation, navigation maps.			
612Y1VD	Water Transport and Transportation	KZ	2
Technologické možnosti vnitrozemské plavby. Základní rozdělení vnitrozemských plavidel a jejich základní parametry. Základy konstrukce a stavby plavidel. Efektivnost vodní dopravy a finanční náročnost výstavby infrastruktury vodní dopravy. Poptávka po vodní dopravě v České republice. Způsoby financování investičních a provozních nákladů infrastruktury vodní dopravy (vodní cesty, přístavy loděnice apod.). Námořní doprava obecně a v podmínkách ČR.			
614Y1ZM	Fundamentals of parametric and adaptive modeling	KZ	2
Basics of work at products and parts creation. Sketch drawing by help of geometric relations, parametric dimensions, creation of adaptive models from 2D sketches. Import and export from and to another systems. Fundamentals of assemblies creation.			
616Y1ZL	Vehicle Testing, Legislation and Construction	KZ	2
Vehicle costruction, aggregate computing, driving resistance, building and parameters of traction, constructional arrangement of personal cars, trucks, buses, motorbikes, legislation in the EU and in the world, creation of technical legislation, testing methods, vehicle tests, accelerated tests, mathematical modelling in testing.			

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** *Věra Pastorková*	Z	3	0P+4C+10B	Z	J
615JZ2A	**Foreign Language - English 2** *Věra 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	Z	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.			
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.			
615JZ1N	Foreign Language - German 1	Z	3
Grammar structure and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty´s fields of study. Focus on improvement in perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral and written forms. Technical texts and their features; practice of oral and written presentation.			
615JZ2N	Foreign Language - German 2	Z,ZK	3
Grammar structure and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty´s fields of study. Focus on improvement in perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral and written forms. Technical texts and their features; practice of oral and written presentation.			
615JZ1R	Foreign Language - Russian 1	Z	3
Grammar structure and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty´s fields of study. Focus on improvement in perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral and written 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, Světlana 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	Z	3
Grammar structure and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty´s fields of study. Focus on improvement in perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral and written forms. Technical texts and their features; practice of oral and written presentation.			
615JZ4A	Foreign Language - English 4	Z,ZK	3
Grammar structure and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty´s fields of study. 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	Z	3
Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation.			
615JZ4N	Foreign Language - German 4	Z,ZK	3
Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation.			
615JZ3R	Foreign Language - Russian 3	Z	3
Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation.			
615JZ4R	Foreign Language - Russian 4	Z,ZK	3
Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation.			

List of courses of this pass:

Code	Name of the course	Completion	Credits
611DAD	Differential and Difference Equations	Z,ZK	3
Concept of a differential equation of the first order and some methods of its solution. Differential equations of the n-th order, linear diferential equations. Initial and boundary conditions for ordinary linear differential equation of the second order. Systems of linear differential equations. Difference equations, linear difference equations and their systems.			
611FY1	Physics 1	Z,ZK	4
Kinematics, particle dynamics, dynamics of particle systems and rigid body. Continuum mechanics, thermodynamics, electric field, directed electric current.			
611FY2	Physics 2	Z,ZK	4
Magnetic field, electromagnetic field. Optics, quantum character of electromagnetic radiation. Introduction into quantization, hydrogen atom. Multi-electron atoms, the nuclei. Basics of solid body physics.			
611GIE	Geometry	KZ	3
Orthographic and oblique projections, linear perspective. Topographic surfaces and their orthogonal projection. Differential geometry of curves - parameterization, arc of the curve, torsion and curvature, Frenet`s trihedron. Kinematics - a curve as a trajectory of the motion, the velocity and acceleration of a particle moving on a curved path.			
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.			
611MDS	Collection and Processing of Traffic Data	KZ	2
Basic principles of traffic detection and data collection, specific problems of the field of traffic data. Data preprocessing and analysis for use in additional applications.			
611MSP	Modeling of Systems and Processes	Z,ZK	4
System and subsystem, external and internal system description, continuous and discrete system, mathematics as a tool, examples of formulation of differential and differential equations. Linear and nonlinear system, stationary and non-stationary system, causality. Convolutional integral. Laplace and Z transformations. Transfer function. Stability of LTI systems. Discretization of continuous systems. System interconnection.			
611MTA	Mathematical Analysis	Z,ZK	4
Sequences and series of real numbers and its convergence. Basic properties of functions. Differential and integral calculus of the real function of one real variable. Power series, Fourier series and foundations of Fourier transform.			
