## Study plan

## Name of study plan: MED bak.komb.11/12

Faculty/Institute/Others:

Department:

Branch of study guaranteed by the department: Welcome page

Garantor of the study branch:

Program of study: Technology in Transportation and Telecommunications

Type of study: Bachelor combined

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: 133

The role of the block: Z

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

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

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

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

Credits in the group: 30 Note on the group:

Note on the gr	oup.					
Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
13E	Economics	Z,ZK	3	2+1	Z	Z
11GIE	Geometry Old ich Hykš, Pavel Provinský, Šárka Vorá ová Old ich Hykš Old ich Hykš (Gar.)	KZ	3	2P+2C+12B	Z	Z
14KSP	Constructing with Computer Aid Martin Brumovský, Martin Fiala, Radek Kratochvíl, Lukáš Svoboda, Jan Vogl, Drahomír Schmidt Lukáš Svoboda Drahomír Schmidt (Gar.)	KZ	2	0P+2C+8B	Z	Z
11LA	Linear Algebra Pavel Provinský, Lucie Kárná, Martina Be vá ová Martina Be vá ová Martina Be vá ová (Gar.)	Z,ZK	3	2P+1C+10B	Z	Z
11MTA	Mathematical Analysis	Z,ZK	4	2+2	Z	Z
18MRI1	Materials 1	Z,ZK	3	2+1	Z	Z
18TTED	Creation of Technical Documentation	KZ	2	2+1	Z	Z
22UN	Traffic Accidents Introduction	Z	2	2+0	Z	Z
12ZADI	Introduction to Transportation Engineering	Z,ZK	3	2+1	Z	Z
14ZINF	Fundamentals of Informatics	KZ	2	0+2	Z	Z
21ZLDK	Introduction to Air Transport	KZ	3	8		Z

## Characteristics of the courses of this group of Study Plan: Code=1.S.BKMED 10/11 Name=1.sem.MED bak.komb.10/11

their applications. Scalar product. Similarity of matrices (eigenvalues and eigenvectors). Quadratic forms and their classification.

Characteristics 0	The courses of this group of Study Flan. Code=1.3.BKMED 10/11 Name=1.Sem.MED bak.k	01110.10/11					
13E	Economics	Z,ZK	3				
Microeconomic and ma	croeconomic interpretation of economic relations. Method and subject of the economics. Economic decision making of consu	imers and produc	ers. Market				
structures. Labour and	capital, efficiency, ownership, public choice.						
11GIE	Geometry	KZ	3				
Differential geometry o	rourves - parameterization, the arc of the curve, torsion and curvature, Frenet`s trihedron. Kinematics - a curve as a trajector	y of the motion, th	e velocity, and				
acceleration of a partic	le moving on a curved path.						
14KSP	Constructing with Computer Aid	KZ	2				
"CAD systems" term de	etermination. CAD role in projecting system model. Existing CAD systems on Czech market. Project creation, basic common	work rules in grap	hic applications				
and CA systems. Co-or	dinated systems, CAD environment skill (basics of constructing, dimensioning, modifications, user interfaces, projecting poss	sibilites, AutoCAD	environment				
profiles, drawings with	profiles, drawings with raster foundaments).						
11LA	Linear Algebra	Z,ZK	3				
Vector spaces (linear c	ombinations, linear independence, dimension, basis, coordinates). Matrices and operations. Systems of linear equations and	their solvability. D	eterminants and				

11MTA	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 numbers and its convergence.	eal variable. Powe	r series, Fourier
series and foundations	s of Fourier transform.		
18MRI1	Materials 1	Z,ZK	3
Crystal structure. Basi	cs of thermodynamics of metals and their alloys. Balanced binary diagrams. Alloys of iron with carbon. Deterioration of solid so	olutions. Heating p	rocessing of
steel and cast irons. P	hysical features. Mechanical features. Dephectostopic testing. Corosion.		
18TTED	Creation of Technical Documentation	KZ	2
Technical standards, ir	ternational standardization, types of technical drawings, representation of technical objects, technical diagrams and charts, dime	ensional and geom	etrical accuracy,
arrangement of drawir	g sheets, types of schemes and their creation.		
22UN	Traffic Accidents Introduction	Z	2
Traffic accident as a p	nysical process, systematic submission, vehicle x human x infrastructure interaction, accidents statistics, aircraft accidents, ac	cidents on railways	s, accidents on
waterways, road traffic	accidents, other aspects, accidental prevention.		
12ZADI	Introduction to Transportation Engineering	Z,ZK	3
Traffic survey. Terrestri	al roads. Residential zone. Land - use planning. Railway transport. Public mass transport. Integrated traffic systems. Traffic pro	gnosis. Traffic safe	ty. Air transport.
Traffic and environmen	nt.		
14ZINF	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. N	lumber systems in	cl. arithmetic
calculations. Algorithm	s and their proprieties. Flow charts for algorithms drawing. Mathematic and logic ordering algorithms incl. functions and proced	ures. Work with MS	3-Excel - tables,
graphs, calculations, f	unctions.		
21ZLDK	Introduction to Air Transport	KZ	3
Air transport as a com	ponent of complex transport system. International status of civil aviation. International organizations in Europe and worldwide.	Characteristics of	air transport.
Commercial air transp	ort. Technical operations of aeroplanes.		

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

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

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

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

Credits in the group: 30 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members)  Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
13EDOT	Economy, Transport, Telecommunications	KZ	2	2+0	L	Z
11FY1	Physics 1	Z,ZK	4	2P+2C	L	Z
11MVP	Mathematical Analysis of Function of More Variables	Z,ZK	3	2+2	L	Z
18MRI2	Materials 2	KZ	2	2+0	L	Z
11PT	Probability	Z	2	1+1	L	Z
12PKD	Rail Transport Designing	Z,ZK	3	2+2	L	Z
14SIAP	Networks and Protocols	KZ	2	1+1	L	Z
18ST	Statics	Z,ZK	3	2+1	L	Z
17TDLK	Transport Technology and Logistics	Z,ZK	4	12	L	Z
20UIS	Introduction to ITS	Z,ZK	3	2+1	L	Z
14UPRO	Introduction to Programming	KZ	2	0+2	L	Z

13EDOT	Economy, Transport, Telecommunications	KZ	2
Transport, telecom	munications, demand, supply, indicators, economic development, legislation, European union, regulation, liberalisation, transport	modes, ITS, sustai	nability.
11FY1	Physics 1	Z,ZK	4
Kinematics, particle	e dynamics, dynamics of particle systems and rigid body. Continuum mechanics, thermodynamics, electric field, directed electric	current.	
11MVP	Mathematical Analysis of Function of More Variables	Z,ZK	3
Metric spaces, sec	quences in metric spaces, limit of sequence in metric space. Differential calculus of functions of several variables, differential of fun	ction, partial deriva	ations, implicitly
defined functions,	extremes of functions of several variables. Integral calculus of functions of several variables, Riemann integral, integral over curve	s and surfaces in R	3, application
of integral calculus	s in physics.		
18MRI2	Materials 2	KZ	2
	Materials 2 epts, notions. The main materials groups. Semiconductors. Polymers. Special types of steel. Properties and application of the com-		2
			2
Fundamental cond	pepts, notions. The main materials groups. Semiconductors. Polymers. Special types of steel. Properties and application of the com-	posite materials.	_
Fundamental cond 11PT Descriptive statisti	probability. Probability	posite materials.  Z bility distribution, pr	obability mass
Fundamental cond 11PT Descriptive statisti and density, mome	epts, notions. The main materials groups. Semiconductors. Polymers. Special types of steel. Properties and application of the comprehensial probability cs. Basic probability concepts: elementary events and events, definitions and interpretation of probability. Random variable, probab	posite materials.  Z bility distribution, pr	obability mass
Fundamental cond 11PT Descriptive statisti and density, mome	pepts, notions. The main materials groups. Semiconductors. Polymers. Special types of steel. Properties and application of the comprobability  cs. Basic probability concepts: elementary events and events, definitions and interpretation of probability. Random variable, probalents, some discrete and continuous distributions. Random vectors: joint and marginal distributions, mean vector, covariance matrix	posite materials.  Z bility distribution, pr	obability mass
Fundamental cond 11PT Descriptive statisti and density, mome distributions. Law 12PKD	pepts, notions. The main materials groups. Semiconductors. Polymers. Special types of steel. Properties and application of the comprobability  cs. Basic probability concepts: elementary events and events, definitions and interpretation of probability. Random variable, probability, some discrete and continuous distributions. Random vectors: joint and marginal distributions, mean vector, covariance matrix of large numbers, central limit theorem.	posite materials.  Z bility distribution, pr	robability mass s, mixture of

14SIAP Networks and Protocols Basic communication model, history and development of the Internet, principle of data transfer through computer networks (TCP/IP), performance of basic network protocols (ARP, RARP, TCP, UDP, Telnet, FTP, DNS, DHCP POP3, IMAP), data acquirement from the Internet sources, communicating ability via the Internet and fundamentals of own web presentation design by the means of web sites. 18ST General system of forces. Calculation of reactions of mass objects and compound systems. Assessment of internal forces on statically determinate beam and simple framework. Principle of virtual works. Kinematic method for calculation of reactions of statically determinate systems. Determination of axial forces in truss construction, method of joints and method of sections. Geometry of cross sections. Plane fiber polygons and catenary cables. Transport Technology and Logistics Basic terms in transport technology and logistics. Particular steps of transport planning. Quantification of carriage relations. Line planning. Timetabling. Planning in pasanger and freight transport. Organisation of traffic in each transport means. Technological factors from the point of view of operator and client. Organisation of public city transport. Logistic technologies and their application using various transport means. **20UIS** Introduction to ITS Z,ZK 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. Introduction to Programming ΚZ Algorithm development, methods of structured programming, high-level programming languages, basics of C programming languages (types, variables, conditions, cycles, arrays,

Code of the group: 3.S.BKMED 11/12

functions), programming techniques, complexity.

