Study plan

Name of study plan: BI nav.prez.12/13

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: Follow-up master full-time

Required credits: 120 Elective courses credits: 0 Sum of credits in the plan: 120

Note on the plan:

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

The role of the block: Z

Code of the group: 1.S.NPBI 11/12

Name of the group: 1.sem.nav.prez.BI od 11/12

Requirement credits in the group: In this group you have to gain 26 credits

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

Credits in the group: 26 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
15J2A1	Language - English 1 Barbora Horá ková, Jitka He manová, Dana Boušová, Lenka Monková, Peter Morpuss, Markéta Vojanová, Marie Michlová, Marek Tome ek, Markéta Musilová,	Z	2	0P+2C+10B	Z	Z
23PJC	Advanced Programming in C++	Z	2	0+2	Z	Z
14PEU	Electronic Communications Law in EU and CR	KZ	2	2+0	Z	Z
23PI	Transfer of Information	ZK	3	2+0	L	Z
15SFY	Corporate Sociology	KZ	2	2+0	Z	Z
11SFIN	Software Engineering	ZK	3	2+0	Z	Z
14SI	System Engineering	Z,ZK	4	2+1	Z	Z
20TSS	Telematic Systems and Services	Z,ZK	3	2+1	Z	Z
23VRZ	Human Resources Management and Development	ZK	3	2+0	Z	Z
23ZPM	Intelligence Instruments and Methods	KZ	2	2+0	Z	Z

Characteristics of the courses of this group of Study Plan: Code=1.S.NPBI 11/12 Name=1.sem.nav.prez.BI od 11/12

Human's work position in free market economy. Corporate directorship, work groups, adaptation, strife, different roles and positions in corporation.

15J2A1	Language - English 1	Z	2			
Presentation Skills - expert technical discourse and style; Analysis of expert texts and their production; Preparation for overseas work engagement.						
23PJC	Advanced Programming in C++	Z	2			
Types, classes and obje	ects, objects originating and ending, abstract data types, overloading. Genetics, virtual genetics, virtual methods. Dynamic all	ocation, indexes,	conversion.			
Patterns, generic progr	amming, compilation. Polymorphism, containers, iterators, algorithms. Exceptions, secure programming with exceptions. Seci	ure and mobile pr	ogramming, OS			
connections.						
14PEU	Electronic Communications Law in EU and CR	KZ	2			
Basic overview of elect	ronic communications (telecommunications, broadcasting, ICT). Legal construction. Relation of legal instruments available in	the Czech Repub	olic to the EU			
regulatory framework o	f electronic communications 2002.					
23PI	Transfer of Information	ZK	3			
Theory of information -	Theory of information - introduction. Theoretical and practical knowledge in the field of communication. Transfer ways summary. Encoding and decoding analog and numeric signals.					
Level architecture ISO	Level architecture ISO and description of physical levels and its applications. Signal characteristics, encoding, cyclic codes, signal compressing. Analog signals modulation. Data					
transfer modulation. Tra	nsfer ways and networks, protocols level architecture.					
15SFY	Corporate Sociology	KZ	2			
Sociological approach to a corporation. Corporation and its organization. Corporation and its running; human role and communication. Corporation, its culture and social system.						

11SFIN	Software Engineering	ZK	3
Software develop	oment principles. Software as technical artifact. Software architectures. Requirements specification problems. Software life cycle. Soft	ware standards, IS0	O and software
metrics.			
14SI	System Engineering	Z,ZK	4
Standard analysi	s methods and synthesis (projecting) of objects with system identification from the methodology standpoint.		
20TSS	Telematic Systems and Services	Z,ZK	3
Telematic theory,	telematic architecture, FRAME, cooperative systems - technologies, principles and aplications, European electronic toll service, tra	affic information sys	tems, e-call,
automated vehicl	le systems, European railway traffic management system.		
23VRZ	Human Resources Management and Development	ZK	3
Human resources	s management introduction. Company goals, strategy and culture. Human resources management, team management and internal	communication. Hur	man resources
planning and dev	elopment. Intercultural differences. Current legislation.		
23ZPM	Intelligence Instruments and Methods	KZ	2
History and prese	ent of intelligence services and there role in the modern world. Intelligence service information management. Methods and process	of collection and ev	valuation of
information. Intell	ligence service instruments. Internal and external intelligence. Military intelligence. State security services. Private security services	and commercial in	telligence.
Intelligence servi	ce organization, efficiency and reliability.		

Code of the group: 2.S.NPBI 12/13

Name of the group: 2.sem.nav.prez. 12/13

coordination. Data protection. Physical data model. Index. Indexed cluster. Hash cluster.

Advanced programming in JAVA

23PJJ

GUI, network support.

Requirement credits in the group: In this group you have to gain 22 credits

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

Credits in the group: 22 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
23APS	Computer Systems Architecture	KZ	1	0+2	L	Z
20IDFS	Identification Systems	Z	2	2P+0C	L	Z
15JBA2	Language - English 2 Barbora Horá ková, Jitka He manová, Dana Boušová, Lenka Monková, Peter Morpuss, Markéta Vojanová, Marie Michlová, Marek Tome ek, Markéta Musilová,	Z	2	0P+2C+10E	S L	Z
2300M	Personal and property protection	ZK	2	2+0	L	Z
23PSE	Computer network	ZK	3	2+0	L	Z
23PDS	Advanced Database Systems	ZK	3	2+0	L	Z
23PJJ	Advanced programming in JAVA	KZ	2	2+0	L	Z
20SIBS	Reliability Engineering and Safety of Systems	ZK	3	2+0	L	Z
23TP	Criminal Law in IT and Transportation	KZ	2	2+0	L	Z
11VSM	Selected Statistical Methods	ZK	2	2+0	L	Z

Characteristics of the courses of this group of Study Plan: Code=2.S.NPBI 12/13 Name=2.sem.nav.prez. 12/13 Computer Systems Architecture ΚZ Description of computer architecture principles, e.g. von Neumann's model, pipelining, different coupling of systems, transmission protocols, systolic systems, parallel systems classification, etc. The Amdahl's law, effectiveness of parallel systems performance measurement, RISC and CICS architectures, superscalar architectures, mass parallel architectures and symmetric multiprocessing explained on many examples. 2 **20IDES** Identification Systems Basic identification systems, its technologies (barcodes, RFID, biomerics), their features, usage, security and standards. Applications of identification systems, e. g. identification of vehicles, cargo, devices and processes. Identifier as foundation of traffic telematics standardization. 15JBA2 Ζ 2 Language - English 2 Presentation Skills - expert technical discourse and style; Analysis of expert texts and their production; Preparation for overseas work engagement. 2300M Personal and property protection ZK Personal and property protection, technical and organization instruments. Definition of basic principles. Danger typology. Personal and property protection legislation. Institutional security management. OECD security management principles. Super-system security adapted to an institution. Secret and personal data protection. Protection systems and intrusion risks. Physical security technical instruments. External and internal detectors. Effective response and reconstruction principles. Human, technology and infrastructure survivability principles. 23PSE Computer network ZK 3 Network functioning principles, internet. Internet protocols - UDP, IP, TCP, ARP, http [s], ftp,SMTP/TLS, Pop[s], imap[s], ssh /scp. Network services - directing, address translation [transfer], firewalls, proxy. Network vulnerability. Advanced Database Systems DBS principles, individual components functions, Conceptual, physical and database approaches to the data. Database models overview. Conceptual data model. Constructs. Integrity limits expression. Relation data model. Relation database schema. Database questioning languages. Decomposition quality criterions. Transactions. Errors correction. Parallel access

Syntax, types, classes, interface, objects, genealogy, packets, operators. JAVA vs. C++ differences. Exceptions management: try, catch, throw orders. Field. Chains. Memory allocation. Garbage collection. Language interpreter. Environment run - time. Development instruments. Synchronization. Fibres. Basic distribution most used packets summary - group, collection,

20SIBS	Reliability Engineering and Safety of Systems	ZK	3				
Basic theory of reliability	Basic theory of reliability and safety with special regard to information and automation equipment used in transportation safety systems. Various aspects of reliability and safety syste						
analysis and synthesis.	analysis and synthesis. Problems of human subject - artificial systems.						
23TP	Criminal Law in IT and Transportation	KZ	2				
Introduction of criminal	law into legal order, conception of culpability and criminal delict, consequency of other legal standards. international treaty a	nd criminal law, in	vestigation of				
crime, specific indicia o	crime, specific indicia of criminal court cases, practical examples.						
11VSM	Selected Statistical Methods	ZK	2				
Probability. Accident and fortuity.							

Code of the group: 3.S.NPBI 13/14

Name of the group: 3.sem.nav.prez.BI 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 9 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
23BPR1	Security Training 1	KZ	4	0+2	Z	Z
15JBA3	Language - English 3 Barbora Horá ková, Jitka He manová, Dana Boušová, Lenka Monková, Peter Morpuss, Markéta Vojanová, Marie Michlová, Markéta Musilová, Eva Rezlerová	Z	2	0P+2C+10B	Z	Z
11KZK	Encoding and Cryptology Introduction	KZ	2	2+0	Z	Z
23KRIO	Crisis Management for Engineering Branches	KZ	3	2P+0C	Z	Z
20LNS	Localization and Navigation Systems	KZ	2	2+0	Z	Z
110V	Operational Research	ZK	2	2+0	Z	Z
11STS	Stochastic Systems Evženie Uglickich, Šárka Vorá ová, Natálie Blahitka, Michal Matowicki, Pavla Pecherková Pavla Pecherková Šárka Vorá ová (Gar.)	Z,ZK	4	2P+2C+14B	Z	Z
22TZN	Technical Expertise	KZ	2	2+1	Z	Z
14TSYD	Telecommunications Services for Transport Applications	KZ	2	2+0	Z	Z

Characteristics of the courses of this group of Study Plan: Code=3.S.NPBI 13/14 Name=3.sem.nav.prez.BI 13/14