611MVP	Mathematical Analysis of Function of More Variables	Z,ZK	3
Metric spaces, sequences in metric spaces, limit of sequence in metric space. Differential calculus of functions of several variables, differential of function, partial derivations, implicitly defined functions, extremes of functions of several variables. Integral calculus of functions of several variables, Riemann integral, integral over curves and surfaces in R3, application of integral calculus in physics.			
611PT	Probability	Z	2
Descriptive statistics. Basic probability concepts: elementary events and events, definitions and interpretation of probability. Random variable, probability distribution, probability mass and density, moments, some discrete and continuous distributions. Random vectors: joint and marginal distributions, mean vector, covariance matrix. Mixed distributions, mixture of distributions. Law of large numbers, central limit theorem.			
611SIS	Statistics	Z,ZK	2
Point estimation, properties of point estimators, methods of point estimation. Testing statistical hypothesis. Fit test, independence test. Regression and correlation, linear regression, correlation coefficient, coefficient of determination, general linear model, statistical inference in linear regression, analysis of variance, multiple regression, use of matrices in regression.			
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 and length of stay of each vehicle, statistical analysis, simulation models, etc.			
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. Environment. Greenhouse effect. Environment protection. Landscape ecology.			
612MDE	Transport Models and Transport Excesses	Z,ZK	3
Parameters of the traffic flow and methods for their measurement. Models of the traffic flow, communications load, line and urban systems. Theory of queues, shock waves. Quality of transport and its assessment. Statistical characteristics of transport. Transport excesses, their analysis, the causes, identify and minimize the consequences. Improving of transport safety and fluency.			
612MKDP	Urban Rail Transport	Z,ZK	3
Transport in the town. Tramway transport and vehicles. Geometrical setting of tramway tracks. Tramway construction. Subway. Geometrical setting of subway tracks. Subway construction.			
612OMHD	Public Transport Operation	Z,ZK	4
Project of public transport organisation, project of city public transport network, transportation survey, project of transport parametres, transport graph, route and stops of line, public transport priority, financing of public transport, quality of public transport.			
612PKD	Rail Transport Designing	Z,ZK	3
Railway lines network. Vehicle and track relation. Traction. Track geometrical parameters. Clearance profile. Railway lines routing. Superstructure and substructure of the railway lines. Switches. Railway stations. City rail transport.			
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 & partially-sighted, induction of traffic, organization and regulation of transport.			
612PPOK	Designing Roads, Highways and Motorways	KZ	3
Definition, types, ownership, maintenance, management and categorization of roads and highways. Curve and transition curve. Sinuosity and standard speed. Route in rural areas. Range of vision for stopping and overtaking. Road body - shapes and proportions, bottom and superstructure. Drainage and components of roads. Safety device. Crossings, junctions, intersections.			

612SDK	Highways, Motorways and Intersections	Z,ZK	4
Roads and motorways network, transport output. Types of direction curves. Hairpin bend. Stopping sight distance and overtaking sight distance. Levels of traffic service. Design elements of crossroads and intersections. Crossroads. Roundabouts. Intersections. Special types of junctions. Capacity of crossroads and intersections. Structure of pavement of roads and motorways. Road engineering structures. Assessment of route alternatives.			
612VDSR	Public Transport in Cities and Regions	Z	2
Landscape configuration and transport. Public transport and city extension. Traffic service in region. Public transport financing. Principles of traffic service designing. Traffic service of recreation areas. Making transport terminals. Public transport and region expansion.			
612X31	Project 1	Z	2
612X32	Project 2	Z	2
612X33	Project 3	Z	2
612Y1PC	Pedestrian and Cycling Transport	KZ	2
Routes for pedestrians. Pedestrian crossings. Modifications for blind, dim-sighted and disabled people. Design of cycle routes network. Ways of cycle route layout and design parameters for cyclists. Separation of cyclists from other transport modes. Cycle tracks and its design - one way streets, reserved traffic lanes, bus stops, crossings with other transport modes, crossroads. Traffic signs and road marking for cyclists.			
612Y1PD	Assessment of Transport	KZ	2
Assessment of transport structures, the EIA process. Multicriteria assessment methods, risk analysis, SWOT analysis. Landscape character, possibilities of its protection and assessment transport structures on the landscape. Rating fragmentation and landscape connectivity in the preparation of linear structures. Practical examples of assessment of traffic buildings on 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 areas. Zone stations. Formation yards. Reserve stations. Technology of work in railway station with regard to its disposition. Railway station documentations in the Czech Republic railway network.			
612Y1SU	Management and Maintenance of Roads	KZ	2
Getting familiar with ownership of roads in the Czech Republic and the administration of the road at the state and county level. It is presented development of road network, short, medium and long-term strategy of the Ministry of Transport. Maintenance of roads winter and summer, its requirements, specifics, possibilities and repair methods are discussed in the classroom as well as investment activity in highway engineering.			