Name of the group: 3.sem.MED.bak.komb.11/12

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

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

	introduction to transportation and manipulation recinites		_		_	_
14ZAET	Fundamentals of Electrotechnics	KZ	2	2+1	Z	Z
Characteristics o	of the courses of this group of Study Plan: Code=3.S.BKMED 11/12	Name=3.sen	n.MED.ba	ık.komb.1	1/12	
11DAD	Differential and Difference Equations			Z	,ZK	3
Difference equations a	nd its systems. Some solvable types of differential equations of the first order. Linear differential	equations of the	n-th order. M	ethods for so	lution of the	homogeneous
•	homogeneous equation by means of variation of constants. Power series and their use for solu ential equation. Fourier series of function.	ition of differentia	l equation. E	Boundary valu	ie problem.	Eigennumbers
11FY2	Physics 2			Z	,ZK	4
Magnetic field, electron solid body physics.	magnetic field. Optics, quantum character of electromagnetic radiation. Introduction into quan	ntization, hydroge	en atom. Mu	lti-electron a	toms, the nu	uclei. Basics of
12MDE	Transport Models and Transport Excesses			Z	,ZK	3
Parameters of the traff	fic flow and methods for their measurement. Models of the traffic flow, communications load,	line and urban sy	stems. The	ory of queue	s, shock wa	ves. Quality of
•	ssment. Statistical characteristics of transport. Transport excesses, their analysis, the causes	, identify and mir	nimize the co	onsequences	. Improving	of transport
safety and fluency.						
12PPOK	Designing Roads, Highways and Motorways				KZ	3
Definition, types, owner	ership, maintenance, management and categorization of roads and highways. Curve and trar	nsition curve. Sinu	uosity and s	tandard spee	d. Route in	rural areas.
Range of vision for sto	pping and overtaking. Road body - shapes and proportions, bottom and superstructure. Drain	nage and compo	nents of roa	ds. Safety de	vice. Crossi	ings, junctions
ntersections.						
18PZP	Elasticity and Strength			Z	,ZK	3
Tension and compress	sion. Bending of beam. Shear stress in bending of beam. Design and analysis of cross sectio	n of beam. Desig	n of riveted,	bolted and v	velded joint	s of structures
Analysis of deflection of	curve of beams. Torsion of circular cross sections. Combined loading. Stability.					
11SIS	Statistics			Z	,ZK	2
Point estimation, prope	erties of point estimators, methods of point estimation. Testing statistical hypothesis. Fit test,	independence te	st. Regressi	on and corre	lation, linea	r regression,

correlation coefficient, coefficient of determination, general linear model, statistical inference in linear regression, analysis of variance, multiple regression, use of matrices in regression.

00004	Ourtones Analysis	7.71/	
20SSA	Systems Analysis	Z,ZK	3
Systems identification.	Γγρical tasks of systems analysis: on the interface, routes in system, decomposition and integration, on systems feedback. Ca	apacity tasks, prod	cess analysis.
Task about behaviour, a	im behaviour, the genetic code, architecture and identity of systems. Fundamentals of technical cybernetics, stability and reli	iability of systems	i.
14UATT	Introduction to Automatization and Telecommunication Systems	KZ	2
Basic axioms of technic	al cybernetics, automatization in transportation, human as the weakest element, signalling in transpotation, modelling and pr	ojecting of transp	ort systems,
integrated technologica	I and infromation system in post, principle of telecommunication signal transmission, solving of telecommunication networks,	modulating method	ods, multimedial
networks and services,	NGN networks.		
16UDDM	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 transportati	ion. Manipulating
technics. Principles of li	fting machines and conveyors. Legislature.		
14ZAET	Fundamentals of Electrotechnics	KZ	2
Basic electrotechnic ter	ms, circuit quantities. Periodic courses characteristics. Electric circuits elements and basic circuit members. Assignating of bi	poles and basic c	ircuit elements.
Solution to direct curren	t circuits with a help of circuit analysis elementar methods: method of consecutive reduction, unloaded voltage divider, current div	vider. Transfigurati	on star-triplangel
and principle of superpo	osition in direct current circuits.		

Code of the group: 5.S.BKMED 13/14

Name of the group: 5.sem.MED bak.komb.13/14

Requirement credits in the group: In this group you have to gain 21 credits

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

Credits in the group: 21 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
14DB	Database Systems	KZ	2	0+2	Z	Z
17DNV	Transportation of Dangerous Goods	KZ	2	2+0	Z	Z
17FIF	Finances and Financing	KZ	2	2+0	Z	Z
23KM	Crisis Management	KZ	2	2+0	Z	Z
17LOS	Logistic Systems	Z,ZK	3	2+1	Z	Z
17MSTP	Small and Medium Enterprise	KZ	2	2+0	Z	Z
17PDO	Designing of Public Transport Services	KZ	3	2+1	Z	Z
17TCHR	Tourist Trade Techniques	Z	1	2+0	Z	Z
17TGA	Graph Theory and its Applications in Transport Alena Rybi ková, Denisa Mocková, Dušan Teichmann	Z,ZK	4	2P+2C+12E	B Z	Z

I4DB	Database Systems	KZ	2
Basic concepts of	database systems, conceptual model, relational data model, the principles of normal forms, relational database design, securi	ty and integrity of dat	a, database
jueries, relational	algebra, SQL language, client / server, multilayer architectures, distributed database systems. Access to data via the WWW.		
7DNV	Transportation of Dangerous Goods	KZ	2
•	Kinds of hazards. Classification. Carriage by road, railways, inland waterways, air and maritime transport. Obligations of consign		
-	of international obligatory conditions. Enumerated list of dangerous goods. Packing and marking of packages. Transport docum	entation. Exempted a	and unlimited
uantity. Crew, equ	uipment, approval, marking, operation and construction of road vehicles.		
7FIF	Finances and Financing	KZ	2
	d revenue flow. Financial system functions. Financial assets. Types of financing. Company cash flow. Short-term financing instrume	•	cing instrumen
ading financial in	nstruments. Banking financial instruments. Financial risk allocation instruments. Payment and hedging instruments. Loan capita	al. Risk capital.	
3KM	Crisis Management	KZ	2
neory and legal fr	rame of crisis management with direction to Rescue system (IZS). After introduction to safety domain, there are terms and know	vledge on theory and	position of cris
anagement and i	its targets, IZS-crisis management-crisis planning and basic legislation. Practical part is concentrated to responsibility matrix c		•
	its targets, IZS-crisis management-crisis planning and basic legislation. Practical part is concentrated to responsibility matrix c Logistic Systems		3
7LOS		ompilation.	3
7LOS efinition of logistic	Logistic Systems	compilation.  Z,ZK s and strategies of co	3 mpany logistic
7LOS efinition of logistic ystem. Transport i	Logistic Systems ics, development and science basics of logistics. Basic elements of logistic system, logistic chain. Technology in logistics. Goals	compilation.  Z,ZK s and strategies of co	3 mpany logistic
7LOS efinition of logistic ystem. Transport i osition of logistics	Logistic Systems ics, development and science basics of logistics. Basic elements of logistic system, logistic chain. Technology in logistics. Goals in logistic system. Logistic technologies in air, rail and water transport. Information systems in logistics and passenger transport.	compilation.  Z,ZK s and strategies of co	3 mpany logistic
7LOS efinition of logistic ystem. Transport i osition of logistics 7MSTP	Logistic Systems ics, development and science basics of logistics. Basic elements of logistic system, logistic chain. Technology in logistics. Goals in logistic system. Logistic technologies in air, rail and water transport. Information systems in logistics and passenger transpors in the Czech Republic and Europe.	ompilation.  Z,ZK s and strategies of co	3 mpany logistic ution in logistic
7LOS efinition of logistic estem. Transport i osition of logistics 7MSTP ME, design, plan,	Logistic Systems ics, development and science basics of logistics. Basic elements of logistic system, logistic chain. Technology in logistics. Goals in logistic system. Logistic technologies in air, rail and water transport. Information systems in logistics and passenger transpors in the Czech Republic and Europe.  Small and Medium Enterprise In, market, analysis, finance, management, decision making, survival, growth.	ompilation.  Z,ZK s and strategies of co	3 mpany logistic ution in logistic
7LOS efinition of logistic /stem. Transport i osition of logistics 7MSTP ME, design, plan, 7PDO	Logistic Systems ics, development and science basics of logistics. Basic elements of logistic system, logistic chain. Technology in logistics. Goals in logistic system. Logistic technologies in air, rail and water transport. Information systems in logistics and passenger transpors in the Czech Republic and Europe.  Small and Medium Enterprise	ompilation.  Z,ZK s and strategies of co tt. Storage and distrib  KZ	3 mpany logistic ution in logistic
7LOS efinition of logistic ystem. Transport i osition of logistics 7MSTP ME, design, plan, 7PDO ransport planning	Logistic Systems ics, development and science basics of logistics. Basic elements of logistic system, logistic chain. Technology in logistics. Goals in logistic system. Logistic technologies in air, rail and water transport. Information systems in logistics and passenger transpors in the Czech Republic and Europe.  Small and Medium Enterprise In, market, analysis, finance, management, decision making, survival, growth.  Designing of Public Transport Services	ompilation.  Z,ZK s and strategies of co tt. Storage and distrib  KZ  KZ  grated periodic timeta	3 mpany logistic ution in logistic 2 3 able. Planning
7LOS efinition of logistic ystem. Transport i position of logistics 7MSTP ME, design, plan, 7PDO ransport planning rocess of long-dis	Logistic Systems ics, development and science basics of logistics. Basic elements of logistic system, logistic chain. Technology in logistics. Goals in logistic system. Logistic technologies in air, rail and water transport. Information systems in logistics and passenger transports in the Czech Republic and Europe.  Small and Medium Enterprise In, market, analysis, finance, management, decision making, survival, growth.  Designing of Public Transport Services Index of the control o	ompilation.  Z,ZK s and strategies of co tt. Storage and distrib  KZ  KZ  grated periodic timeta	3 mpany logistic ution in logistic 2 3 able. Planning
7LOS efinition of logistic vistem. Transport i position of logistics 7MSTP ME, design, plan, 7PDO ansport planning rocess of long-dis armony of particu	Logistic Systems ics, development and science basics of logistics. Basic elements of logistic system, logistic chain. Technology in logistics. Goals in logistic system. Logistic technologies in air, rail and water transport. Information systems in logistics and passenger transports in the Czech Republic and Europe.  Small and Medium Enterprise  In, market, analysis, finance, management, decision making, survival, growth.  Designing of Public Transport Services  Ig, demand elasticity. Strategy and hierarchical planning of public transport system. Line network planning, concept of offer. Integrational transport. Optimised number of rolling-stock, circulation plan of rolling-stock, rolling-stock strategy. Public sular long-term plans. Controlled competition. Case studies.	ompilation.  Z,ZK s and strategies of co tt. Storage and distrib  KZ  KZ  grated periodic timeta	3 mpany logisticution in logisticution 2 3 able. Planning
7LOS efinition of logistic ystem. Transport i osition of logistics 7MSTP ME, design, plan, 7PDO ransport planning rocess of long-dis armony of particu	Logistic Systems ics, development and science basics of logistics. Basic elements of logistic system, logistic chain. Technology in logistics. Goals in logistic system. Logistic technologies in air, rail and water transport. Information systems in logistics and passenger transpor s in the Czech Republic and Europe.  Small and Medium Enterprise n, market, analysis, finance, management, decision making, survival, growth.  Designing of Public Transport Services g, demand elasticity. Strategy and hierarchical planning of public transport system. Line network planning, concept of offer. Integstance and regional transport. Optimised number of rolling-stock, circulation plan of rolling-stock, rolling-stock strategy. Public s	ompilation.  Z,ZK s and strategies of co tt. Storage and distrib  KZ  KZ  grated periodic timeta service liability for var	3 mpany logistic ution in logistic 2 3 able. Planning ious segments
7LOS efinition of logistic ystem. Transport i osition of logistics 7MSTP ME, design, plan, 7PDO ransport planning rocess of long-dis armony of particu 7TCHR evelopment and i	Logistic Systems ics, development and science basics of logistics. Basic elements of logistic system, logistic chain. Technology in logistics. Goals in logistic system. Logistic technologies in air, rail and water transport. Information systems in logistics and passenger transports in the Czech Republic and Europe.  Small and Medium Enterprise  n, market, analysis, finance, management, decision making, survival, growth.  Designing of Public Transport Services g, demand elasticity. Strategy and hierarchical planning of public transport system. Line network planning, concept of offer. Integrational transport. Optimised number of rolling-stock, circulation plan of rolling-stock, rolling-stock strategy. Public sular long-term plans. Controlled competition. Case studies.  Tourist Trade Techniques importance of the tourist trade, summary of tourist trade services with more detailed analysis of transport services and means	ompilation.  Z,ZK s and strategies of co tt. Storage and distrib  KZ  KZ  grated periodic timeta service liability for var	3 mpany logistic ution in logistic 2 3 able. Planning ious segments
7LOS Definition of logistic yestem. Transport i Position of logistics 7MSTP SME, design, plan, 7PDO ransport planning rocess of long-dislarmony of particut 7TCHR	Logistic Systems ics, development and science basics of logistics. Basic elements of logistic system, logistic chain. Technology in logistics. Goals in logistic system. Logistic technologies in air, rail and water transport. Information systems in logistics and passenger transports in the Czech Republic and Europe.  Small and Medium Enterprise  n, market, analysis, finance, management, decision making, survival, growth.  Designing of Public Transport Services g, demand elasticity. Strategy and hierarchical planning of public transport system. Line network planning, concept of offer. Integrational transport. Optimised number of rolling-stock, circulation plan of rolling-stock, rolling-stock strategy. Public sular long-term plans. Controlled competition. Case studies.  Tourist Trade Techniques importance of the tourist trade, summary of tourist trade services with more detailed analysis of transport services and means	ompilation.  Z,ZK s and strategies of co tt. Storage and distrib  KZ  KZ  grated periodic timeta service liability for var	3 mpany logistic ution in logistic 2 3 able. Planning ious segments