23BPR1	Security Training 1	KZ	4
Depending of semes	ster plan.	'	'
15JBA3	Language - English 3	Z	2
resentation Skills -	expert technical discourse and style; Analysis of expert texts and their production; Preparation for overseas work engagement	t. Óptional courses f	or certificates
CE, CAE.			
11KZK	Encoding and Cryptology Introduction	KZ	2
heoretical backgrou	und of ECC construction and their application to areas as data transmission (linear and binary cyclic codes) or data compressi	ion (Huffman code,	LZ77, LZW).
ntroduction to crypto	ology, theoretical backgroud and construction of different ciphers (DES, AES, RSA).		
23KRIO	Crisis Management for Engineering Branches	KZ	3
Human system. Asse	ets, terms, concept and safety management aims. Causes and consequences of disasters. Safety management. Crisis manag	ement-its aims, der	nands, roles,
rinciples, specifics a	and comparidon with the EU and NATO. Organisational, personal, legislative, finance, material and technical provision. The IZ	S role. Planning. Pro	otection of publ
and critical infrastruc	cture. Problem solving.		
20LNS	Localization and Navigation Systems	KZ	2
Main principles of loa	calization, satellite localization, performance parameters, processing of positioning data, digital carthographic data for navigati	on, navigation syste	ems, dynamica
navigation systems,	aplications of navigation systems.		
navigation systems, a	aplications of navigation systems. Operational Research	ZK	2
110V			-
110V Definition of linear pro	Operational Research		-
110V Definition of linear pro	Operational Research ogramming optimization problem, application of linear programming on economical and technical problems, traffic problems - bo		-
110V Definition of linear pro Geometrical interpre	Operational Research ogramming optimization problem, application of linear programming on economical and technical problems, traffic problems - bo tetation of linear programming problems, simplex method, duality principle.	th conventional and	with constraint
110V Definition of linear pro Geometrical interpre 11STS The subject deals wi	Operational Research ogramming optimization problem, application of linear programming on economical and technical problems, traffic problems - bo station of linear programming problems, simplex method, duality principle. Stochastic Systems	Z,ZK	with constraint 4 Ilustrated on
110V Definition of linear pro Geometrical interpre 11STS The subject deals wi	Operational Research ogramming optimization problem, application of linear programming on economical and technical problems, traffic problems - bo station of linear programming problems, simplex method, duality principle. Stochastic Systems th the problems of mathematical modelling of dynamical systems, estimation od these models and their utilization for prediction tasks. Mathematical theory roots from probability and mathematical statistics and they use the methods of the Bayesian principle.	Z,ZK	with constraint 4 Ilustrated on
Definition of linear pro Geometrical interpre 11STS The subject deals with practical transportation	Operational Research ogramming optimization problem, application of linear programming on economical and technical problems, traffic problems - bo station of linear programming problems, simplex method, duality principle. Stochastic Systems the problems of mathematical modelling of dynamical systems, estimation od these models and their utilization for predictions.	Z,ZK on. The results are in obabilistic approach	with constraint 4 Ilustrated on 1.
110V Definition of linear pro Geometrical interpre 11STS The subject deals with oractical transportation 22TZN Historical evolution o	Operational Research ogramming optimization problem, application of linear programming on economical and technical problems, traffic problems - bo station of linear programming problems, simplex method, duality principle. Stochastic Systems th the problems of mathematical modelling of dynamical systems, estimation od these models and their utilization for prediction tasks. Mathematical theory roots from probability and mathematical statistics and they use the methods of the Bayesian pri Technical Expertise	th conventional and Z,ZK no. The results are interest and incomplete the conventional and in	with constraint 4 Illustrated on 2 n, basic forens
110V Definition of linear pro Geometrical interpre 11STS The subject deals with oractical transportation 22TZN Historical evolution of acts, expert role in the	Operational Research ogramming optimization problem, application of linear programming on economical and technical problems, traffic problems - bo station of linear programming problems, simplex method, duality principle. Stochastic Systems th the problems of mathematical modelling of dynamical systems, estimation od these models and their utilization for prediction tasks. Mathematical theory roots from probability and mathematical statistics and they use the methods of the Bayesian pri Technical Expertise of sworn forensic engineering, forensic activity, current legislature in the Czech Republic, different disciplines, notion of forensic	th conventional and Z,ZK no. The results are interest and incomplete the conventional and in	with constraint 4 Illustrated on 2 n, basic forensi
110V Definition of linear pro Geometrical interpre 11STS The subject deals with oractical transportation 22TZN Historical evolution of acts, expert role in the	Operational Research ogramming optimization problem, application of linear programming on economical and technical problems, traffic problems - bo station of linear programming problems, simplex method, duality principle. Stochastic Systems the problems of mathematical modelling of dynamical systems, estimation od these models and their utilization for prediction tasks. Mathematical theory roots from probability and mathematical statistics and they use the methods of the Bayesian pri Technical Expertise of sworn forensic engineering, forensic activity, current legislature in the Czech Republic, different disciplines, notion of forensic e obtaining proofs, forensic methodology. Notion of the evidence, general principles of evidence obtaining, metrology, protocol, or	th conventional and Z,ZK no. The results are interest and incomplete the conventional and in	with constraint 4 Illustrated on 2 n, basic forens
110V Definition of linear pro Geometrical interpre 11STS The subject deals with practical transportation 22TZN Historical evolution of acts, expert role in the orensic report, elem	Operational Research ogramming optimization problem, application of linear programming on economical and technical problems, traffic problems - bo station of linear programming problems, simplex method, duality principle. Stochastic Systems the problems of mathematical modelling of dynamical systems, estimation od these models and their utilization for prediction tasks. Mathematical theory roots from probability and mathematical statistics and they use the methods of the Bayesian principle and the problems of sworn forensic engineering, forensic activity, current legislature in the Czech Republic, different disciplines, notion of forensic e obtaining proofs, forensic methodology. Notion of the evidence, general principles of evidence obtaining, metrology, protocol, dents. Finding, expert testimony / report. Appraisal and its role in the forensic.	th conventional and Z,ZK on. The results are in obabilistic approach KZ c, forensic legislatio evidences collection KZ	with constraint 4 llustrated on 2 n, basic forens n, site inspection

Code of the group: 4.S.NPBI 13/14

Name of the group: 4.sem.nav.prez.BI 13/14

Requirement credits in the group: In this group you have to gain 16 credits

Requirement courses in the group: In this group you have to complete 6 courses

Credits in the group: 16 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
23BID	Security Engineering in Distributed Systems	ZK	4	2+0	L	Z
14IPT	Information environment	ZK	2	2+0	L	Z
15JBA4	Language - English 4 Barbora Horá ková, Jitka He manová, Lenka Monková, Peter Morpuss, Markéta Vojanová, Marie Michlová, Markéta Musilová, Jan Feit, Eva Rezlerová	ZK	2	0P+2C+10E	L L	Z
23KY	Cybernality	ZK	3	2+0	L	Z
23MAR	Risk Analysis and Management	Z,ZK	3	2P+1C+10E	B L	Z
14MTSY	Telecommunications Systems Management	KZ	2	2+0	L	Z

23BID	Security Engineering in Distributed Systems	ZK	4
Protocols, access	management, cryptography role, distributed systems, multilevel security, multilateral security, banking and accounting systems,	monitoring systems	, control and
command, security	ty imprint and seals, biometry, physical security, emission security. Electronic information warfare. Net attacks and protection. Cor	nmercial system pro	otection. Privacy
protection. E - poli	icy. Management instruments. System development and evaluation. Security standards.		
14IPT	Information environment	ZK	2
E - business and e	e - commerce environment creation, state and public information environment development in converging networks, data protection,	telecommunications	and information
society.			
15JBA4	Language - English 4	ZK	2
Presentation Skills	s - expert technical discourse and style; Analysis of expert texts and their production; Preparation for overseas work engagement	t.Optional courses f	or certificates
FCE, CAE.			
	Cybernality	ZK	3
23KY	Cybernality of behavior on the computer network and computer systems. Cybernetic crime technology. Theory basis and models. Cyberterroris	ZK	3
23KY		ZK	3
23KY Juridical aspects of 23MAR	of behavior on the computer network and computer systems. Cybernetic crime technology. Theory basis and models. Cyberterroris	ZK m. Infoware and cor	3 nnected aspects 3
23KY Juridical aspects of 23MAR Concept of risks a	of behavior on the computer network and computer systems. Cybernetic crime technology. Theory basis and models. Cyberterroris Risk Analysis and Management	ZK m. Infoware and cor Z,ZK nt of risks. Risk eng	3 nnected aspects 3 ineering targets
23KY Juridical aspects of 23MAR Concept of risks a and good enginee	of behavior on the computer network and computer systems. Cybernetic crime technology. Theory basis and models. Cyberterroris Risk Analysis and Management and terms. Risk sources, definition of hazard, impacts and risks. Methods for identification, analysis, assessment and manageme	ZK m. Infoware and cor Z,ZK nt of risks. Risk eng	3 nnected aspects 3 ineering targets
23KY Juridical aspects of 23MAR Concept of risks a and good enginee development. Terri	of behavior on the computer network and computer systems. Cybernetic crime technology. Theory basis and models. Cyberterroris Risk Analysis and Management and terms. Risk sources, definition of hazard, impacts and risks. Methods for identification, analysis, assessment and manageme ering practice. Methods, tools and techniques for risk engineering. System of systems risk. Application of strategic and system ap	ZK m. Infoware and cor Z,ZK nt of risks. Risk eng	3 nnected aspects 3 ineering targets
23KY Juridical aspects of 23MAR Concept of risks a and good enginee development. Terri 14MTSY	of behavior on the computer network and computer systems. Cybernetic crime technology. Theory basis and models. Cyberterroris Risk Analysis and Management and terms. Risk sources, definition of hazard, impacts and risks. Methods for identification, analysis, assessment and manageme ering practice. Methods, tools and techniques for risk engineering. System of systems risk. Application of strategic and system apritorial, emergency and crisis planning. Human factor - its role.	ZK m. Infoware and cor Z,ZK nt of risks. Risk eng proach for benefit o	3 nnected aspects 3 ineering targets f security and
23KY Juridical aspects of 23MAR Concept of risks a and good enginee development. Terri 14MTSY New trends in the	of behavior on the computer network and computer systems. Cybernetic crime technology. Theory basis and models. Cyberterroris Risk Analysis and Management and terms. Risk sources, definition of hazard, impacts and risks. Methods for identification, analysis, assessment and managemeering practice. Methods, tools and techniques for risk engineering. System of systems risk. Application of strategic and system apritorial, emergency and crisis planning. Human factor - its role. Telecommunications Systems Management	ZK m. Infoware and cor Z,ZK nt of risks. Risk eng proach for benefit o KZ es of required parar	3 nnected aspects 3 ineering targets f security and 2 neters based or

Name of the block: Semestrální projekt Minimal number of credits of the block: 17