612Y1VC	Waterways and Shipping	KZ	2
Basic modes of transport. The position of water transport in the transport system of the Czech Republic and the EU. Advantages and disadvantages of water transport. Basic systems of waterways in Europe, a network of waterways in the Czech Republic. Construction of the waterway and its equipment. Management of waterways and its operation. The legal regime in inland navigation, navigation rules of operation, navigation maps.			
612Y1VD	Water Transport and Transportation	KZ	2
Technologické možnosti vnitrozemské plavby. Základní rozdělení vnitrozemských plavidel a jejich základní parametry. Základy konstrukce a stavby plavidel. Efektivnost vodní dopravy a finanční náročnost výstavby infrastruktury vodní dopravy. Poptávka po vodní dopravě v České republice. Způsoby financování investičních a provozních nákladů infrastruktury vodní dopravy (vodní cesty, přístavy loděnice apod.). Námořní doprava obecně a v podmínkách ČR.			
612ZADI	Introduction to Transportation Engineering	Z,ZK	3
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.			
612ZAPR	Introduction to Architectural Design	ZK	2
Urbanism and architecture of traffic systems. Bus and trolley-bus transport. Tramway and town tracks. Design of vehicles. Subway. Railway transport. Railway stations. Local communications. International airports.			
612ZELP	Railway Operation	Z,ZK	4
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.			
613Y1PM	Personal Management	KZ	2
614DB	Database Systems	KZ	2
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	KZ	2
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.			
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 graphic applications and CA systems. Co-ordinated systems, CAD environment skill (basics of constructing, dimensioning, modifications, user interfaces, projecting possibilites, AutoCAD environment profiles, drawings with raster foundaments).			
614PPD	Computer Aid of Transportation Projecting	KZ	2
Overview of CAx application for transportation projecting aid. AutoCAD environment possibilities of basic tasks automatizing (programming, scripting, data exchange). Advanced blocks modification (attributes, relation to databases). Work in projecting group, external references. Basic tasks for cummunication projecting (clotoidic transition curve, cross-and longitudinal section). Basics of 3D modelling.			
614SIAP	Networks and Protocols	KZ	2
Basic communication model, history and development of the Internet, principle of data transfer through computer networks (TCP/IP), performance of basic network protocols (ARP, RARP, TCP, UDP, Telnet, FTP, DNS, DHCP POP3, IMAP), data acquirement from the Internet sources, communicating ability via the Internet and fundamentals of own web presentation design by the means of web sites.			
614UATT	Introduction to Automatization and Telecommunication Systems	KZ	2
Basic axioms of technical cybernetics, automatization in transportation, human as the weakest element, signalling in transpotation, 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.			
614UPRO	Introduction to Programming	KZ	2
Algorithm development, methods of structured programming, high-level programming languages, basics of C programming languages (types, variables, conditions, cycles, arrays, functions), programming techniques, complexity.			

614Y1AV	Animation and Visualization	KZ	2
Advanced modifications and modeling of NURBS, Patch objects, selection of objects (according to filter and properties). 3D Studio MAX systems and Space Warp objects. Atmospheric and other effects, rendering filters, Motion blur, advanced animations, Motion panel. Modeling for morphing and animation, bone formation, animation using Inverse Kinematics.			
614Y1PG	Computer Graphics	KZ	2
Basic formats of graphic and possibilities of their editing and mutual conversion. Use of individual types according to character of work. Work with editing programs (within the user level scope) using layers, 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
614Y1ZM	Fundamentals of parametric and adaptive modeling	KZ	2
Basics of work at products and parts creation. Sketch drawing by help of geometric relations, parametric dimensions, creation of adaptive models from 2D sketches. Import and export from and to another systems. Fundamentals of assemblies creation.			
614ZAET	Fundamentals of Electrotechnics	KZ	2
Basic electrotechnic terms, circuit quantities. Periodic courses characteristics. Electric circuits elements and basic circuit members. Assignating of bipoles and basic circuit elements. Solution to direct current circuits with a help of circuit analysis elementar methods: method of consecutive reduction, unloaded voltage divider, current divider. Transfiguration star-triplangel and principle of superposition in direct current circuits.			
614ZINF	Fundamentals of Informatics	KZ	2
Introduction to faculty network, MS-Word and Open Office, use of styles and advanced features, computer functions and information transmission. Number systems incl. arithmetic calculations. Algorithms and their proprieties. Flow charts for algorithms drawing. Mathematic and logic ordering algorithms incl. functions and procedures. Work with MS-Excel - tables, graphs, calculations, functions.			