Name of the group: 5.sem.MED výb r p edm t 12/13

Requirement credits in the group: In this group you have to gain 2 credits

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

Credits in the group: 2 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
14TEU	Creation of Scripts and Macros for Economic Tasks	KZ	2	0+2	Z	Z
14WS2	Webdesign With Web Standards 2	KZ	2	0+2	Z	Z

## Characteristics of the courses of this group of Study Plan: Code=5.S.BKMED VYB R 12/1 Name=5.sem.MED vyb r p edm t 12/13

That deteristics of the courses of this group of orday Flant. Code-5.5. Extra Name-5.3. Chi.m. Extra Name-5.3. Chi						
14TEU	Creation of Scripts and Macros for Economic Tasks	KZ	2			
Fundamentals of VBA, functions and procedures, examples of their use. Forms and offers for user oriented applications, cooperation with other applications, solution to compatibility						
problems among differe	nt spreadsheet programs versions. Everything with the respect to economic tasks.					
14WS2	Webdesign With Web Standards 2	KZ	2			
Advanced CSS techniques. Multi-level menu. SEO - Search Engine Optimization. Web technologies: JavaScript, Flash, PHP, AJAX. AccessKey, Favicon, rollovers, lightboxes. Using						
API for maps or searching. Audit and page statistics. Use of useful scripts. Systems for content management.						

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

Name of the group: 6.sem.MED bak.komb. 13/14

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 10 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
17DAS	Transportation and Communication Law	Z	1	2+0	L	Z
17DU	Public Transport Service in a Territory	KZ	2	2+0	L	Z
17ERP	Company Economy and Management	Z,ZK	3	2+1	L	Z
14ISYS	Information Systems	KZ	2	2+0	L	Z
17KS	Quality of Transport and Telecommunication Systems	KZ	2	2+0	L	Z
17MPD	Management of Techonology Systems of Land Transport	Z,ZK	3	2+1	L	Z
17MR	Managerial Decision Making	KZ	3	2+1	L	Z
170DS	Optimization on Transportation Networks	Z,ZK	3	2+1	L	Z
17PZL	Carriage and Forwarding	Z,ZK	3	2+1	L	Z
17TAC	Tariffs and Prices in Transport	Z	1	2+0	L	Z

17DAS	Transportation and Communication Law	Z	1
Transportation and	communication law - railway, road transport, ropeway, water road, air transport, telecommunication, post, patent.	1 1	
17DU	Public Transport Service in a Territory	KZ	2
Transport policy. Im	pact of European integration. Configuration and links. Contract ensuring. Funding. Tariff and ticketing system. Legal col	nditions. Survey and quantifica	tion of carri
demand. Transport	scheduling. Quality criteria and standards. IT, Publicity, Promotion, Marketing. Case study on an Integrated Public Transcription.	nsport System.	
17ERP	Company Economy and Management	Z,ZK	3
Company and its n	eighbourhood, structure of assets and liabilities, depreciation, costs, revenues and profit, break-even point, costing, in	ventory, financial managemen	t, investmer
ppraisal, basics o	f management, organizational structures, human resources management, marketing, company strategy, business plan	n.	
14ISYS	Information Systems	KZ	2
State-of-the-art too	ls of objects control (control and planning) including problems related to these toole use, theory of information and known	owledge, knowledge and expe	rt systems,
lanning methodol	ogies, transaction systems, theory of computer networks, semantic webs and sensitivity analysis.		
17KS	Quality of Transport and Telecommunication Systems	KZ	2
Quality, systems, c	ompany, customer, norms, assessment, methods, indicators, satisfaction, loyalty.	· · ·	
17MPD	Management of Techonology Systems of Land Transport	Z,ZK	3
Structure of vehicle	e systems, rational assessment, decision making in the managing activity, operation-technical and economic properties	s, technological subsystems in	the field of
oad and rail transp	port.		
17MR	Managerial Decision Making	KZ	3
Decision making, r	ationality, process, state of the world, CPM, PERT, trees, group, certainty, risk, uncertainty, preference.	, ,	
17ODS	Optimization on Transportation Networks	Z,ZK	3
ntroduction to optir	nization and heuristic methods, metaheristic methods, the history of optimization Lagrangean approach, assignment pro	oblem - Hungarian method, min	imum weig!
natching, Little's a	Igorithm, vehicle routing problem - an extension of TSP, heuristic solution approaches to vehicle routing problem, local	I search techniques, Tabu Sea	rch, locatio
oroblems - heuristi	c algorithms, genetic algorithms and extensions of genetic algorithms.		