The role of the block: ZP

Code of the group: XN BI 1.-4. 12/13

Name of the group: Projekt a dipl.práce Bl 1.-4. sem. 12/13

Requirement credits in the group: In this group you have to gain 17 credits

Requirement courses in the group: In this group you have to complete 4 courses

Credits in the group: 17 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
23DPBI	Diploma Thesis (for the Field BI)	KZ	12	0+14	L	ZP
21XN1	Master Project 1 Jakub Kraus, Andrej Lališ, Slobodan Stoji , Terézia Pilmannová, Jakub Hospodka, Lenka Hanáková, Vladimír Socha, Peter Vittek, Lukáš Popek,	Z	2	0P+2C+4B	Z	ZP
20XN1	Master Project 1 Ji í R ži ka	Z	2	0P+2C+4B	Z	ZP
18XN1	Master Project 1 Václav Rada, Nela Kr má ová	Z	2	0P+2C+4B	Z	ZP
17XN1	Master Project 1 Václav Baroch, Michal Drábek, Alexandra Dvo á ková, Veronika Faifrová, Eliška Glaserová, Rudolf F. Heidu, Tomáš Horák, Vít Janoš, Milan K íž,	Z	2	0P+2C+4B	Z	ZP
11XN1	Master Project 1	Z	2	0P+2C+4B	Z	ZP
15XN1	Master Project 1	Z	2	0P+2C+4B	Z	ZP

14XN1	Master Project 1	Z	2	0P+2C+4B	Z	ZP
13XN1	Master Project 1	 	2	0+2	 	ZP
12XN1	Master Project 1 Zuzana arská, Dagmar Ko árková, Iva Šturmová, Kristýna Neubergová, Martin Jacura, Jan Kruntorád, Ond ej Trešl, David Vodák, Tomáš Javo ík,	Z	2	0P+2C+4B	Z	ZP
23XN1	Master Project 1	Z	2	0P+2C+4B	Z	ZP
22XN1	Master Project 1 Michal Frydrýn, Karel Kocián, Luboš Nouzovský, Zden k Svatý, Jakub Nová ek	Z	2	0P+2C+4B	Z	ZP
16XN1	Master Project 1 P emysl Toman	Z	2	0P+2C+4B	Z	ZP
23XN2	Master Project 2	Z	2	0P+2C+8B	L	ZP
22XN2	Master Project 2 Michal Frydrýn, Karel Kocián, Luboš Nouzovský, Zden k Svatý, Jakub Nová ek	Z	2	0P+2C+8B	L	ZP
21XN2	Master Project 2	Z	2	0P+2C+8B	L	ZP
20XN2	Master Project 2 Ji í R ži ka, Patrik Horaž ovský	Z	2	0P+2C+8B	L	ZP
18XN2	Master Project 2 Daniel Kytý	Z	2	0P+2C+8B	L	ZP
16XN2	Master Project 2 P emysl Toman, Josef Mík	Z	2	0P+2C+8B	L	ZP
15XN2	Master Project 2	Z	2	0P+2C+8B	L	ZP
14XN2	Master Project 2	Z	2	0P+2C+8B	L	ZP
13XN2	Master Project 2	Z	2	0+2	L	ZP
12XN2	Master Project 2 Zuzana arská, Dagmar Ko árková, Kristýna Neubergová, Martin Jacura, Jan Kruntorád, Ond ej Trešl, David Vodák, Tomáš Javo ík, Pavel Purkart,	Z	2	0P+2C+8B	L	ZP
11XN2	Master Project 2	Z	2	0P+2C+8B	L	ZP
17XN2	Master Project 2 Václav Baroch, Michal Drábek, Alexandra Dvo á ková, Veronika Faifrová, Rudolf F. Heidu, Tomáš Horák, Vít Janoš, Milan K íž, Olga Mertlová, Vít Janoš (Gar.)	Z	2	0P+2C+8B	L	ZP
12XN3	Master Project 3 Zuzana arská, Dagmar Ko árková, Martin Jacura, Jan Kruntorád, Ond ej Trešl, David Vodák, Tomáš Javo ík, Pavel Purkart, Lukáš Týfa,	Z	1	0P+4C	Z	ZP
13XN3	Master Project 3	Z	1	0+4	Z	ZP
14XN3	Master Project 3	Z	1	0P+4C	Z	ZP
15XN3	Master Project 3	Z	1	0P+4C	Z	ZP
16XN3	Master Project 3 P emysl Toman, Josef Mík, Michal Cenkner, Josef Svoboda	Z	1	0P+4C	Z	ZP
11XN3	Master Project 3	Z	1	0P+4C	Z	ZP
18XN3	Master Project 3	Z	1	0P+4C	Z	ZP
20XN3	Master Project 3	Z	1	0P+4C	Z	ZP
21XN3	Master Project 3 Terézia Pilmannová, Miloš Strouhal	Z	1	0P+4C	Z	ZP
22XN3	Master Project 3 Michal Frydrýn, Karel Kocián, Luboš Nouzovský, Zden k Svatý, Tomáš Mi unek	Z	1	0P+4C	Z	ZP
23XN3	Master Project 3	Z	1	0P+4C	Z	ZP
17XN3	Master Project 3 Václav Baroch, Michal Drábek, Alexandra Dvo á ková, Veronika Faifrová, Eliška Glaserová, Rudolf F. Heidu, Tomáš Horák, Vít Janoš, Milan K íž,	Z	1	0P+4C	Z	ZP

Characteristics of the courses of this group of Study Plan: Code=XN BI 1.-4. 12/13 Name=Projekt a dipl.práce BI 1.-4. sem. 12/13

23DPBI	Diploma Thesis (for the Field BI)	KZ	12
21XN1	Master Project 1	Z	2
20XN1	Master Project 1	Z	2
18XN1	Master Project 1	Z	2
17XN1	Master Project 1	Z	2
11XN1	Master Project 1	Z	2
15XN1	Master Project 1	Z	2
14XN1	Master Project 1	Z	2
13XN1	Master Project 1	Z	2
12XN1	Master Project 1	Z	2
23XN1	Master Project 1	Z	2
22XN1	Master Project 1	Z	2
16XN1	Master Project 1	Z	2
23XN2	Master Project 2	Z	2
22XN2	Master Project 2	Z	2
21XN2	Master Project 2	Z	2

20XN2	Master Project 2	Z	2
18XN2	Master Project 2	Z	2
16XN2	Master Project 2	Z	2
15XN2	Master Project 2	Z	2
14XN2	Master Project 2	Z	2
13XN2	Master Project 2	Z	2
12XN2	Master Project 2	Z	2
11XN2	Master Project 2	Z	2
17XN2	Master Project 2	Z	2
12XN3	Master Project 3	Z	1
13XN3	Master Project 3	Z	1
14XN3	Master Project 3	Z	1
15XN3	Master Project 3	Z	1
16XN3	Master Project 3	Z	1
11XN3	Master Project 3	Z	1
18XN3	Master Project 3	Z	1
20XN3	Master Project 3	Z	1
21XN3	Master Project 3	Z	1
22XN3	Master Project 3	Z	1
23XN3	Master Project 3	Z	1
17XN3	Master Project 3	Z	1

Name of the block: Compulsory elective courses

Minimal number of credits of the block: 8

The role of the block: PV

Code of the group: Y2-NBI 11/12-100125

Name of the group: PVP nav.prez.BI 11/12pouze pro 13/14

Requirement credits in the group: In this group you have to gain 8 credits

Requirement courses in the group: In this group you have to complete at least 4 courses (at most 3)

Credits in the group: 8 Note on the group:

Note on the	<u> </u>			1		
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
23Y2AE	Acoustics and Electroacoustics in Transportation	KZ	2	2+0	Z	PV
20Y2AP	Computer Systems Architecture	KZ	2	2+0	L	PV
12Y2BM	Safety on The Local Roads	KZ	2	2P+0C	Z	PV
17Y2BU	Stock Market and Investment Companies	KZ	2	2+0	L	PV
14Y2C1	CATIA I	KZ	2	2P+0C	L	PV
14Y2C2	CATIA II	KZ	2	2P+0C	Z	PV
14Y2CS	Sensitivity of Systems	KZ	2	2P+0C	L	PV
17Y2DT	Taxes and Fees in Transport and Telecommunications	KZ	2	2+0	L	PV
13Y2DT	Taxes and Fees in Transport and Telecommunications	KZ	2	2+0	L	PV
17Y2DL	Transportation Logistics	KZ	2	2+0	Z	PV
15Y2DN	Transportation Psychology in German Speaking Countries	KZ	2	2P+0C	L	PV
18Y2D2	Dynamics of Transport Routes and Vehicles 2	KZ	2	2+0	L	PV
17Y2FM	Financing in Urban Mass Transportation Václav Baroch	KZ	2	2P+0C	Z	PV
11Y2FX	Functions of Complex Variable	KZ	2	2P+0C	Z	PV
18Y2FZ	Physical foundation of materials' properties Jaroslav Valach	KZ	2	2P+0C	L	PV
15Y2HS	Road Transport History Eva Rezlerová, Zuzana arská	KZ	2	2P+0C	L	PV
16Y2HP	Vehicle Hygiene	KZ	2	2P+0C	L	PV
13Y2IM	Investment and Insurance Mathematics	KZ	2	2+0	L	PV
12Y2IS	Urban Networks	KZ	2	2P+0C	Z	PV
14Y2JM	One-Chip Controllers	KZ	2	2P+0C	Z	PV