615JZ1A	Foreign Language - English 1	Z	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.			
615JZ1N	Foreign Language - German 1	Z	3
Grammar structure and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty´s fields of study. Focus on improvement in perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral and written forms. Technical texts and their features; practice of oral and written presentation.			
615JZ1R	Foreign Language - Russian 1	Z	3
Grammar structure and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty´s fields of study. Focus on improvement in perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral and written forms. Technical texts and their features; practice of oral and written presentation.			
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.			
615JZ2N	Foreign Language - German 2	Z,ZK	3
Grammar structure and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty´s fields of study. Focus on improvement in perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral and written 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.			
615JZ3A	Foreign Language - English 3	Z	3
Grammar structure and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty´s fields of study. 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	Z	3
Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation.			
615JZ3R	Foreign Language - Russian 3	Z	3
Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation.			
615JZ4A	Foreign Language - English 4	Z,ZK	3
Grammar structure and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty´s fields of study. 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.			
615JZ4N	Foreign Language - German 4	Z,ZK	3
Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation.			
615JZ4R	Foreign Language - Russian 4	Z,ZK	3
Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation.			
615X31	Project 1	Z	2
615X32	Project 2	Z	2
615X33	Project 3	Z	2
615Y1BO	Work Safety and Health Protection in Transportation	KZ	2
Fundamental legislative, definition of terms, risks and possible health damage, working conditions and health protection with focus on transportation. Health protection programmes, health insurance of home and foreign business trips, statistics, working practice.			

615Y1DZ	History of Railway	KZ	2
Horse-drawn railways, steam railways, railway network development in the 2nd half of 19th century, regional railways epoch, railways of the "First Republic", electric traction, World War II railways, railway development in the 2nd half of 20th century, high-speed railway origins, railway lines closing, important long-distance train connections, railway lines construction, railway accidents, railway junctions. Excursions and projections.			
615Y1HE	Work Hygiene and Ergonomics in Traffic	KZ	2
Basic knowledge of occupational hygiene and ergonomics, and their application in transport. Working environment factors, and the influence of these factors on health of workers. Creation and protection of working conditions that do not damage public health. Mutual links man-machine-environment. Adaptation of technology to possibilities and skills of man. Practical examples from the field of transportation; relevant legislative.			
616DOPY	Vehicle Technology	KZ	3
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.			
616DYJ	Vehicle Dynamics	Z,ZK	3
Application of mechanics. Wheel and axle suspension mechanism. Wheel to road positioning characteristics. Wheel - road contact. Skid and its characteristics. Longitudinal dynamics, acceleration and deceleration. Vertical dynamics, spring suspension, driving characteristics. Directional dynamics, gyroscopical characteristics. Driving stability conditions. Aerodynamic forces. Driving and feedback. ABS, ESP.			
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.			
616UDDM	Introduction to Transportation and Manipulation Technics	ZK	2
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.			
616X31	Project 1	Z	2
616X32	Project 2	Z	2
616X33	Project 3	Z	2
616Y1ZL	Vehicle Testing, Legislation and Construction	KZ	2
Vehicle costruction, aggregate computing, driving resistance, building and parameters of traction, constructional arrangement of personal cars, trucks, buses, motorbikes, legislation in the EU and in the world, creation of technical legislation, testing methods, vehicle tests, accelerated tests, mathematical modelling in testing.			
617DAS	Transportation and Communication Law	Z	1
Transportation and communication law - railway, road transport, ropeway, water road, air transport, telecommunication, post, patent.			
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 structures. Labour and capital, efficiency, ownership, public choice.			
617EDOT	Economy, Transport, Telecommunications	KZ	2
Transport, telecommunications, demand, supply, indicators, economic development, legislation, European union, regulation, liberalisation, transport modes, ITS, sustainability.			
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, financial management, investment appraisal, basics of management, 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 development. Spatial interaction - theoretical and methodological framework. Mobility research - travel behavior, mode choice and the influence onto "modal-split." Modal competition. Practical use of transport-geographical analysis in transportation planning.			
617TDL	Transport Technology and Logistics	Z,ZK	3
Basic terms in transport technology and logistics. Particular steps of transport planning. Quantification of carriage relations. Line planning. Timetabling. Planning in pasanger and freight transport. Organisation of traffic in each transport means. Technological factors from the point of view of operator and client. Organisation of public city transport. Logistic technologies and their application using various transport means.			
617TGA	Graph Theory and its Applications in Transport	Z,ZK	4
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.			