Name of the block: Compulsory courses in the program

Minimal number of credits of the block: 23

The role of the block: P

Code of the group: 4.S.BKMED 12/13

Name of the group: 4.sem.MED bak.komb. 12/13

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 10 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
14EAT	<b>Economic Analyses in Spreadsheets Programs Environment</b>	KZ	2	0+2	L	Р
17EM	Management Science	KZ	2	2+0	L	Р
13EDTP	Economy and Management of Transport and Telecommunication Processes	Z,ZK	3	2+1	L	Р
17GEDS	Geography of Transport Systems Miroslav Marada Miroslav Marada (Gar.)	KZ	2	2P+0C+8E	L	Р
13HG	Economic Geography	Z	2	2+0	L	Р
18KIAD	Kinematics and Dynamics	Z,ZK	2	2+1	L	Р
13MVD	Marketing in Transportation	Z,ZK	2	2+1	L	Р
17MEKA	Methods of Economics Analysis	KZ	2	2P+0C	Z	Р
11MSP	Modeling of Systems and Processes Lucie Kárná, Bohumil Ková, Jana Kuklová Jana Kuklová Bohumil Ková (Gar.)	Z,ZK	4	2P+2C+12E	L	Р
17RIP	Project Management	KZ	2	2+0	L	Р
14WS1	Webdesign With Web Standards 1	KZ	2	0+2	L	Р

## Characteristics of the courses of this group of Study Plan: Code=4.S.BKMED 12/13 Name=4.sem.MED bak.komb. 12/13

14EAT	Economic Analyses in Spreadsheets Programs Environment	KZ	2
Work with spreadsheet	programs with the respect to economic problems, use of nested functions and conditional formatting, statistic and mathematic	functions. Creation	n of graphs and
other graphic outputs. D	ata analysis, lists and contingent tables.		
17EM	Management Science	KZ	2
Linear Programming, gr	aphical interpretation and solution of LP problem. Types of distribution problems, transportation problem. Models of network a	nalysis. Models of	queuing theory.
Models of inventory mar	nagement. Simulation models.		
13EDTP	Economy and Management of Transport and Telecommunication Processes	Z,ZK	3
Transport and telecomm	unication system, financing of transport infrastructure, transport policy, transport service, energy sources, public goods, exte	rnalities in transp	ort and their
treatment, assessment	of public projects, CBA method, transport company, costing in transportation, transport quality.		
17GEDS	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	pment. Spatial int	eraction -
theoretical and methodo	logical framework. Mobility research - travel behavior, mode choice and the influence onto "modal-split." Modal competition. Prac	tical use of transp	ort-geographical
analysis in transportatio	n planning.		
13HG	Economic Geography	Z	2
Introduction of the issue	is, definitions and introductory concepts. World geography and its research subject. Economic geography - Europe, Asia, Afri	ca, Australia, Ame	erica, the Czech
Republic. Transport geo	graphy and its research subject. Characteristics of transportation as one of the branches of the global economy. Transport sy	stems and their lo	cation in the
world. Particular transpo	ort modes as part of the economy and the world transport system.		
18KIAD	Kinematics and Dynamics	Z,ZK	2
Motion along a line, mot	ion along a curve. Kinematics of rigid plane, kinematics of rigid body. Point mass kinematics, system of point masses. Point m	ass dynamics and	system of point
masses, equation of mo	ition. Method of Newton. Princle of D´Alembert. Free and forced vibration with one degree of freedom. Viscous damping. Impa	act theory. Introdu	ction to the
solution of vibration with	n multiple degrees of freedom.		
13MVD	Marketing in Transportation	Z,ZK	2
General principles of the	e marketing applied in transportation. Marketing, marketing research, macroworld, microworld, markets, market positioning, pr	oducts, brands, p	ackage, service,
pricing, distribution char	nnels, physical distribution, retail, wholesale, promotion, advertising, segmentation, placement, action plan.		
17MEKA	Methods of Economics Analysis	KZ	2
The techniques of econ	omical analysis in the domain of analysis of dependencies, analysis and construction of time series and comparsion of statis	tical values using	differencies and

11MSP Modeling of Systems and Processes

Z.ZK

4

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

17RIP Project Management

ΚZ

2

Project, influences, pressures and influences. Entrepreneurial plan and capital decision making. Marketing, break-even point assessment. Project management and his characters. Organizational structures in project management. Feasibility study. Capital and operational costs assessment. Process of choosing optimal variant. Cost Benefit Analysis. Models of project financing. Life cycle of project. Financial anal. of capital projects. Project risks.

14WS1 Webdesign With Web Standards 1

ΚZ

Z | 2

HTTP, URL, markup languages HTML and XHTML, anchors, tables, images, lists, forms, features of CSS, rules of accessible web pages, usability of web pages, problems of different browsers, one, two and three column pages, page validation, conditional comments, CSS hacks.

Name of the block: Compulsory elective courses

Minimal number of credits of the block: 12

The role of the block: PV

Code of the group: W1-B 11/12

Name of the group: PVP bak.komb. od 11/12

Requirement credits in the group: In this group you have to gain 12 credits

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

Credits in the group: 12 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
17W1AF	Alternative Forms of Transportation Project Financing	KZ	4	8	Z	PV
17W1BB	Banks and Banking	KZ	4	8	Z	PV
15W1BO	Work Safety and Health Protection	KZ	4	8	L	PV
15W1DU	Art History and Society	KZ	4	8	Z	PV
15W1DZ	History of Railway	KZ	4	8	L	PV
17W1DZ	Transported Commodities Cognization	KZ	4	8	L	PV
13W1EA	Economic - Energetic Analysis of Land Transport	KZ	4	8	Z	PV
13W1EV	Public Sector Economy	KZ	4	8	Z	PV
17W1EV	Public Sector Economy	KZ	4	8B	Z	PV
15W1EH	European Integration within Historical Context	KZ	4	8	Z	PV
15W1HD	History of City Public Transport	KZ	4	8	Z	PV
15W1HE	Work Hygiene and Ergonomics in Traffic	KZ	4	8	Z	PV
17W1LL	Logistics of Passenger and Freight Air Transport	KZ	4	8B	L	PV
11W1MM	Mathematical Models in Economy	KZ	4	8	Z	PV
17W1ND	Maritime Transportation	KZ	4	8	Z	PV
13W1PM	Personal Management	KZ	4	8	L	PV
13W1PD	The Participation of Transport in Tourist Trade Management	KZ	4	8	L	PV
16W1PV	Operation, Construction and Maintenance of Vehicles	KZ	4	8	L	PV
16W1RV	Railroad Vehicles Driving	KZ	4	8	L	PV
13W1SM	MESE Simulation	KZ	4	8	Z	PV
16W1TJ	Technological Quality Aspects	KZ	4	8	Z	PV
16W1TR	Theory of Railroad Vehicle Driving	KZ	4	8	Z	PV
16W1TZ	Transporting Devices	KZ	4	8	L	PV
12W1VC	Waterways and shipping	KZ	4	8	Z	PV
12W1VD	Water Transport and Transportation	KZ	4	8	L	PV
16W1ZL	Vehicle Testing, Legislation and Construction	KZ	4	8	Z	PV

Characteristics of the courses of this group of Study Plan: Code=W1-B 11/12 Name=PVP bak.komb. od 11/12

17W1AF	Alternative Forms of Transportation Project Financing	KZ	4
It will be specifed such f	orms of financing in trasportation, where the public sector body perform the final debtor, i. e. debtor payments come from its	budget, but the fir	nal debtor is not
a direct participant of th	e transaction and it is not the counterparty of the financial institute which provides the funding. Issue of securities as an alter	native source of t	ransportation

project financing.

17W1BB Banks and Banking	KZ	4
Banks and banking system. Balance sheet, income statement, bank's capital and its functions. Banking risks. Banking products. Interest types, pay-	-	=
products. Banking deposit products. Banking payment-clearing products. Financial intermediation, open-end and closed-end funds, collective invest its role. Bank regulation and supervision. International banking.	ment schemes. Cer	ntrai bank and
15W1BO Work Safety and Health Protection	KZ	4
Fundamental legislature, definition of terms, risks and possible health damage, working conditions and health protection with focus on transportation	1	•
health insurance of home and foreign business trips, statistics, working practice.		
15W1DU Art History and Society	KZ	4
Aesthetics and its basic concepts. Art history: definitions, terminology, division into periods. Architecture, fine arts, design in Europe and America in		
in Central Europe, Czechoslovakia, the Czech Republic. Art Nouveau, Cubism, Postmodernism in industrial buildings and transportation facilities. S sluices etc. Aesthetics and construction work today. Design of transport vehicles.	tations, bridges, em	ibankments,
15W1DZ History of Railway	KZ	4
Horse-drawn railways, steam railways, railway network development in the 2nd half of 19th century, regional railways epoch, railways of the "First R	epublic", electric tra	ction, World
War II railways, railway development in the 2nd half of 20th century, high-speed railway origins, railway lines closing, development of long-distance	train connections, ra	ailway lines
construction, railway accidents, railway junctions. Study trips and projections.	1/7	4
17W1DZ Transported Commodities Cognization Useful features. Quality. Testing. Standardization. Features relevant for the transport. Packing. Stress. Protection of goods and damage prevention d	KZ   luring the carriage (	4 Optimization
of the choice and effective transport means utility.	aring the earnage.	Spanii Zadon
13W1EA Economic - Energetic Analysis of Land Transport	KZ	4
Vehicle traction systems, traction-energetic properties, laws of vehicle motion, assessment of energy demands, traction-energetic conceptions, techni	cal, economical and	social aspects.
13W1EV Public Sector Economy	KZ	4
Summary of basic economic findings, public goods - definition, public sector domains, state budget, taxes, public goods and externalities, externality	•	
treatment, methods of assessment of public projects, transport projects and their funding, benefits of transport projects, the assessment of transport HDM-4, CSHS.	it projects by the CE	sa metnoa,
17W1EV Public Sector Economy	KZ	4
Economic and financial theory of public sector, public choice theory, externalites, decisions about public finance allocation, economic assessment of	1	•
tax system of the CR, state budget, management of public projects a their economic efficiency assessment, way of elaboration of PPP projects, funding	ng from EU funds, pr	rogram HDM-4.
15W1EH European Integration within Historical Context	KZ	4
Versailles system, formation of new states. Europe and the powers, League of Nations. European policy in the 1920s. Fascism, nacism, communism		
goals. Europe after Hitler's getting to power, system of bilateral agreements. Decline of the LN. Rearrangement of powers during WWII. Cold war ar New quality of French-German relationship - a driving power of starting European integration.	a its consequences	for Europe.
15W1HD History of City Public Transport	KZ	4
History of city public transport in the world; development of tram, bus and trolley-bus systems. History of transport networks in the world; current tre	1	•
clearance systems. History of city transport in Prague and Brno. History of tram, bus and trolley-bus operation systems in the Czech Republic and S	Slovakia.	
15W1HE Work Hygiene and Ergonomics in Traffic	KZ	4
Basic knowledge of occupational hygiene and ergonomics, and their application in transport. Working environment factors, and the influence of these		
Creation and protection of working conditions that do not damage public health. Mutual links: man-machine-environment. Adaptation of technology Practical examples from the field of transportation; relevant legislature.	to possibilities and s	skills of a man.
17W1LL Logistics of Passenger and Freight Air Transport	KZ	4
Logistics airline passenger and cargo. Aircraft and airport terminals for passenger and cargo transport. Airlines in terms of logistics systems. Aerial		•
air cargo. Information systems in air transport. Global distribution systems.		_
11W1MM Mathematical Models in Economy	KZ	4
Linear models subjected to linear constraints leading to linear programming. Models of net analysis, storage models, queue lengths models. Theory of	reliability. Dynamica	ll programming,
convex optimisation tasks.	1/7	4
17W1ND   Maritime Transportation   History and importance of the maritime transportation, theoretical discipline in maritime transportation, seafaring vessels, maritime ports and their u	KZ	4
maritime ports, transport corridors and link by maritime, river and rail transport I and II, global maritime corridors, logistics of maritime transportation,	-	
containers, ITS in maritime transport.	•	
13W1PM Personal Management	KZ	4
Basic overview of leadership issue from the viewpoint of an employee as well as a manager. The accent at the experience of basic situations through		
approach to the personal management, the assessment as a process, SWOT analysis, basic principles of personal management, theory and practice of personal management, the assessment as a process, SWOT analysis, basic principles of personal management, theory and practice of personal management, the assessment as a process, SWOT analysis, basic principles of personal management, the assessment as a process, SWOT analysis, basic principles of personal management, the assessment as a process, SWOT analysis, basic principles of personal management, the assessment as a process, SWOT analysis, basic principles of personal management, the assessment as a process, SWOT analysis, basic principles of personal management, the assessment as a process, SWOT analysis, basic principles of personal management, the assessment as a process, SWOT analysis, basic principles of personal management, the assessment as a process, and the personal management as a process, and the personal management as a process of the personal management as a process of the personal management as a process of the personal management and personal management as a process of the personal management and personal management as a process of the personal management and personal management as a process of the personal management and personal management as a personal management and personal management	of motivation, manag	erial leadership
styles.  13W1PD The Participation of Transport in Tourist Trade Management	KZ	4
Tourist trade, transport, typology, market, marketing mix, transport service providers, contract cooperation, reservation systems, transport valuables	1 1	=
carriers, IATA, ICAO, road, water, rail transport.	.,	
16W1PV Operation, Construction and Maintenance of Vehicles	KZ	4
Methods of vehicle production. Vehicle maintenance. Vehicle diagnostics. Maintenance and repair plans. Engine maintenance and emission measurements are considered as a second control of the control of	ement. Transmissio	n mechanism.
General principles of engine diagnostics.		
16W1RV   Railroad Vehicles Driving	KZ	4
Electric circuits in railroad vehicles. Railroad vehicle parametres regulation. Servicing and operation of the railroad vehicles. Rail traction technology Searching and solving faults.	. Solution of emerge	ericy situations.
13W1SM MESE Simulation	KZ	4
Management game simulating corporate decision making. Groups of students produce the same product, give the volume of available production ca	1 1	=
research and development.		
16W1TJ Technological Quality Aspects	KZ	4
Certification and acreditation. Quality management. Standards of Quality Management and its application. Quality system creation. Tools and methods	of quality improvem	ent. Conformity
verification. Environmental certification. Workplace certification. QMS integration. Classification, certification of products and producers.  16W/1TP Theory of Pailroad Vehicle Driving		4
16W1TR		
Legislation in railroad transportation. Technical condition of railroad vehicles and responsibility for their condition. Railroad traffic regulations. Railroad	KZ Ad traffic safety. Sign	