17Y2KI	Capital Investment in Transportation and Telecommunications	KZ	2	2+0	L	PV
16Y2KV	Car Body Design	KZ	2	2P+0C	L	PV
12Y2KS	Rail Transport in Settlements and Regions	KZ	2	2P+0C	Z	PV
12Y2KE	Landscape Ecology Kristýna Neubergová	KZ	2	2P+0C	Z	PV
21Y2LZ	Human Recources and Projects in Aviation	KZ	2	2+0	L	PV
11Y2LG	Logics of Engineer's Judgement	KZ	2	2P+0C	L	PV
13Y2MC	Management of Travel Services Transportation	KZ	2	2+0	Z	PV
13Y2MV	Management of Transportation Quality	KZ	2	2+0	L	PV
13Y2MZ	Environmental Management	KZ	2	2+0	Z	PV
15Y2MS	Sociology for Managers Martina Śmidochová	KZ	2	2P+0C	Z	PV
12Y2MH	Measurement and Modeling of Traffic Noise	KZ	2	2P+0C	L	PV
12Y2MD	Methods of Traffic Regulation and Prediction Zuzana arská	KZ	2	2P+0C	L	PV
20Y2MK	Quality Tools in the Development Phase	KZ	2	2+0	L	PV
17Y2MS	Microsimulation of Railway Operation	KZ	2	2P+0C	Z	PV
21Y2MS	Aerospace Engineering Simulation and Modelling	KZ	2	2P+0C	Z	PV
12Y2MZ	Modernization of Railway Lines and Stations Dagmar Ko árková, Miroslav Veliš	KZ	2	2P+0C	L	PV
13Y2NU	Cost and Benefits of Transport Systems	KZ	2	2+0	L	PV
21Y2NR	Navigation and Flight Control Systems	KZ	2	2+0	L	PV
20Y2NE	Design of Experiments in the Development Phase	KZ	2	2+0	L	PV
23Y2NE	Design of Electronic Equipments	KZ	2	2+0	L	PV
14Y2OP	Object Oriented Programming in Transport	KZ	2	2P+0C	L	PV
12Y2OO	Protection of the Nature and Waste Management	KZ	2	2+0	L	PV
15Y2OZ	Health Protection in Transportation and EU Eva Rezlerová, Petr Musil	KZ	2	2P+0C	Z	PV
12Y2PB	Navigation, Waterway Transport and Facilities	KZ	2	2+0	L	PV
16Y2PG	Computer Graphics and Virtual Reality Stanislav Novotný, Petr Bouchner	KZ	2	2P+0C	Z	PV
22Y2PS	Traffic Accidents Computer Simulation and Analysis	KZ	2	2P+0C	L	PV
17Y2P	Insurance Bussiness	KZ	2	2+0	L	PV
15Y2PT	Food in Transportation Eva Rezlerová, Petr Musil	KZ	2	2P+0C	L	PV
15Y2PS	Practical Spanish for Transportation, Management and Business	KZ	2	2+0	Z	PV
21Y2PP	Law and Operation in Air Transport Radoslav Zozu ák	KZ	2	2P+0C+8B	L	PV
20Y2PR	Prediction of time series	KZ	2	2P+0C	L	PV
14Y2PI	Process Information Systems in Transportation	KZ	2	2P+0C	Z	PV
14Y2PJ	C++ Programming Language	KZ	2	2P+0C	L	PV
14Y2PH	CAD Interface Programming	KZ	2	2P+0C	L	PV
21Y2PL	Operational Aspects of Aerodromes	KZ	2	2P+0C	Z	PV
17Y2PR	Carriage Processes	KZ	2	2+0	Z	PV
13Y2PS	Case Studies in Transportation	KZ	2	2+0	Z	PV
17Y2PS	Case Studies in Transportation	KZ	2	2P+0C	Z	PV
15Y2PU	Publications and Their Creation	KZ	2	2P+0C	Z	PV
12Y2RD	Realization of Transport Buildings Dagmar Ko árková, Martin Höfler, Tomáš Honc	KZ	2	2P+0C	L	PV
17Y2RS	Regional Transport - Mobility of Small Towns	KZ	2	2+0	Z	PV
17Y2RZ	Control of Transport Processes	KZ	2	2P+0C	Z	PV
15Y2SP	Seminar on Political Philosophy	KZ	2	2P+0C	Z	PV
16Y2ST	Special Technologies in Transport and Telecommunications	KZ	2	2P+0C	L	PV
18Y2SD	Reliability and Diagnostics, Experimental Methods Daniel Kytý	KZ	2	2P+0C	Z	PV
15Y2SR	Stylistics and Rhetorics	KZ	2	2P+0C	Z	PV
17Y2SG	Systematic Creating of Railway Timetables	KZ	2	2+0	Z	PV

17Y2SK	Urban and Regional Rail Transport System	KZ	2	2P+0C	L	PV
15Y2TS	Technician and Contemporary Society Jan Feit, Eva Rezlerová	KZ	2	2P+0C	L	PV
20Y2TE	Technology of Electronic Systems	KZ	2	2P+0C	Z	PV
14Y2TU	Telecommunications Systems and Multimedia	KZ	2	2P+0C	Z	PV
16Y2TT	Transportation and Building Technology and Equipment	KZ	2	2P+0C	Z	PV
21Y2TL	Development Trends of Aircraft Construction	KZ	2	2+0	Z	PV
12Y2UD	Sustainable Transportation	KZ	2	2P+0C	L	PV
14Y2UI	Artificial Intelligence	KZ	2	2P+0C+8B	Z,L	PV
20Y2UA	Artificial Neural Networks, Realization and Applications	KZ	2	2P+0C	Z	PV
18Y2UB	Accident Biomechanics and Safety	KZ	2	2P+0C	L	PV
23Y2VZ	Leadership and Human Resource Development	KZ	2	2P+0C	L	PV
21Y2VA	Selected Chapters of Aerodynamics	KZ	2	2P+0C+8B	L	PV
23Y2VS	Negotiation and Cooperation	KZ	2	2+0	Z	PV
18Y2VC	Computational Mechanics in Transportation Radek Kolman	KZ	2	2P+0C	L	PV
12Y2VT	High Speed Railways	KZ	2	2P+0C	Z	PV
12Y2ZK	Traffic Calming Zuzana arská	KZ	2	2P+0C	Z	PV

121211	High Speed Railways	NZ.	_	2P+0C		PV
12Y2ZK	Traffic Calming Zuzana arská	KZ	2	2P+0C	Z	PV
Characteristics of the	courses of this group of Study Plan: Code=Y2-NBI 11/12-1001	25 Name=PV	P nav.pr	ez.BI 11/	12pouze _l	oro 13/14
23Y2AE Acc	oustics and Electroacoustics in Transportation				KZ	2
Basic acoustic quantities, pro	perties of acoustic signals. Basic equations in acoustics, method of equivalent circuits	s. Acoustic impeda	ance, damp	ing. Acoustic	c actuators, lo	oudspeakers.
Acoustic sensors, microphon	es. Fundamentals of acoustic signal processing. Acoustics of closed spaces. Fundame	entals of acoustics	in solids. A	coustic prob	lems in trans	port and their
solutions.						
20Y2AP Coi	mputer Systems Architecture				KZ	2
Description of computer arch	itecture principles, e.g. von Neumann's model, pipelining, different coupling of system	s, transmission pr	otocols, sys	stolic system	ıs, parallel sy	stems
classification, etc. The Amdah	nl's law, effectiveness of parallel systems performance measurement, RISC and CICS	architectures, sup	erscalar ard	chitectures, r	mass parallel	architectures
and symmetric multiprocessis	ng explained on many examples.					
12Y2BM Saf	ety on The Local Roads				KZ	2
Classification of road acciden	ts rates, social looses. Collision points, diagrams. Tools and methods for safer road trans	sportation. Crossr	oads from t	ne point of vi	ew of safety.	Psychological
right of way. Roundabouts. Pe	edestrian transport, cyclists. Traffic lights coordination. Transport control and regulation	٦.				
17Y2BU Sto	ck Market and Investment Companies				KZ	2
l	dents to understand the financial and capital markets, especially the financial system,	market determina	tion of disco			analysis and
valuation of securities. Invest	or liquidity. Investment companies, its types, management and performance measuring	g of a portfolio, ag	jiotage and	arbitrage. Th	ne investmen	t instruments,
volatility and risks.			_	-		
14Y2C1 CA	TIA I				KZ	2
· ·	CATIA, making basic parts and bodies. Making 2D sketches, geometric stucture, para	metric linking, ma	ıking adapti	1	1	
_	bodies. Making assemble and visualization.	O,	0 1			·
14Y2C2 CA	TIA II				KZ	2
- 1	odeling compound bodies. Possibility of enumeration, comunications with other syster	ns. Surface x solid	d bodies. Ki	1		-
and project cooperation. Outp						3
	nsitivity of Systems				KZ	2
	ed reliability. The impact of changing parameters and subsystems within a system. Sys	stem sensitivity co	omputina. d			
matrices and their usability in		,	.			
	es and Fees in Transport and Telecommunications				KZ	2
	he Czech Republic, comparison with customs in the EU. Purpose and kinds of taxes, fu	undamental terms	and tax cat	1	l l	
	development of rates of taxation of natural individual, legal entity, VAT, consumption ta			-9		,
	es and Fees in Transport and Telecommunications				KZ	2
	he Czech Republic, comparison with customs in the EU. Purpose and kinds of taxes, fu	indamental terms	and tax cat	1	I	
	development of rates of taxation of natural individual, legal entity, VAT, consumption ta		and tax out	ogonoo. raa	ional baagot,	autico, otato,
	nsportation Logistics				KZ	2
- I	in logistic systems. Methods of optimal management and allocation of the material flows	Decision process	sas in matai	1	l l	-
•	gistic system, optimization of the quality level in view of shipment affinity. Role and funct					-
diagnostic and decision syste			110110 111109	ono oyonomic	3.1 TOJOUROTT C	, iniormation,
	nsportation Psychology in German Speaking Countries				KZ	2
	of traffic problems with regard to the work with texts (Physics for drivers, abusing alc	ohol during drivin	n evhaustin	1	. —	_
	ic psychology in the internet etc.)	onor daring drivin	g, canadone	ni, getting of	i dirving licen	oc, crinaren
	namics of Transport Routes and Vehicles 2				KZ	2
1 2	cle and transport routes and their influence on the stress and strain components of the	e vehicle structure	or behavio			
•	port routes. Vibration of systems with a finite number of degrees of freedom. Methods of					•
•	for the admissibility of oscillation.	or constant summer	oo ana oone	tant compile	inoo. Dynami	o calculation o
					KZ	2
	ancing in Urban Mass Transportation nt in Prague and other cities in the world. Building and operation of public tram, bus, ar	nd trollevbus notu	orke Undo			
, ,	nt in Frague and other cities in the world. Building and operation of public train, bus, at ht in small towns. Particularities of investment and operation financing of individual UN	•		•		
	lers. Tourism & map; UMT. UMT typology & map; choice of optimum financing.	iii types. Histolic	ana presen	i inoueis of t	UNIT IIIIAIIUII	g. Hanspull
mopositori ana biina passeng	ore realism camp, own court typology camp, enouge or optimism initiationing.					