617X31	Project 1	Z	2
617X32	Project 2	Z	2
617X33	Project 3	Z	2
617Y1AF	Alternative Forms of Transportation Project Financing	KZ	2
There will be specifed such forms of financing in transportation, where the public sector body perform the final debtor, i. e. debtor payments come from its budget, but the final debtor is not a direct participant of the transaction and it is not the counterparty of the financial institute which provides the funding. Issue of securities as an alternative source of transportation project.			
617Y1DZ	Transported Commodities Cognization	KZ	2
617Y1OF	Personal Finance	KZ	2
Personal finance (budget, financing of basic living needs), debt (loans and credits, payment instruments, interest and fees, debt trap), financing of housing (rent, mortgage, savings, consumer loans, refinancing), savings and investments (investment horizon, return, risk, investment strategy), insurance (insurance types, suitability and adequacy), securing the future (retirement savings and insurance).			
617Y1PM	Personnel Management	KZ	2
Human sources, work group, man as personality, planning, choice, evaluation and education of human sources, work adaptation, teamwork, intercultural communication.			
617Y1ST	Titan Simulation	KZ	2
Titan is a management game simulating the business decisions. Lets 2-8 student groups to produce and compete in the market with the same product. Students set a price and determine the quantity and capacity of production, plan budgets for marketing, research and development. They become familiar with the consequences of their decisions by the form of financial corporate reports and they use this information for other business decisions.			
618KIAD	Kinematics and Dynamics	Z,ZK	2
Motion along a line, motion along a curve. Kinematics of rigid plane, kinematics of rigid body. Point mass kinematics, system of point masses. Point mass dynamics and system of point masses, equation of motion. Method of Newton. Princle of D´Alembert. Free and forced vibration with one degree of freedom. Viscous damping. Impact theory. Introduction to the solution of vibration with multiple degrees of freedom.			

618MRI1	Materials 1	Z,ZK	3
Crystal structure. Basics of thermodynamics of metals and their alloys. Balanced binary diagrams. Alloys of iron with carbon. Deterioration of solid solutions. Heating processing of steel and cast irons. Physical features. Mechanical features. Dephectostopic testing. Corosion.			
618MRI2	Materials 2	KZ	2
Fundamental concepts, notions. The main materials groups. Semiconductors. Polymers. Special types of steel. Properties and application of the composite materials.			
618PZP	Elasticity and Strength	Z,ZK	3
Tension and compression. Bending of beam. Shear stress during bending of beam. Design and analysis of cross section of beam. Design of riveted, bolted and welded joint of structure. Analysis of deflection curve of beam. Torsion of circle cross section. Combined loading. Stability of compressed bar and buckling. Beam on elastic foundation. Strength analysis.			
618ST	Statics	Z,ZK	3
General system of forces. Calculation of reactions of mass objects and compound systems. Assessment of internal forces on statically determinate beam and simple 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.			
618TK	Theory of Structures	KZ	2
Deformation in plane, principle of virtual work. Force (flexibility) method. Aplication of force method to frame analysis. Displacement (stiffness) method. Simplified and general stiffness method. Mathematical foundations of elasticity. Static analysis of complex statically indeterminate structure. Energy methods for beam analysis. Lagrange variational principle. Winkler model of elastic foundation. Pasternak model of elastic foundation.			
618TTED	Creation of Technical Documentation	KZ	2
Technical standards, international standardization, types of technical drawings, representation of technical objects, technical diagrams and charts, dimensional and geometrical accuracy, arrangement of drawing sheets, types of schemes and their creation.			
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.			
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.			
620SSA	Systems Analysis	Z,ZK	3
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.			
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.			
621ZLD	Introduction to Air Transport	KZ	2
Air transport as a component of complex transport system. International status of civil aviation. International organizations in Europe and worldwide. Characteristics of air transport. Commercial air transport. Technical operations of aeroplanes.			
622MMT	Measurement Methods and Technology in Transportation	KZ	3
Geodetic base in CR, mapping principles, measurement errors in geodesy, angular and linear measurement, measurement of height, location and ranging, photogrammetry, high speed camera, acceleration measurement in road traffic dynamic processes.			
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 grade, load transport and fixation, collisions with pedestrians, cyclists and motorcyclists, construction of vehicle breaks, winter conditions, inconvenient road parameters, visibility, anti-slide properties of road surface, solid hindrances			
622UAN	Road Traffic Accidents Analysis Introduction	KZ	2
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.			
622UN	Traffic Accidents Introduction	Z	2
622X31	Project 1	Z	2
622X32	Project 2	Z	2
622X33	Project 3	Z	2
TV-1	Physical Education	Z	1
TV-2	Physical Education	Z	1

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