16W1TZ	Transporting Devices	KZ	4		
Flow of masses, mate	al transport technology, loose material transport - conveyors with tractive elements, conveyors without tractive elements, tran	sport of piece ma	terial - continual		
transport devices, cyclic transport devices, crane mechanisms, steel constructions. Vertical transport, transport in mines, long-distance conveyor belt transport.					
12W1VC	Waterways and shipping	KZ	4		
European waterway ne	et, waterways parameters, ports and transshipment points, advantages and disadvantages of water transport, regulations of s	hip operation and	waterways,		
shipping net in the Cz	ech Republic and European countries, waterways authorities, investment in water infrastructure.				
12W1VD	Water Transport and Transportation	KZ	4		
16W1ZL	Vehicle Testing, Legislation and Construction	KZ	4		
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 w	orld, 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: JZ-B-3.4 12/13

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

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

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

Credits in the group: 6 Note on the group:

features. Practice of oral and written presentation.

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
15JZ3A	Foreign Language - English 3 Markéta Musilová, Lenka Monková, Marie Michlová, Peter Morpuss, Jitka He manová, Dana Boušová, Barbora Horá ková, Jan Feit, Eva Rezlerová,	Z	3	0P+4C	Z	J
15JZ4A	Foreign Language - English 4 Markéta Musilová, Lenka Monková, Marie Michlová, Peter Morpuss, Jitka He manová, Barbora Horá ková, Jan Feit, Eva Rezlerová, Markéta Vojanová	Z,ZK	3	0P+4C	L	J
15JZ3F	Foreign Language - French 3 Eva Rezlerová, Irena Veselková	Z	3	0P+4C+10B	Z	J
15JZ4F	Foreign Language - French 4 Eva Rezlerová, Irena Veselková	Z,ZK	3	0P+4C+10B	L	J
15JZ3N	Foreign Language - German 3 Eva Rezlerová, Martina Navrátilová, Jana Štikarová	Z	3	0P+4C+10B	Z	J
15JZ4N	Foreign Language - German 4 Eva Rezlerová, Martina Navrátilová, Jana Štikarová	Z,ZK	3	0P+4C+10B	L	J
15JZ3R	Foreign Language - Russian 3 Marie Michlová, Eva Rezlerová	Z	3	0P+4C+10B	Z	J
15JZ4R	Foreign Language - Russian 4 Marie Michlová, Eva Rezlerová	Z,ZK	3	0P+4C+10B	L	J
15JZ3S	Foreign Language - Spanish 3 Eva Rezlerová, Nina Hricsina Puškinová	Z	3	0P+4C+10B	Z	J
15JZ4S	Foreign Language - Spanish 4 Eva Rezlerová, Nina Hricsina Puškinová	Z,ZK	3	0P+4C+10B	L	J

Characteristics of the courses of this group of Study Plan: Code=JZ-B-3.4 12/13 Name=Jazyk bak. 5.6.sem. of	od 12/13	
15JZ3A Foreign Language - English 3	Z	3
Grammar structure and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Facult	y's fields of study	pilot. Focus on
improvement in perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both ora	I and written form	Technical texts
and their features; terminology.		
15JZ4A Foreign Language - English 4	Z,ZK	3
Grammar structure and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Facult	y's fields of study	- pilot. Focus on
improvement in perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both ora	I and written form	n. Technical texts
and their features; terminology.		
15JZ3F Foreign Language - French 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	of language struct	ure knowledge
and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Wor	k with (profession	nal) text and its
features. Practice of oral and written presentation.		
15JZ4F Foreign Language - French 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	of language struct	ure knowledge
and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Wor	k with (profession	nal) text and its
features. Practice of oral and written presentation.		
15JZ3N 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	of language struct	ure knowledge

and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its

### 15JZ4N Foreign Language - German 4

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 - Russian 3

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

#### 15JZ4R Foreign Language - Russian 4

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

#### 15JZ3S Foreign Language - Spanish 3

features. Practice of oral and written presentation.

features. Practice of oral and written presentation.

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

#### 15JZ4S Foreign Language - Spanish 4

Z,ZK

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

3

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

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

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

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

Credits in the group: 6 Note on the group.

Note on the grou	۲.					
Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
15JZ1A	Foreign Language - English 1 Markéta Musilová, Lenka Monková, Marie Michlová, Peter Morpuss, Jitka He manová, Dana Boušová, Barbora Horá ková, Jan Feit, Eva Rezlerová,	Z	3	0P+4C+10B	Z	J
15JZ2A	Foreign Language - English 2 Markéta Musilová, Lenka Monková, Marie Michlová, Peter Morpuss, Jitka He manová, Dana Boušová, Barbora Horá ková, Jan Feit, Eva Rezlerová,	Z,ZK	3	0P+4C+10B		J
15JZ1F	Foreign Language - French 1	Z	3	0+4	Z	J
15JZ2F	Foreign Language - French 2	Z,ZK	3	0+4	L	J
15JZ1N	Foreign Language - German 1	Z	3	0+4	Z	J
15JZ2N	Foreign Language - German 2	Z,ZK	3	0+4	L	J
15JZ1R	Foreign Language - Russian 1	Z	3	0+4	Z	J
15JZ2R	Foreign Language - Russian 2	Z,ZK	3	0+4	L	J
15JZ1S	Foreign Language - Spanish 1	Z	3	0+4	Z	J
15JZ2S	Foreign Language - Spanish 2	Z,ZK	3	0+4	L	J

## Characteristics of the courses of this group of Study Plan: Code=JZ-B-1,2 11/12 Name=Jazyk bak.3.4.sem.od 11/12

15.704		
stylistics forms. Oral and written presentation of original research. Academic text principles and reading comprehension. Principles of rhetoric.		
Grammatical Structures and Style. Selection of conversation topics relating to transportation sciences. Extending vocabulary, developing perceptive ar	d communicative s	skills. Elementary
15JZ1A   Foreign Language - English 1	Z	3

15JZ2A Foreign Language - English 2 Z,ZK

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.