11Y2FX Functions of Complex Variable	KZ	2
Derivation of complex function, holomorphic function, complex exponential series, integration, Cauchy theorem. Taylor series, Laurent series of compl Laplace and Z-transformation.	ex variable function	n. Basics of
18Y2FZ Physical foundation of materials' properties	KZ	2
Atomistic models, lattice defects influence on properties of materials, stiffness, plasticity, strength, fracture, fatigue, creep, corrosion, effects of environ	1	_
behavior are the main discussed topics.	9	
15Y2HS Road Transport History	KZ	2
Roads and road traffic in the Ancient Age, corridors of main mediveal pathways. Development of road traffic in the modern period, acceleration of road	d transport develop	ment during
1st part of 20th century. Development of road layout, geometric and construction layers. Beginning of modern road civil engineering. Development of r	oad travelling in me	odern period.
History of road intercections, bridges and traffic control, development of road signs.		
16Y2HP Vehicle Hygiene	KZ	2
Emissions and ergonomy of vehicles and the influence on man and nature. National and international law related to the hygiene. Noise and vibrations physical values, ways of measuring, prevention, elimination. Exhausts - creation, measurement, reduction, non-regular fuels and drives. Ergonomy - sitti		
reach. Condition - heating, ventilation, air-conditioning, filtration, tiredom.	rig, otalianig, contro	or, operational
13Y2IM Investment and Insurance Mathematics	KZ	2
Interest rata nominal, efficient and real. Annuity, cash flow, present and future value. Debt amortization. Investment assessment. Security pricing. Basi	ic notions and princ	ciples of
insurance. Casualty insurance - risks, tariff groups, drivers, premium. Basics of demography, life tables, commutation functions. Capital life insurance,	endowment, whole	life. Annuity
insurance. Current premium, gross premium, premium reserves.		
12Y2IS Urban Networks	KZ	2
The importance and the position of UN as public and technical infrastructure / utillities, metodology of the UN master planning, of UN design, UN coor	rdination, UN instal	lation and UN
operation (basic technical standards of UN, trenchless technologies for UN). 14Y2JM One-Chip Controllers	KZ	2
One-chip controllers architecture, embedded peripherals (counters, timers, converters, ports) and their utilisation. Practical tasks are programmed with		
17Y2KI Capital Investment in Transportation and Telecommunications	KZ	2
Financial market, investment desicion making - long term goals and investment strategies, long term financing.	112	-
16Y2KV Car Body Design	KZ	2
Personal cars body, high-load car body, bus car body, and motorcycle as a construction set. Principles of design, production, testing and operation. Ma	aterials used for ca	r body
construction. Active and passive safety parts. Ergonomics, HMI, view out of the vehicle, operational extent, view behind the car. Conditioning tools, significantly construction.	naling function. Ae	rodynamics
of the car body. Design and artistic design principles. Practical training.		
12Y2KS Rail Transport in Settlements and Regions	KZ	2
Modernization and development of railway infrastructure in Czech Republic. Arrangement of railway networks and junctions. Suburban railway service	-	ration and
operation of metro systems. Network configuration and operation of tram systems. Special thematic lectures (rail transport in selected countries / region		
12Y2KE Landscape Ecology Landscape ecology. Landscape - definition, types, evolution. Landscape systems. Anthropogenic impacts on landscape. Methods using for evaluating	KZ	2 geometry
and its potential applications in landscape ecology. Landscape planning.	іапозсаре. І тасіаі	geometry
21Y2LZ Human Recources and Projects in Aviation	KZ	2
Human resource strategy and policy, the HR specifics in aviation, managers´ and specialists´ competence in HR development, management and deve		
corporate culture, HR in the conditions of global market and competition, new trends and approaches to HR development. Project management as a	current practice in t	he current
conditions of corporate management. The philosophy and principles, of project management.		
11Y2LG Logics of Engineer's Judgement	KZ	2
Logical structure of engineer's judgement, its propositional and predicative logical base. Solutions of logical tasks through the methods of truthfulness	and semantic ana	lysis charts.
Venn's diagram method. Logical basis for network design for the solution of technical tasks. 13Y2MC Management of Travel Services Transportation	KZ	2
Global importance of the tourist trade, transport services, accomodation services, catering services, guide sevices, spa services, organization and servi		
and specifics of services in the tourist trade.	ood of traver agono	loo, markoung
13Y2MV Management of Transportation Quality	KZ	2
Quality management, standards and quality standardization, quality management systems, quality management in transport and logistics, marketing are	l l	
quality measurement and monitoring, statistics in quality management, improving, focus on the customer.		
13Y2MZ Environmental Management	KZ	2
Delimitation of basic concepts (difference between the environment and ecology, ecosystems, sustatinable development). Main ways of environment of		- 1
and global impact. Ways of environment protection, the development of the environmental policy, its strategy and instruments. Voluntary instruments, the	eir importance and	classification.
Application of the most important voluntary instruments in the practice.	KZ	2
15Y2MS Sociology for Managers Sociological approach to a corporation. Corporation and its organization. Corporation and its running - human role and communication. Corporation, it		2 al system
Human's work position in free market economy. Corporate directorship, work groups, adaptation, strife, different roles and positions in corporation.	is culture and socie	ar System.
12Y2MH Measurement and Modeling of Traffic Noise	KZ	2
Theoretical introduction to noise from traffic. Noise from rail transport. Noise from road traffic. Measurement and calculation of noise from rail traffic. Measurement and calculation of noise from rail traffic.	ı	
noise from road traffic. Modelling of traffic noise in the CADNA A.		
12Y2MD Methods of Traffic Regulation and Prediction	KZ	2
Basic ways of traffic prognosis, traffic prognosis for large area (calculation of future traffic volumes, calculation of future traffic volumes between areas (a	nalogical and synth	etic methods,
modal split, traffic distribution to road network). Shock wave in traffic flow. Service levels and their traffic volumes. Acceleration noise.	177	
20Y2MK Quality Tools in the Development Phase	KZ	2
Overview of quality management methods, data acquisition and analysis of customer requirements, methods, QFD, DFM, DFA, DFS. FMEA (Analysis of Introduction to concurrent (team) design.	uelects and their co	risequences).
17Y2MS Microsimulation of Railway Operation	KZ	2
Introduction to the characteristics of simulation tools, creation of a simulation model of railway infrastructure, verification of a specific operational conc		
adaptation of the infrastructure model and modification to the infrastructure to allow the implementation of the proposed operational concept. Stability		
of sensitivity of the operational concept to delays.		
21Y2MS Aerospace Engineering Simulation and Modelling	KZ	2
The course is designed as a set of exemplary tasks and problems based on practical aviation issues. The university degree mathematic skills and soft		- 1
necessary for successful figuring out. Both simple tasks, where students create own model themselves (e.g. in Matlab), and more complicated problen tools will be applied.	ns wnere profession	nai developed
toolo will be applied.		

12Y2MZ	Modernization of Railway Lines and Stations	KZ	2
	GC and AGTC Agreement. AGC and AGTC railway network. Principles of modernization (conceptual papers, definitions of bas	· ·	
_	cteristics on modernized railway lines. Superstructure and substructure on upgraded lines. Designing of railway stations. Bric	dges and tunnels.	Development
13Y2NU	ts. Technical description of the tranzit corridors. Cost and Benefits of Transport Systems	KZ	2
	their history, externalities and their internalization, public goods, transport funding, assessment of transport constructions and		
	ation, influence of transport constructions on public budgets, relation of transport and economic growth, importance of transp		
21Y2NR	Navigation and Flight Control Systems	KZ	2
Navigtion (ANP/RNP), a	rea navigation, FMS, FMC, A/P, A/T, FD, MCDU, GPWS.		
20Y2NE	Design of Experiments in the Development Phase	KZ	2
· ·	n the development of cars. A detailed overview of their own methods. Applied Statistics. Laboratory tests of durability, perform		
	, corrosion testing, analysis of customer satisfaction, specific expert system for the VDS, the relationship with FMEA (failure r		
23Y2NE	Design of Electronic Equipments	KZ	2
	ization of semiconductor electronic components, basic electronic devices division. Sources, input and output elements, proce a converters. Analog electronic systems, analog computing. Switching elements, logic circuits, FPGA implementation. Single		
-	ORCAD), construction of electronic devices.	criip microcompu	ioro aria
14Y2OP	Object Oriented Programming in Transport	KZ	2
_	ation, inheritance, polymorphism, templates, retyping, stream, exceptions, repository, collections, virtual methods and classes		
from microscopic simula	ation system, discrete event simulation, celular automata simulation and virtual life area.		
12Y2OO	Protection of the Nature and Waste Management	KZ	2
	tion, its evaluating. Protected species, protected zones. Legislation. Landscape planning. Waste management. Production of		es. Domestic
	dangerous waste, toxic waste. Solid waste disposal and sorted waste. Composting. Nuclear waste and nuclear waste dump.		
15Y2OZ	Health Protection in Transportation and EU	KZ	2
	isportation in CR in the past and present. Conditions before 1989 and after, current legislature, future prospects. Harmonisati principles of health protection and support in selected EU countries.	ion of legislation v	vith other EU
12Y2PB	Navigation, Waterway Transport and Facilities	KZ	2
	er transport, water transport facilities and principals of their construction. Lock chambers, lifts and ports. Vessels and waterwa		
	its integration to European norms. International relations in inland navigation and waterways.	.yoav.gao <u>_</u> o	gai oraoi roiatoa
16Y2PG	Computer Graphics and Virtual Reality	KZ	2
Principles of creation an	d processing of bitmap and vector 2D graphics, 3D virtual scenes and algorithms used for their computerized processing. Adop	ting skills of work	with professional
and freeware tools for c	reation and processing of 2D, 3D and interactive graphics, and basics of programming language VRML and graphic libraries	(OpenGL).	
22Y2PS	Traffic Accidents Computer Simulation and Analysis	KZ	2
-	ation, multi body systems and vehicle active safety systems, vehicle slipping, external influence on virtual model, crash tests	evaluation, single	-track vehicle,
	destrian, traffic accident simulation and analysis.		
17Y2P	Insurance Bussiness	KZ	2
17Y2P Insurance bussiness - h	Insurance Bussiness istory and progress. Insurance company, insurance - sorts. Risks and damages. Reinsurance company, principle of reinsurance.	KZ	
17Y2P Insurance bussiness - h 15Y2PT	Insurance Bussiness istory and progress. Insurance company, insurance - sorts. Risks and damages. Reinsurance company, principle of reinsurar Food in Transportation	KZ nce.	2
17Y2P Insurance bussiness - h 15Y2PT The nutrition policy. Inte	Insurance Bussiness istory and progress. Insurance company, insurance - sorts. Risks and damages. Reinsurance company, principle of reinsurar Food in Transportation raction transportation and foodstuffs. The health risks. Hygienic safeguard. The practical examples from the Czech Republic a	KZ nce.	2
17Y2P Insurance bussiness - h 15Y2PT The nutrition policy. Inte	Insurance Bussiness istory and progress. Insurance company, insurance - sorts. Risks and damages. Reinsurance company, principle of reinsurar Food in Transportation raction transportation and foodstuffs. The health risks. Hygienic safeguard. The practical examples from the Czech Republic and other railroad equipment. Legislation.	KZ nce. KZ and from the worl	2 d. The issues of
17Y2P Insurance bussiness - h 15Y2PT The nutrition policy. Intedining cars, work trains 15Y2PS	Insurance Bussiness istory and progress. Insurance company, insurance - sorts. Risks and damages. Reinsurance company, principle of reinsurar Food in Transportation raction transportation and foodstuffs. The health risks. Hygienic safeguard. The practical examples from the Czech Republic a	KZ nce. KZ and from the worl	2 d. The issues of
17Y2P Insurance bussiness - h 15Y2PT The nutrition policy. Intedining cars, work trains 15Y2PS Development of communications.	Insurance Bussiness istory and progress. Insurance company, insurance - sorts. Risks and damages. Reinsurance company, principle of reinsurar Food in Transportation raction transportation and foodstuffs. The health risks. Hygienic safeguard. The practical examples from the Czech Republic and other railroad equipment. Legislation. Practical Spanish for Transportation, Management and Business	KZ nce. KZ and from the worl	2 d. The issues of
17Y2P Insurance bussiness - h 15Y2PT The nutrition policy. Intedining cars, work trains 15Y2PS Development of commuterminology of transport 21Y2PP	Insurance Bussiness istory and progress. Insurance company, insurance - sorts. Risks and damages. Reinsurance company, principle of reinsurar Food in Transportation raction transportation and foodstuffs. The health risks. Hygienic safeguard. The practical examples from the Czech Republic and other railroad equipment. Legislation. Practical Spanish for Transportation, Management and Business nication skills, training of correct written expression of formal character, basic technical vocabulary, cultural specifics of the S t and commerce, business letter. Law and Operation in Air Transport	KZ nce. KZ and from the worl KZ panish speaking	2 d. The issues of 2 countries.
17Y2P Insurance bussiness - h 15Y2PT The nutrition policy. Intedining cars, work trains 15Y2PS Development of commuterminology of transport 21Y2PP Development of aviation	Insurance Bussiness istory and progress. Insurance company, insurance - sorts. Risks and damages. Reinsurance company, principle of reinsurar Food in Transportation raction transportation and foodstuffs. The health risks. Hygienic safeguard. The practical examples from the Czech Republic and other railroad equipment. Legislation. Practical Spanish for Transportation, Management and Business nication skills, training of correct written expression of formal character, basic technical vocabulary, cultural specifics of the St and commerce, business letter. Law and Operation in Air Transport law. International conventions on civil aviation. International organisations and including of the Czech Republic in these organisations.	KZ and from the worl KZ panish speaking KZ KZ anisations. EU leg	2 d. The issues of 2 countries. 2 islation and civil
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discussions, the lectures using practitioners.