#### 15JZ1F Foreign Language - French 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.

## Foreign Language - French 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.

## 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.

15JZ2N	Foreign Language - German 2	Z.ZK	3
	d stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Facul	1 / 1	_
	otive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both ora		
•	s; practice of oral and written presentation.		
15JZ1R	Foreign Language - Russian 1	Z	3
Grammar structure ar	d stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Facul	ty's fields of study	Focus on
improvement in perce	otive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both ora	al and written form	s. Technical
texts and their feature	s; practice of oral and written presentation.		
15JZ2R	Foreign Language - Russian 2	Z,ZK	3
Grammar structure ar	d stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Facul	ty's fields of study	Focus on
improvement in perce	otive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both ora	al and written form	s Technical
			o. roominoai
texts and their feature	s; practice of oral and written presentation.		o. roomnoar
	s; practice of oral and written presentation.  Foreign Language - Spanish 1	Z	3
15JZ1S		Z	3
15JZ1S Grammar structure ar	Foreign Language - Spanish 1	Z ty's fields of study	3 Focus on
15JZ1S Grammar structure ar improvement in perce	Foreign Language - Spanish 1 d stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Facult	Z ty's fields of study	3 Focus on
15JZ1S Grammar structure ar improvement in perce	Foreign Language - Spanish 1 d stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Facultotive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both ora	Z ty's fields of study	3 Focus on
15JZ1S Grammar structure ar improvement in perce texts and their feature 15JZ2S	Foreign Language - Spanish 1 d stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Facultotive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both orast, practice of oral and written presentation.	Z ty's fields of study al and written form	3 Focus on s. Technical
15JZ1S Grammar structure ar improvement in perce texts and their feature 15JZ2S Grammar structure ar	Foreign Language - Spanish 1 d stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Facultive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oracs; practice of oral and written presentation.  Foreign Language - Spanish 2	Z ty's fields of study al and written form  Z,ZK ty's fields of study	3 Focus on s. Technical 3 Focus on

# List of courses of this pass:

Code	Name of the course	Completion	Credits
11DAD	Differential and Difference Equations	Z,ZK	3
Difference equation	ns and its systems. Some solvable types of differential equations of the first order. Linear differential equations of the n-th order. Methods f	or solution of the ho	mogeneous
equation, solution	of inhomogeneous equation by means of variation of constants. Power series and their use for solution of differential equation. Boundary	/ value problem. Eig	gennumbers
	and function for differential equation. Fourier series of function.		
11FY1	Physics 1	Z,ZK	4
Kine	natics, particle dynamics, dynamics of particle systems and rigid body. Continuum mechanics, thermodynamics, electric field, directe	d electric current.	'
11FY2	Physics 2	Z.ZK	4
Magnetic field, ele	rictromagnetic field. Optics, quantum character of electromagnetic radiation. Introduction into quantization, hydrogen atom. Multi-electr	on atoms, the nucl	ei. Basics of
_	solid body physics.		
11GIE	Geometry	KZ	3
	etry of curves - parameterization, the arc of the curve, torsion and curvature, Frenet`s trihedron. Kinematics - a curve as a trajectory of	of the motion, the v	elocity, and
· ·	acceleration of a particle moving on a curved path.		•
11LA	Linear Algebra	Z,ZK	3
Vector spaces (lin	ear combinations, linear independence, dimension, basis, coordinates). Matrices and operations. Systems of linear equations and the	ir solvability. Deter	minants and
	their applications. Scalar product. Similarity of matrices (eigenvalues and eigenvectors). Quadratic forms and their classificat	ion.	
11MSP	Modeling of Systems and Processes	Z,ZK	4
System and subsy	stem, external and internal system description, continuous and discrete system, mathematics as a tool, examples of formulation of differe	ential and differentia	al equations
Linear and no	nlinear system, stationary and non-stationary system, causality. Convolutional integral. Laplace and Z transformations. Transfer function	on. Stability of LTI s	systems.
	Discretization of continuous systems. System interconnection.		
11MTA	Mathematical Analysis	Z,ZK	4
Sequences and se	eries of real numbers and its convergence. Basic properties of functions. Differential and integral calculus of the real function of one real	variable. Power se	ries, Fourier
	series and foundations of Fourier transform.		
11MVP	Mathematical Analysis of Function of More Variables	Z,ZK	3
Metric spaces, se	quences in metric spaces, limit of sequence in metric space. Differential calculus of functions of several variables, differential of function	n, partial derivatio	ns, implicitly
defined functions	, extremes of functions of several variables. Integral calculus of functions of several variables, Riemann integral, integral over curves a	ind surfaces in R3,	application
	of integral calculus in physics.		
11PT	Probability	Z	2
Descriptive statist	ics. Basic probability concepts: elementary events and events, definitions and interpretation of probability. Random variable, probabilit	y distribution, prob	ability mass
and density, mor	nents, some discrete and continuous distributions. Random vectors: joint and marginal distributions, mean vector, covariance matrix. I	Mixed distributions,	mixture of
	distributions. Law of large numbers, central limit theorem.		
11SIS	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 coeffic	ient, coefficient of determination, general linear model, statistical inference in linear regression, analysis of variance, multiple regression	, use of matrices in	regression
11W1MM	Mathematical Models in Economy	KZ	4
Linear models sub	pected to linear constraints leading to linear programming. Models of net analysis, storage models, queue lengths models. Theory of relia	bility. Dynamical pr	ogramming
	convex optimisation tasks.		
12MDE	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 questions are traffic flow and methods for their measurement.	ueues, shock wave	s. Quality of
transport and its	assessment. Statistical characteristics of transport. Transport excesses, their analysis, the causes, identify and minimize the consequ	ences. Improving of	of transport

safety and fluency.

12PKD	Rail Transport Designing	Z,ZK	3
1	rk. Vehicle and track relation. Traction. Track geometrical parameters. Clearance profile. Railway lines routing. Superstructure and sub-	,	_
	Switches. Railway stations. City rail transport.		
12PPOK	Designing Roads, Highways and Motorways	KZ	3
	wnership, maintenance, management and categorization of roads and highways. Curve and transition curve. Sinuosity and standard stopping and overtaking. Road body - shapes and proportions, bottom and superstructure. Drainage and components of roads. Safety		
ango er rielen lei e	intersections.	act.cc. c.ccg	,0, ,000.
12W1VC	Waterways and shipping	KZ	4
European waterwa	ay net, waterways parameters, ports and transshipment points, advantages and disadvantages of water transport, regulations of ship	operation and w	aterways,
40\\\4\\D	shipping net in the Czech Republic and European countries, waterways authorities, investment in water infrastructure.		1
12W1VD	Water Transport and Transportation	KZ	4
12ZADI raffic survey. Terres	Introduction to Transportation Engineering trial roads. Residential zone. Land - use planning. Railway transport. Public mass transport. Integrated traffic systems. Traffic prognosi  Traffic and environment.	Z,ZK s. Traffic safety. A	3 Air transpo
13E	Economics	Z,ZK	3
	nd macroeconomic interpretation of economic relations. Method and subject of the economics. Economic decision making of consum- structures. Labour and capital, efficiency, ownership, public choice.	-	
13EDOT	Economy, Transport, Telecommunications	KZ	2
	ommunications, demand, supply, indicators, economic development, legislation, European union, regulation, liberalisation, transport m		
13EDTP	Economy and Management of Transport and Telecommunication Processes communication system, financing of transport infrastructure, transport policy, transport service, energy sources, public goods, externation	Z,ZK alities in transpor	and thei
	treatment, assessment of public projects, CBA method, transport company, costing in transportation, transport quality.		11101
13HG	Economic Geography	Z	2
	sues, definitions and introductory concepts. World geography and its research subject. Economic geography - Europe, Asia, Africa, A		
Republic. Transpor	t geography and its research subject. Characteristics of transportation as one of the branches of the global economy. Transport syste	ms and their loca	ation in th
40111/15	world. Particular transport modes as part of the economy and the world transport system.	7.71	
13MVD	Marketing in Transportation  f the marketing applied in transportation. Marketing, marketing research, macroworld, microworld, markets, market positioning, produc	Z,ZK	2
erierai principies oi	pricing, distribution channels, physical distribution, retail, wholesale, promotion, advertising, segmentation, placement, action placemen	-	age, sei vi
13W1EA	Economic - Energetic Analysis of Land Transport	KZ	4
1	ems, traction-energetic properties, laws of vehicle motion, assessment of energy demands, traction-energetic conceptions, technical, ec		1
13W1EV	Public Sector Economy	KZ	4
Summary of basic	c economic findings, public goods - definition, public sector domains, state budget, taxes, public goods and externalities, externalities	in transportation	and their
	ls of assessment of public projects, transport projects and their funding, benefits of transport projects, the assessment of transport pro HDM-4, CSHS.		A method
13W1PD ourist trade, transpose	The Participation of Transport in Tourist Trade Management ort, typology, market, marketing mix, transport service providers, contract cooperation, reservation systems, transport valuables, stan carriers, IATA, ICAO, road, water, rail transport.	KZ dard air carriers,	low cost
13W1PM	Personal Management	KZ	4
	leadership issue from the viewpoint of an employee as well as a manager. The accent at the experience of basic situations through a onal management, the assessment as a process, SWOT analysis, basic principles of personal management, theory and practice of motivatives.	_	-
13W1SM	MESE Simulation	KZ	4
	simulating corporate decision making. Groups of students produce the same product, give the volume of available production capacity		
	research and development.		1
14DB	Database Systems	KZ.	2
	database systems, conceptual model, relational data model, the principles of normal forms, relational database design, security and queries, relational algebra, SQL language, client / server, multilayer architectures, distributed database systems. Access to data via the		database
14EAT	Economic Analyses in Spreadsheets Programs Environment	KZ	2
	eet programs with the respect to economic problems, use of nested functions and conditional formatting, statistic and mathematic func		1
	other graphic outputs. Data analysis, lists and contingent tables.		1
14ISYS	Information Systems	KZ	2
tate-of-the-art tool	s of objects control (control and planning) including problems related to these toole use, theory of information and knowledge, knowledge, knowledge, transaction systems, theory of computer naturally control was and consitivity applying	dge and expert	systems,
14KSP	planning methodologies, transaction systems, theory of computer networks, semantic webs and sensitivity analysis.  Constructing with Computer Aid	KZ	2
	n determination. CAD role in projecting system model. Existing CAD systems on Czech market. Project creation, basic common work		1
-	Co-ordinated systems, CAD environment skill (basics of constructing, dimensioning, modifications, user interfaces, projecting possibility		
	profiles, drawings with raster foundaments).		
14SIAP	Networks and Protocols	KZ	2
	on model, history and development of the Internet, principle of data transfer through computer networks (TCP/IP), performance of ba Inet, FTP, DNS, DHCP POP3, IMAP), data acquirement from the Internet sources, communicating ability via the Internet and fundamer	•	
	design by the means of web sites.		
14TEU	Creation of Scripts and Macros for Economic Tasks	KZ	2
Fundamentals of VE	BA, functions and procedures, examples of their use. Forms and offers for user oriented applications, cooperation with other applications, and procedures, examples of their use. Forms and offers for user oriented applications, cooperation with other applications.	ons, solution to c	ompatibil
4.41.10.	problems among different spreadsheet programs versions. Everything with the respect to economic tasks.	1/7	
	Introduction to Automatization and Telecommunication Systems	KZ	2
14UATT Basic axioms of te	choical cybernetics, automatization in transportation, human as the weakest element, signalling in transportation, modelling and project	cting of transport	t systeme
Basic axioms of te	chnical cybernetics, automatization in transportation, human as the weakest element, signalling in transpotation, modelling and proje gical and infromation system in post, principle of telecommunication signal transmission, solving of telecommunication networks, mod		

14UPRO	Introduction to Droggomming	KZ	2
Algorithm develor	Introduction to Programming  ment, methods of structured programming, high-level programming languages, basics of C programming languages (types, variables		2 es. arravs.
	functions), programming techniques, complexity.		
14WS1	Webdesign With Web Standards 1	KZ	2
TTP, URL, marku	p languages HTML and XHTML, anchors, tables, images, lists, forms, features of CSS, rules of accessible web pages, usability of web	pages, problems	s of differe
14WS2	browsers, one, two and three column pages, page validation, conditional comments, CSS hacks.  Webdesign With Web Standards 2	KZ	2
	chniques. Multi-level menu. SEO - Search Engine Optimization. Web technologies: JavaScript, Flash, PHP, AJAX. AccessKey, Favicon.		I
	API for maps or searching. Audit and page statistics. Use of useful scripts. Systems for content management.	, , <b>g</b>	
14ZAET	Fundamentals of Electrotechnics	KZ	2
	ic terms, circuit quantities. Periodic courses characteristics. Electric circuits elements and basic circuit members. Assignating of bipole		
olution to direct cu	rrent circuits with a help of circuit analysis elementar methods: method of consecutive reduction, unloaded voltage divider, current divider.	Transfiguration st	tar-triplanç
14ZINF	and principle of superposition in direct current circuits.  Fundamentals of Informatics	KZ	2
	culty network, MS-Word and Open Office, use of styles and advanced features, computer functions and information transmission. Num		l .
	thms and their proprieties. Flow charts for algorithms drawing. Mathematic and logic ordering algorithms incl. functions and procedures. graphs, calculations, functions.	-	
15JZ1A	Foreign Language - English 1	Z	3
rammatical Struct	ures and Style. Selection of conversation topics relating to transportation sciences. Extending vocabulary, developing perceptive and com		Elementa
	stylistics forms. Oral and written presentation of original research. Academic text principles and reading comprehension. Principles of		_
15JZ1F	Foreign Language - French 1  ure and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty'	Z Sa fielde et etudu	3
	are and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral a		
	texts and their features; practice of oral and written presentation.		
15JZ1N	Foreign Language - German 1	Z	3
Grammar structi	ure 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 p	perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral a	and written forms.	Technical
4.E. 174.D	texts and their features; practice of oral and written presentation.	7	
15JZ1R	Foreign Language - Russian 1   ure and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty	Z 's fields of study	Focus on
	perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral a		
	texts and their features; practice of oral and written presentation.		
15JZ1S	Foreign Language - Spanish 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 a	and written forms.	Technical
15JZ2A	texts and their features; practice of oral and written presentation.  Foreign Language - English 2	Z,ZK	3
	r or eight Language - English 2 ures and style. Selection of conversation topics relating to transportation sciences. Extending vocabulary, developing perceptive and com	•	_
	stylistics forms. Oral and written presentation of original research. Academic text principles and reading comprehension. Principles of		
15JZ2F		rnetoric.	
	Foreign Language - French 2	Z,ZK	3
	ure and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty	Z,ZK 's fields of study.	Focus on
improvement in p	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 a	Z,ZK 's fields of study.	Focus on
	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 at texts and their features; practice of oral and written presentation.	Z,ZK 's fields of study. and written forms.	Focus on Technical
15JZ2N	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 at texts and their features; practice of oral and written presentation.  Foreign Language - German 2	Z,ZK 's fields of study. and written forms. Z,ZK	Focus on Technical
15JZ2N Grammar structo	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 at texts and their features; practice of oral and written presentation.	Z,ZK 's fields of study. and written forms.  Z,ZK 's fields of study.	Focus on Technical 3 Focus on
15JZ2N Grammar structe	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 attexts and their features; practice of oral and written presentation.  Foreign Language - German 2  ure and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty'	Z,ZK 's fields of study. and written forms.  Z,ZK 's fields of study.	Focus on Technical
15JZ2N Grammar structe	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 attests and their features; practice of oral and written presentation.  Foreign Language - German 2  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 attentions.	Z,ZK 's fields of study. and written forms.  Z,ZK 's fields of study.	Focus on Technical
15JZ2N Grammar structi improvement in p 15JZ2R Grammar structi	ure and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty's perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral and texts and their features; practice of oral and written presentation.  Foreign Language - German 2  ure and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty's perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral and texts and their features; practice of oral and written presentation.  Foreign Language - Russian 2  ure and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty's presentation.	Z,ZK 's fields of study. and written forms.  Z,ZK 's fields of study. and written forms.  Z,ZK 's fields of study. 's fields of study.	Focus on Technical  3 Focus on Technical  3 Focus on
15JZ2N Grammar structi improvement in p 15JZ2R Grammar structi	ure and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty's perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral attests and their features; practice of oral and written presentation.  Foreign Language - German 2  ure and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty's perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral attests and their features; practice of oral and written presentation.  Foreign Language - Russian 2  ure and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty's perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral attention of the skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral attention of the skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral attention of the skills; widening the vocabulary. Basic kinds of compositions.	Z,ZK 's fields of study. and written forms.  Z,ZK 's fields of study. and written forms.  Z,ZK 's fields of study. 's fields of study.	Focus on Technical  3 Focus on Technical  3 Focus on
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15JZ2N Grammar structi improvement in p 15JZ2R Grammar structi improvement in p	ure and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty's perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral attests and their features; practice of oral and written presentation.  Foreign Language - German 2  ure and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty's perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral attests and their features; practice of oral and written presentation.  Foreign Language - Russian 2  ure and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty's perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral attest and their features; practice of oral and written presentation.  Foreign Language - Spanish 2	Z,ZK 's fields of study. and written forms.  Z,ZK 's fields of study. and written forms.  Z,ZK 's fields of study. and written forms.  Z,ZK  's fields of study. and written forms.	Focus on Technical  3 Focus on Technical  3 Focus on Technical
15JZ2N Grammar structi improvement in p 15JZ2R Grammar structi improvement in p	ure and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty's perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral attests and their features; practice of oral and written presentation.  Foreign Language - German 2  ure and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty's perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral attests and their features; practice of oral and written presentation.  Foreign Language - Russian 2  ure and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty's perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral attests and their features; practice of oral and written presentation.  Foreign Language - Spanish 2  ure and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty's precipies.	Z,ZK 's fields of study. and written forms.	Focus on Technical  3 Focus on Technical  3 Focus on Technical  3 Focus on Technical
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15W1BO	Work Safety and Health Protection	KZ	4
	ature, definition of terms, risks and possible health damage, working conditions and health protection with focus on transportation. He health insurance of home and foreign business trips, statistics, working practice.		1
15W1DU	Art History and Society	KZ	4
	assic concepts. Art history: definitions, terminology, division into periods. Architecture, fine arts, design in Europe and America in the		
	Czechoslovakia, the Czech Republic. Art Nouveau, Cubism, Postmodernism in industrial buildings and transportation facilities. Static sluices etc. Aesthetics and construction work today. Design of transport vehicles.		1
15W1DZ	History of Railway	KZ	4
norse-drawn railwa	ays, steam railways, railway network development in the 2nd half of 19th century, regional railways epoch, railways of the "First Repu		
War II railways, rai	ilway development in the 2nd half of 20th century, high-speed railway origins, railway lines closing, development of long-distance trai construction, railway accidents, railway junctions. Study trips and projections.	n connections, ra	
15W1EH	construction, railway accidents, railway junctions. Study trips and projections.  European Integration within Historical Context	n connections, ra	ilway lines
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			Υ
17DNV	Transportation of Dangerous Goods	KZ .	2
_	Kinds of hazards. Classification. Carriage by road, railways, inland waterways, air and maritime transport. Obligations of consignors, can of international obligatory conditions. Enumerated list of dangerous goods. Packing and marking of packages. Transport documentat	_	
auvisors. System	quantity. Crew, equipment, approval, marking, operation and construction of road vehicles.	on. Exempled and	u ummileu
17DU	Public Transport Service in a Territory	KZ	2
_	npact of European integration.Configuration and links. Contract ensuring. Funding. Tariff and ticketing system. Legal conditions. Survey		1
	mand. Transport scheduling. Quality criteria and standards. IT, Publicity, Promotion, Marketing. Case study on an Integrated Public Trai	•	
17EM	Management Science	KZ	2
Linear Programmir	ng, graphical interpretation and solution of LP problem. Types of distribution problems, transportation problem. Models of network analy	sis. Models of que	euing theory
47555	Models of inventory management. Simulation models.	7 71	
17ERP	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, finance appraisal, basics of management, organizational structures, human resources management, marketing, company strategy, business.	-	investment
17FIF	Finances and Financing	KZ	2
	d revenue flow. Financial system functions. Financial assets. Types of financing. Company cash flow. Short-term financing instruments. Lo		1
	g financial instruments. Banking financial instruments. Financial risk allocation instruments. Payment and hedging instruments. Loan c		
17GEDS	Geography of Transport Systems	KZ	2
Regional differen	entiation of the transport system. Sociogeographic regionalization and its relation to transport. Transport and local and regional develo	pment. Spatial into	eraction -
theoretical and me	thodological framework. Mobility research - travel behavior, mode choice and the influence onto "modal-split." Modal competition. Practical	l use of transport-	geographica
	analysis in transportation planning.		
17KS	Quality of Transport and Telecommunication Systems	KZ	2
	Quality, systems, company, customer, norms, assessment, methods, indicators, satisfaction, loyalty.		
17LOS	Logistic Systems	Z,ZK	3
_	tics, development and science basics of logistics. Basic elements of logistic system, logistic chain. Technology in logistics. Goals and sincle tick exists a support to the second of t	-	
system. Iransport	in logistic system. Logistic technologies in air, rail and water transport. Information systems in logistics and passenger transport. Stora Position of logistics in the Czech Republic and Europe.	ge and distribution	n in logistics
17MEKA	Methods of Economics Analysis	KZ	2
	economical analysis in the domain of analysis of dependencies, analysis and construction of time series and comparsion of statistica		_
mo toomiquoo or	indices.	values doing and	oronoloo ark
17MPD	Management of Techonology Systems of Land Transport	Z,ZK	3
	e systems, rational assessment, decision making in the managing activity, operation-technical and economic properties, technological	•	_
	road and rail transport.	·	
17MR	Managerial Decision Making	KZ	3
	Decision making, rationality, process, state of the world, CPM, PERT, trees, group, certainty, risk, uncertainty, preference.		'
17MSTP	Small and Medium Enterprise	KZ	2
	SME, design, plan, market, analysis, finance, management, decision making, survival, growth.		·
170DS	Optimization on Transportation Networks	Z,ZK	3
	mization and heuristic methods, metaheristic methods, the history of optimization.Lagrangean approach, assignment problem - Hungari		•
matching, Little's	s algorithm, vehicle routing problem - an extension of TSP, heuristic solution approaches to vehicle routing problem, local search techn problems - heuristic algorithms, genetic algorithms and extensions of genetic algorithms.	iques, Tabu Seard	ch, location
17PDO	Designing of Public Transport Services	KZ	3
_	ng, demand elasticity. Strategy and hierarchical planning of public transport system. Line network planning, concept of offer. Integrated		
	istance and regional transport. Optimised number of rolling-stock, circulation plan of rolling-stock, rolling-stock strategy. Public service	•	_
	Harmony of particular long-term plans. Controlled competition. Case studies.	•	J
17PZL	Carriage and Forwarding	Z,ZK	3
	Carriage, forwarding, economy, transport, supply, storage, warehouses, goods, passengers, insurance, distribution, custom		'
17RIP	Project Management	KZ	2
Project, influence	es, pressures and influences. Entrepreneurial plan and capital decision making. Marketing, break-even point assessment. Project man	agement and his	characters.
Organizational st	ructures in project management. Feasibility study. Capital and operational costs assessment. Process of choosing optimal variant. Cost	st Benefit Analysis	s. Models of
	project financing. Life cycle of project. Financial anal. of capital projects. Project risks.		
17TAC	Tariffs and Prices in Transport	, Z	1
Iransport and div	rision of labour. Costs in transport. External costs. Financing of traffic in transport. Prices and tariffs. Tariffs of railway transport. Tariffs and water contract. Transport market. Service arrangement in public interest. Pricing policy history. Pricing in the EU.	or road transport.	iarims of air
17TCHR		Z	1
	Tourist Trade Techniques importance of the tourist trade, summary of tourist trade services with more detailed analysis of transport services and means of trans	_	1
	(rail and road) transport.	oportin the all, wa	and fall
17TDLK	Transport Technology and Logistics	Z,ZK	4
	isport technology and logistics. Particular steps of transport planning. Quantification of carriage relations. Line planning. Timetabling. Plansport planning. Plansport became a support technology and logistics.	•	1
	ation of traffic in each transport means. Technological factors from the point of view of operator and client. Organisation of public city to		_
	and their application using various transport means.		
17TGA	Graph Theory and its Applications in Transport	Z,ZK	4
	of graph theory, paths in graphs, flows in networks, location problems, design problems on graphs, optimum routing, use of graphs in c	ther scientific disc	ciplines.
17W1AF	Alternative Forms of Transportation Project Financing	KZ	4
=	such forms of financing in trasportation, where the public sector body perform the final debtor, i. e. debtor payments come from its bud	_	
a direct participa	nt of the transaction and it is not the counterparty of the financial institute which provides the funding. Issue of securities as an alternative of the transaction and it is not the counterparty of the financial institute which provides the funding. Issue of securities as an alternative of the transaction and it is not the counterparty of the financial institute which provides the funding. Issue of securities as an alternative of the financial institute which provides the funding.	tive source of trar	nsportation
4714455	project financing.	177	
17W1BB	Banks and Banking	KZ	4
	g system. Balance sheet, income statement, bank's capital and its functions. Banking risks. Banking products. Interest types, pay-off ar g deposit products. Banking payment-clearing products. Financial intermediation, open-end and closed-end funds, collective investmer	-	
products. Dariking	its role. Bank regulation and supervision. International banking.	a sonomes. Cerll	ai bailk ailu