17Y2PS Case Studies in Transportation Simulation expert discussions on the topics - the impact of transport on the environment and the economy, energy, construction of transport infrast	KZ	2
lesson presented one current and the real issue, which solutions will have to think of each other. Each of them will be represent another role (public		
representative interest groups, residents, etc.).	147	
15Y2PU Publications and Their Creation Scientific texts types. Footnotes and references. Exploration of facts. Quotations. Formal document layout. Working with information databases. Typ	KZ	2 Typographic
editors - MS Word, Tex/LaTeX. Practical creation of simple scientific documents.	ograpino principios	. Typograpino
12Y2RD Realization of Transport Buildings	KZ	2
Transport Buildings Types. Project Documentation Types. Building Code. Land Permission and Building Permission Process. Building Process. Project 17Y2RS Regional Transport - Mobility of Small Towns	KZ	ct Management.
Basic terms, networks of railway and bus lines, alternative forms of regional transport, influence in regional transport in vicinity of big cities, solutions	I	_
in regions, activities related to regional transport, passenger transport safety in regions.		
17Y2RZ Control of Transport Processes Theoretical bases, transport system, decomposition, factors influencing control, quality diagnosis, methods of control, systems for decision making	KZ	2 cision making
telematics.	support, risk of de	cision making,
15Y2SP Seminar on Political Philosophy	KZ	2
Interpreting of philosophical texts, view of society, state and their system of government. 16Y2ST Special Technologies in Transport and Telecommunications	KZ	2
16Y2ST Special Technologies in Transport and Telecommunications Micro, nano and special technologies, electric arc and its applications, plasma technologies, dipping, beam technologies, electron beams technologies	1	_
vehicles, laser and laser technologies, soldering, gluing, ultrasound, diffusion, friction and explosion technologies, micro stoves, gas.		
18Y2SD Reliability and Diagnostics, Experimental Methods The course is focused on theoretical background and practical experience in the field of reliability of constructions, implementation of diagnostic productions.	KZ	2
defects and determination of residual life of structures. For this purpose, non-destructive methods of experimental mechanics (e.g. strain-gauge me		
optical methods, including electron microscopy, will be used.		
15Y2SR Stylistics and Rhetorics	KZ	2
Basic skills of oral and written expression as a means of human communication. Basic information about speech, articulation, oral and written lang organs, voice training. Language semantics, language syntactic and the pragmatic aspect. Creative thought and its oral and written expression. Prac	-	
17Y2SG Systematic Creating of Railway Timetables	KZ	2
Timetable samples. Capacity allocation, technological intervals in railway operation. Rules and regulations of train paths, running times, time adds	and supplements. F	Rolling stock and
crew circulation planning. Rules of train-diagramm creating. Train-diagramm construction in case of more service-levels on the line.	1/7	2
17Y2SK Urban and Regional Rail Transport System Factors influencing transport demand, modal-split, traffic flows distribution on public transit network. Line network optimization and configuration. Ti	KZ metable designing	_
accenting integrated periodic timetable. Rolling stock circulation, staff and crew services optimization and their order to rosters. Framework legislation		
of public transport. Marketing.	1/7	
15Y2TS Technician and Contemporary Society Why to take off a hat in a room and open a door for a lady, are there simple solutions, science vs belief, do we need to know or is it enough to turn of the solutions.	KZ	2 true - it's on the
Internet and in newspapers, what are the sights for, interest in public affairs - a hangover from the past?	on a r o, it made bo	1140 11 0 011 1110
20Y2TE Technology of Electronic Systems	KZ	2
Principle technologies for an effective operation of electronically controlled systems. Maintaining, meassuring, optimization of safety and reliability of technologies, printed circuits, assembly operations, interconnection and repairs technologiesusers and operators.	of complex systems	. Semiconductor
14Y2TU Telecommunications Systems and Multimedia	KZ	2
New trends in telecommunications namely applied in transport solutions, identification and quantification of telecommunications networks and service	1	
architecture, provissioning of guaranteed service quality, two generations of the handover principles.	1.7	
16Y2TT Transportation and Building Technology and Equipment Transportation and building technology and equipment. Transport of solid and mass material, soil and rock above all. Highway and underground cor	KZ	2 ort surface
vehicles, description and construction features, delivered mass calculation, economy of operation. Technics and technology of underground constru	-	
management methodology (ultrasound, laser, GPS, total stations).		
21Y2TL Development Trends of Aircraft Construction Historical and nowadays trends. Future scenarios. Space industry. Economy.	KZ	2
12Y2UD Sustainable Transportation	KZ	2
Sustainable development, definition, history, legal framework. Sustainable development indicators. Sustainable transportation, definition, history, legal	I	
of sustainable development theory, case study.	1/7	
14Y2UI Artificial Intelligence History of artificial intelligence, knowledge, its representation including frames, state space search, constraints, genetic algorithms, machine learning	KZ	2
20Y2UA Artificial Neural Networks, Realization and Applications	KZ	2
History of neural networks. Basic principles. Comparing the structure of a natural and an artificial neuron. Neural classificators, predictors, compreso	1	other specialised
functional blocs and systems. Modelling of neurons. Grossberg's equations. Learning principles. Leyered and Hopfield's nets.	KZ	2
18Y2UB Accident Biomechanics and Safety Anatomy of man. Methods of Medical Diagnostics - RTG, CT, MRI, US. Dynamics of traumatic events. Factors influencing the severity of an acciden	1	
Injuries in road traffic. Pedestrian injuries. Injury in railway and air traffic accidents. Analysis of biomechanical events in accidents and their computations.		
treatment and rehabilitation. Protective elements and safety measures in transport.	1/7	2
23Y2VZ Leadership and Human Resource Development Introduction to the study of human resources, human resources management, corporate goals, strategies, cultural and ethical aspects. Team management	KZ	2 cation in teams.
strategy and planning in human resources, ethics and corporate culture, cross-cultural differences. The labor code. Introduction into protocols.		
21Y2VA Selected Chapters of Aerodynamics	KZ	2
Physical properties of real gases, atmosphere, aeronautical applications of external and internal aerodynamics, compressible internal flow, inlet nozz external flow, supercritical wings and profiles, vertical and oblique shock wave, energy losses, aeronautical aerodynamic profiles of wings, propelle		-
viscosity, laminar and turbulent flow, boundary layer.	io, biades graings,	, uray, pulai,
23Y2VS Negotiation and Cooperation	KZ	2
Negotiation principles. Negotiation sense, base, essence. Business and crisis negotiation differences. The "Win-Win" principle. Specification. Credib	ility. Negotiation bel	navior principles.

18Y2VC Computational Mechanics in Transportation KZ 2
Principle of virtual work and variational principles in FEM. Bar shaped, planar and three - dimensional structures in FEM. FEM in statics and in dynamics of transportational systems.

Elastic, elastoplastic and viscoelastic material. FEM in problems of biomechanics. Numerical analysis of structural parts with programme ANSYS on instances.

12Y2VT High Speed Railways KZ 2

High speed rail (HSR) transport characteristics and position in transportation system. HSR vehicles types and characteristics and control-command and signalling system. HSR system interoperability. Non-adhesion HSR systems. City traffic service by HSR. HSR operating points. HSR worldwide network. HSR routing and traffic conception. Specifics of HSR track construction and geometrical characteristics.

12Y2ZK Traffic Calming KZ 2

Principles of traffic calming. Solution of road network organization. Urban road layouts. Psychological and physical obstacles (measures of traffic calming) and their combinations. Traffic calming measures in crossroads. Pedestrian zones. Residential streets and zones.