17W1DZ	Transported Commodities Cognization	KZ	4
Useful features. C	Quality. Testing. Standardization. Features relevant for the transport. Packing. Stress. Protection of goods and damage prevention duri of the choice and effective transport means utility.	ing the carriage. (	Optimization
17W1EV	Public Sector Economy	KZ	4
	ncial theory of public sector, public choice theory, externalites, decisions about public finance allocation, economic assesment of pub		1
	R, state budget, management of public projects a their economic efficiency assessment, way of elaboration of PPP projects, funding fr		
17W1LL	Logistics of Passenger and Freight Air Transport	KZ	4
ogistics airline pa	ssenger and cargo. Aircraft and airport terminals for passenger and cargo transport. Airlines in terms of logistics systems. Aerial tran	nsport process pa	ssengers and
	air cargo. Information systems in air transport. Global distribution systems.		
17W1ND	Maritime Transportation	KZ	4
listory and importa	ance of the maritime transportation, theoretical discipline in maritime transportation, seafaring vessels, maritime ports and their utilization.	ation, inland logis	tic centre and
naritime ports, tran	nsport corridors and link by maritime, river and rail transport I and II, global maritime corridors, logistics of maritime transportation, ma containers, ITS in maritime transport.	ritime transportati	ion and smart
18KIAD	Kinematics and Dynamics	Z,ZK	2
Notion along a line,	, motion along a curve. Kinematics of rigid plane, kinematics of rigid body. Point mass kinematics, system of point masses. Point mass	s dynamics and s	stem of point
masses, equation	n of motion. Method of Newton. Princle of D'Alembert. Free and forced vibration with one degree of freedom. Viscous damping. Impa	act theory. Introdu	ction to the
	solution of vibration with multiple degrees of freedom.		
18MRI1	Materials 1	Z,ZK	3
Crystal structure.	Basics of thermodynamics of metals and their alloys. Balanced binary diagrams. Alloys of iron with carbon. Deterioration of solid sol steel and cast irons. Physical features. Mechanical features. Dephectostopic testing. Corosion.	utions. Heating pr	ocessing of
18MRI2	Materials 2	KZ	2
Fundamen	tal concepts, notions. The main materials groups. Semiconductors. Polymers. Special types of steel. Properties and application of the	e composite mate	rials.
18PZP	Elasticity and Strength	Z,ZK	3
Tension and compr	ression. Bending of beam. Shear stress in bending of beam. Design and analysis of cross section of beam. Design of riveted, bolted	and welded joints	of structures
	Analysis of deflection curve of beams. Torsion of circular cross sections. Combined loading. Stability.		
18ST	Statics	Z,ZK	3
-	of forces. Calculation of reactions of mass objects and compound systems. Assessment of internal forces on statically determinate by	· · · · · · · · · · · · · · · · · · ·	
Principle of virtual v	works. Kinematic method for calculation of reactions of statically determinate systems. Determination of axial forces in truss constructic of sections. Geometry of cross sections. Plane fiber polygons and catenary cables.	m, method or joint	s and method
18TTED	Creation of Technical Documentation	KZ	2
-	s, international standardization, types of technical drawings, representation of technical objects, technical diagrams and charts, dimensi		. –
oon noar olar aar a	arrangement of drawing sheets, types of schemes and their creation.	ional and goomon	.ou. uoou.uo,
20SSA	Systems Analysis	Z,ZK	3
	ation. Typical tasks of systems analysis: on the interface, routes in system, decomposition and integration, on systems feedback. Cap	1 '	_
Task about	behaviour, aim behaviour, the genetic code, architecture and identity of systems. Fundamentals of technical cybernetics, stability and	d reliability of sys	tems.
20UIS	Introduction to ITS	Z,ZK	3
Intelligent Transpo	rt Systems (ITS), their objectives and vision. ITS in the world, in Europe and in the Czech Republic. Architecture of ITS and the role	of standardization	ı. İnformation
and navigation sy	stems. ITS in road, rail and combine transport. Design of ITS, organization, preparation and implementation of the project. Current project.	rojects in the Cze	ch Republic.
21ZLDK	Introduction to Air Transport	KZ	3
Air transport as a	component of complex transport system. International status of civil aviation. International organizations in Europe and worldwide. C	haracteristics of a	air transport.
	Commercial air transport. Technical operations of aeroplanes.		
22UN	Traffic Accidents Introduction	Z	2
Traffic accident as	a physical process, systematic submission, vehicle x human x infrastructure interaction, accidents statistics, aircraft accidents, accid	lents on railways,	accidents on
001/14	waterways, road traffic accidents, other aspects, accidental prevention.	1/7	
23KM	Crisis Management	KZ	2
	ame of crisis management with direction to Rescue system (IZS). After introduction to safety domain, there are terms and knowledge gement and its targets, IZS-crisis management-crisis planning and basic legislation. Practical part is concentrated to responsibility m		
mana	gement and its largets, 120-bills management-bills planning and basic legislation. Flactical part is concentrated to responsibility m	iatrix compliation.	

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