Name of the block: Jazyky

Minimal number of credits of the block: 8

The role of the block: J

Code of the group: JZ-N-11/12

Name of the group: Jazyk nav.1.- 4.sem. 11/12

Requirement credits in the group: In this group you have to gain 8 credits

Requirement courses in the group: In this group you have to complete 4 courses

Credits in the group: 8

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
15J2F1	Language - French 1 Eva Rezlerová, Irena Veselková	Z	2	0P+2C+10E	3 Z	J
15JBF2	Language - French 2 Eva Rezlerová, Irena Veselková	Z	2	0P+2C+10E	L L	J
15JBF3	Language - French 3 Eva Rezlerová, Irena Veselková	Z	2	0P+2C+10E	3 Z	J
15JBF4	Language - French 4 Eva Rezlerová, Irena Veselková	ZK	2	0P+2C+10E	L L	J
15J2N1	Language - German 1 Eva Rezlerová, Martina Navrátilová, Jana Štikarová	Z	2	0P+2C+10E	3 Z	J
15JBN2	Language - German 2 Eva Rezlerová, Martina Navrátilová, Jana Štikarová	Z	2	0P+2C+10E	L L	J
15JBN3	Language - German 3 Eva Rezlerová, Martina Navrátilová, Jana Štikarová	Z	2	0P+2C+10E	3 Z	J
15JBN4	Language - German 4 Eva Rezlerová, Martina Navrátilová, Jana Štikarová	ZK	2	0P+2C+10E	L L	J
15J2R1	Language - Russian 1 Marie Michlová, Eva Rezlerová	Z	2	0P+2C+10E	Z	J
15JBR2	Language - Russian 2 Marie Michlová, Eva Rezlerová	Z	2	0P+2C+10E	L L	J
15JBR3	Language - Russian 3 Marie Michlová, Eva Rezlerová	Z	2	0P+2C+10E	Z	J
15JBR4	Language - Russian 4 Marie Michlová, Eva Rezlerová	ZK	2	0P+2C+10E	L L	J
15J2S1	Language - Spanish 1 Eva Rezlerová, Nina Hricsina Puškinová	Z	2	0P+2C+10E	B Z	J
15JBS2	Language - Spanish 2 Eva Rezlerová, Nina Hricsina Puškinová	Z	2	0P+2C+10E	B L	J
15JBS3	Language - Spanish 3 Eva Rezlerová, Nina Hricsina Puškinová	Z	2	0P+2C+10E	B Z	J
15JBS4	Language - Spanish 4 Eva Rezlerová, Nina Hricsina Puškinová	ZK	2	0P+2C+10E	L L	J

Characteristics of the courses of this group of Study Plan: Code=JZ-N-11/12 Name=Jazyk nav.1.- 4.sem. 11/12

15J2F1 Language - French 1 Z 2
Grammatical Structures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills, feedback skills, summarising technical text content, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and technical registers and their use, language of management

15JBF2 | Language - French 2 | Z | 2 | Grammatical Structures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills, feedback skills, summarising technical text content, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and technical registers and their use, language of management.

15JBF3 Language - French 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.

15JBF4 Language - French 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. Language - German 1 Grammatical Structures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills, feedback skills, summarising technical text content, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and technical registers and their use, language of management 15JBN2 Language - German 2 Grammatical Structures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills, feedback skills, summarising technical text content, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and technical registers and their use, 15JBN3 Language - German 3 Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation. 15JBN4 Language - German 4 ZK 2 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. Language - Russian 1 Grammatical Structures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills, feedback skills, summarising technical text content, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and technical registers and their use, language of management. 15JBR2 Language - Russian 2 Grammatical Structures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills, feedback skills, summarising technical text content, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and technical registers and their use, language of management Language - Russian 3 **15JBR3** 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. 15JBR4 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 features. Practice of oral and written presentation. Language - Spanish 1 Grammatical Structures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills, feedback skills, summarising technical text content, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and technical registers and their use, language of management. 15JBS2 Language - Spanish 2 Grammatical Structures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills, feedback skills, summarising technical text content, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and technical registers and their use, language of management Language - Spanish 3 15JBS3 Z 2 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 15JBS4 ZK Language - Spanish 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

List of courses of this pass:

features. Practice of oral and written presentation.

Code	Name of the course	Completion	Credits		
11KZK	Encoding and Cryptology Introduction	KZ	2		
Theoretical back	round of ECC construction and their application to areas as data transmission (linear and binary cyclic codes) or data compression	Huffman code, LZ	77, LZW).		
	Introduction to cryptology, theoretical backgroud and construction of different ciphers (DES, AES, RSA).				
110V	Operational Research	ZK	2		
Definition of linear p	rogramming optimization problem, application of linear programming on economical and technical problems, traffic problems - both cor	ventional and with	constraints.		
	Geometrical interpretation of linear programming problems, simplex method, duality principle.				
11SFIN	Software Engineering	ZK	3		
Software development principles. Software as technical artifact. Software architectures. Requirements specification problems. Software life cycle. Software standards, ISO and software					
	metrics.				

11STS	Stochastic Systems	Z,ZK	4
-	s with the problems of mathematical modelling of dynamical systems, estimation od these models and their utilization for prediction.		
·	nsportation tasks. Mathematical theory roots from probability and mathematical statistics and they use the methods of the Bayesian	probabilistic appro	ach.
11VSM	Selected Statistical Methods Probability. Accident and fortuity.	ZK	2
11XN1	Master Project 1	Z	2
11XN2	Master Project 2	Z	2
11XN3	Master Project 2 Master Project 3	Z	1
11Y2FX	•	KZ	2
	Functions of Complex Variable plex function, tolomorphic function, complex exponential series, integration, Cauchy theorem. Taylor series, Laurent series of complex function, complex function, Cauchy theorem.	1	1
Derivation of com	plex function, molonorphic function, complex exponential series, integration, cauchy theorem, rayior series, Ladrent series of complex Laplace and Z-transformation.	x variable furiction	i. Dasios di
11Y2LG	Logics of Engineer's Judgement	KZ	2
	of engineer's judgement, its propositional and predicative logical base. Solutions of logical tasks through the methods of truthfulness	1	1
	Venn's diagram method. Logical basis for network design for the solution of technical tasks.		,
12XN1	Master Project 1	Z	2
12XN2	Master Project 2	Z	2
12XN3	Master Project 3	Z	1
12Y2BM	Safety on The Local Roads	KZ	2
	id accidents rates, social looses. Collision points, diagrams. Tools and methods for safer road transportation. Crossroads from the point		_
	right of way. Roundabouts. Pedestrian transport, cyclists. Traffic lights coordination. Transport control and regulation.		-,
12Y2IS	Urban Networks	KZ	2
	d the position of UN as public and technical infrastructure / utilities, metodology of the UN master planning, of UN design, UN coordi	1	I .
	operation (basic technical standards of UN, trenchless technologies for UN).		
12Y2KE	Landscape Ecology	KZ	2
Landscape ecolo	gy. Landscape - definition, types, evolution. Landscape systems. Anthropogenic impacts on landscape. Methods using for evaluating	landscape. Fractal	geometry
	and its potential applications in landscape ecology. Landscape planning.		
12Y2KS	Rail Transport in Settlements and Regions	KZ	2
Modernization an	d development of railway infrastructure in Czech Republic. Arrangement of railway networks and junctions. Suburban railway service	s. Network configu	iration and
	tion of metro systems. Network configuration and operation of tram systems. Special thematic lectures (rail transport in selected cou	ıntries / regions).	
12Y2MD	Methods of Traffic Regulation and Prediction	KZ	2
Basic ways of traffic	prognosis, traffic prognosis for large area (calculation of future traffic volumes, calculation of future traffic volumes between areas (and	-	tic methods,
4.00.401.41.1	modal split, traffic distribution to road network). Shock wave in traffic flow. Service levels and their traffic volumes. Acceleration	1	
12Y2MH	Measurement and Modeling of Traffic Noise	KZ	2
i neoretical introdu	action to noise from traffic. Noise from rail transport. Noise from road traffic. Measurement and calculation of noise from rail traffic.	easurement and ca	alculation of
40\/0\/7	noise from road traffic. Modelling of traffic noise in the CADNA A.	1/7	
12Y2MZ	Modernization of Railway Lines and Stations ng. AGC and AGTC Agreement. AGC and AGTC railway network. Principles of modernization (conceptual papers, definitions of basic or	KZ	2
	characteristics on modernized railway lines. Superstructure and substructure on upgraded lines. Designing of railway stations. Bridg		
mach goomeanea.	and realization of projects. Technical description of the tranzit corridors.	00 0.10 100.0. 20	, ro.opo
12Y2OO	Protection of the Nature and Waste Management	KZ	2
	protection, its evaluating. Protected species, protected zones. Legislation. Landscape planning. Waste management. Production of w		
	ndustrial waste, dangerous waste, toxic waste. Solid waste disposal and sorted waste. Composting. Nuclear waste and nuclear waste		
12Y2PB	Navigation, Waterway Transport and Facilities	KZ	2
Characterization of	water transport, water transport facilities and principals of their construction. Lock chambers, lifts and ports. Vessels and waterways	navigation. Legal of	order related
	to inland navigation and its integration to European norms. International relations in inland navigation and waterways.		
12Y2RD	Realization of Transport Buildings	KZ	2
Transport Buildings	Types. Project Documentation Types. Building Code. Land Permission and Building Permission Process. Building Process. Project Eco	onomics. Project M	lanagement.
12Y2UD	Sustainable Transportation	KZ	2
Sustainable develo	pment, definition, history, legal framework. Sustainable development indicators. Sustainable transportation, definition, history, legal fr	amework. Practica	I application
>>	of sustainable development theory, case study.	1=	
12Y2VT	High Speed Railways	KZ KZ	2
	R) transport characteristics and position in transportation system. HSR vehicles types and characteristics and control-command and specific productions of the traffic portion and traffic posts and the control of the traffic portion and traffic posts and the control of the traffic posts and traffic p		=
interoperability. No	on-adhesion HSR systems. City traffic service by HSR. HSR operating points. HSR worldwide network. HSR routing and traffic conce construction and geometrical characteristics.	ption. Specifics of	nor liack
12Y2ZK	Traffic Calming	KZ	2
	ic calming. Solution of road network organization. Urban road layouts. Psychological and physical obstacles (measures of traffic calm	1	1
i inicipios oi traii	Traffic calming measures in crossroads. Pedestrian zones. Residential streets and zones.	ing) and then com	ibiliationo.
13XN1	Master Project 1	Z	2
13XN2	Master Project 2	Z	2
13XN3	Master Project 3	Z	1
13Y2DT	Taxes and Fees in Transport and Telecommunications	KZ	2
	d fees of the Czech Republic, comparison with customs in the EU. Purpose and kinds of taxes, fundamental terms and tax categories	1	1
System of taxes are	local and court fees. Historic development of rates of taxation of natural individual, legal entity, VAT, consumption tax.	allorial budget, t	autico, stato,
13Y2IM	Investment and Insurance Mathematics	KZ	2
	ninal, efficient and real. Annuity, cash flow, present and future value. Debt amortization. Investment assessment. Security pricing. Bas	1	1
	y insurance - risks, tariff groups, drivers, premium. Basics of demography, life tables, commutation functions. Capital life insurance, e	=	-
	insurance. Current premium, gross premium, premium reserves.		
13Y2MC	Management of Travel Services Transportation	KZ	2
Global importance	of the tourist trade, transport services, accomodation services, catering services, guide sevices, spa services, organization and services	s of travel agencie	s, marketing
	and appoints of convices in the tourist trade		

13Y2MV	Management of Transportation Quality	KZ	2
Quality manageme	ont, standards and quality standardization, quality management systems, quality management in transport and logistics, marketing and	transport quality, o	quality costs,
	quality measurement and monitoring, statistics in quality management, improving, focus on the customer.		
13Y2MZ	Environmental Management	KZ	2
	sic concepts (difference between the environment and ecology, ecosystems, sustatinable development). Main ways of environment de	1	1
	Ways of environment protection, the development of the environmental policy, its strategy and instruments. Voluntary instruments, their		_
	Application of the most important voluntary instruments in the practice.	•	
13Y2NU	Cost and Benefits of Transport Systems	KZ	2
	s and their history, externalities and their internalization, public goods, transport funding, assessment of transport constructions and s		1
	port taxation, influence of transport constructions on public budgets, relation of transport and economic growth, importance of transport		
13Y2PS	Case Studies in Transportation	KZ	2
	ic concepts in transport, traffic impacts on the environment and national economy, problems of energy and transport sustainability fro		•
relationship of t	transport and macroeconomic development, investments in transport, the individual chapters will be presented to students through ca	ise studies and sul	bsequent
	discussions, the lectures using practitioners.		
14IPT	Information environment	ZK	2
E - business and e	- commerce environment creation, state and public information environment development in converging networks, data protection, teleco	ommunications and	dinformation
	society.		
14MTSY	Telecommunications Systems Management	KZ	2
	area of e-communication services and relevant ecommunications networks, conditions and tools to provide optional set of services of	required paramete	ers based on
	cture of service management system (TMN). Positioning of broadband services, convergence trends leading to NGN. Financial criteria		
	of providing service.		g
14PEU	Electronic Communications Law in EU and CR	KZ	2
		I .	1
basic overview o	of electronic communications (telecommunications, broadcasting, ICT). Legal construction. Relation of legal instruments available in the	ie Czech Republic	to the EU
	regulatory framework of electronic communications 2002.		T .
14SI	System Engineering	Z,ZK	4
	Standard analysis methods and synthesis (projecting) of objects with system identification from the methodology standpoir		
14TSYD	Telecommunications Services for Transport Applications	KZ	2
New trends in te	elecommunications applied in transport solutions, identification and quantification of telecommunications networks and services perfor	rmance based on i	redundant
	architecture, provissioning of guaranteed service quality, two generations of the handover principles.		
14XN1	Master Project 1	Z	2
14XN2	Master Project 2	Z	2
	•		
14XN3	Master Project 3	Z	1
14Y2C1	CATIA I	KZ	2
Fundaments of w	orking with CATIA, making basic parts and bodies. Making 2D sketches, geometric stucture, parametric linking, making adaptive mod	dels from 2D sketcl	hes. Import
	and export of made parts and bodies. Making assemble and visualization.		
14Y2C2	CATIA II	KZ	2
	l c course. Modeling compound bodies. Possibility of enumeration, comunications with other systems. Surface x solid bodies. Kinemation	c mechanism. Proj	iect making
	and project cooperation. Outputs of projects.	•	J
14Y2CS	Sensitivity of Systems	KZ	2
	ns with defined reliability. The impact of changing parameters and subsystems within a system. System sensitivity computing, definition	1	1
Design of system	matrices and their usability in system design.	in or sensitivity full	ctions and
4.4)/0.11/4		1/7	
14Y2JM	One-Chip Controllers	KZ] 2
	trollers architecture, embedded peripherals (counters, timers, converters, ports) and their utilisation. Practical tasks are programmed		
14Y2OP	Object Oriented Programming in Transport	KZ	2
Class, object, end	capsulation, inheritance, polymorphism, templates, retyping, stream, exceptions, repository, collections, virtual methods and classes.	Problem cases wil	be chosen
	from microscopic simulation system, discrete event simulation, celular automata simulation and virtual life area.		
14Y2PH	CAD Interface Programming	KZ	2
	D interface programming techniques with the help of LIST and VBA programming languages. Possibilities of proper objects (comman	I	erfaces, and
	applications creation in CAD systems. Programming of cooperation with other applications (databases, spread-sheets).		
14Y2PI	Process Information Systems in Transportation	KZ	2
	detailed usage of transport information systems, e.g. EFC, ePurse and transport check-in systems for public transport with focus on a	1	I
	priented Architecture). Inforamtion systems implementation and operations description in the Czech Republic (technical and process)		=
·			1
14Y2PJ	C++ Programming Language	KZ	2
DOP philosophy ai	nd basics of C++ programming language. Class, object, constructor, destructor, inheritance, abstract class, virtual methods, exceptions,	streams, method a	and operator
	overloading, abstract data type implementation in C++.		
14Y2TU	Telecommunications Systems and Multimedia	KZ	2
New trends in telec	communications namely applied in transport solutions, identification and quantification of telecommunications networks and services pe	rformance based o	on redundant
	architecture, provissioning of guaranteed service quality, two generations of the handover principles.		
14Y2UI	Artificial Intelligence	KZ	2
Hi	story of artificial intelligence, knowledge, its representation including frames, state space search, constraints, genetic algorithms, made	chine learning.	
15J2A1	Language - English 1	Z	2
	Presentation Skills - expert technical discourse and style; Analysis of expert texts and their production; Preparation for overseas work	engagement.	1
15J2F1	Language - French 1	Z	2
	ctures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills	_	I
	ent, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and tec		_
tooriinoai text collt	language of management.	Annour registers di	ia iiicii use,
45 10514		7	
15J2N1	Language - German 1	Z	2
	ctures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills		_
tecnnical text cont	ent, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and tec	zimicai registers ar	na tneir use,
	language of management.		

15J2R1			
	Language - Russian 1	Z	2
	uctures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills atent, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and ted		
crimical text con	language of management.	cillical registers a	ina inen u
15J2S1	Language - Spanish 1	Z	2
	uctures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills	_	1
	structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and tec		
	language of management.	Ü	
15JBA2	Language - English 2	Z	2
	Presentation Skills - expert technical discourse and style; Analysis of expert texts and their production; Preparation for overseas work	engagement.	1
15JBA3	Language - English 3	Z	2
Presentation Sk	ills - expert technical discourse and style; Analysis of expert texts and their production; Preparation for overseas work engagement.Op	tional courses for	certificates
	FCE, CAE.		
15JBA4	Language - English 4	ZK	2
Presentation Sk	ills - expert technical discourse and style; Analysis of expert texts and their production; Preparation for overseas work engagement.Op	tional courses for	certificates
45 1050	FCE, CAE.		
15JBF2	Language - French 2	Z	2
	uctures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills Itent, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and tec		
echnical text con	language of management.	cillical registers a	ina inen us
15JBF3	Language - French 3	Z	2
	ylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of I	_	
	and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work		
	features. Practice of oral and written presentation.		,
15JBF4	Language - French 4	ZK	2
Grammar and sty	ylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of I	anguage structure	e knowledg
and perceptive a	and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work	with (professional) text and i
	features. Practice of oral and written presentation.		
15JBN2	Language - German 2	Z	2
Grammatical Stru	uctures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills	, feedback skills, s	summarisir
echnical text con	ntent, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and techniques	chnical registers a	ınd their us
	language of management.		
15JBN3	Language - German 3	Z	2
-	ylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of I		e knowledg
and perceptive a	ind communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work		
		with (professional) text and i
	features. Practice of oral and written presentation.		
15JBN4	features. Practice of oral and written presentation. Language - German 4	ZK	2
Grammar and sty	features. Practice of oral and written presentation. Language - German 4 ylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of I	ZK anguage structure	2 e knowledg
Grammar and sty	features. Practice of oral and written presentation. Language - German 4 ylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of I and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work	ZK anguage structure	2 e knowledg
Grammar and sty and perceptive a	features. Practice of oral and written presentation. Language - German 4 ylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of I and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work features. Practice of oral and written presentation.	ZK anguage structure with (professional	2 e knowledg) text and i
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Grammar and sty and perceptive a 15JBR2 Grammatical Stru echnical text con	features. Practice of oral and written presentation. Language - German 4 ylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of I and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work features. Practice of oral and written presentation. Language - Russian 2 uctures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills attent, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and techniques.	ZK anguage structure with (professional Z , feedback skills, schnical registers a	2 e knowledg) text and i 2 summarisir and their us
Grammar and sty and perceptive a 15JBR2 Grammatical Stru echnical text con 15JBR3	features. Practice of oral and written presentation. Language - German 4 ylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of I and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work features. Practice of oral and written presentation. Language - Russian 2 uctures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills intent, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and tender language of management. Language - Russian 3	ZK anguage structure with (professional Z , feedback skills, schnical registers a	2 e knowledg) text and i 2 summarisir
Grammar and sty and perceptive a 15JBR2 Grammatical Struechnical text con 15JBR3 Grammar and sty	features. Practice of oral and written presentation. Language - German 4 ylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of I and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work features. Practice of oral and written presentation. Language - Russian 2 uctures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills intent, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and tender language of management. Language - Russian 3 ylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of I	ZK anguage structure with (professional Z , feedback skills, s chnical registers a	2 e knowledg) text and i 2 summarisir and their us 2 e knowledg
Grammar and sty and perceptive a 15JBR2 Grammatical Struechnical text con 15JBR3 Grammar and sty	features. Practice of oral and written presentation. Language - German 4 ylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of I and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work features. Practice of oral and written presentation. Language - Russian 2 uctures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills attent, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and tender language of management. Language - Russian 3 ylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of I and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work in the form is a supplication of the province of the province of the presentation of the	ZK anguage structure with (professional Z , feedback skills, s chnical registers a	2 e knowledg) text and i 2 summarisir and their us 2 e knowledg
Grammar and sty and perceptive a 15JBR2 Grammatical Struechnical text con 15JBR3 Grammar and sty and perceptive a	features. Practice of oral and written presentation. Language - German 4 ylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of I and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work features. Practice of oral and written presentation. Language - Russian 2 uctures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills itent, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and tender language of management. Language - Russian 3 ylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of I and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work of features. Practice of oral and written presentation.	ZK anguage structure with (professional Z, feedback skills, s chnical registers a Z anguage structure with (professional	2 e knowledg) text and i 2 summarisir and their us 2 e knowledg) text and i
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15Y2DN	Transportation Psychology in German Speaking Countries	KZ	2
Introduction into bi	roader view of traffic problems with regard to the work with texts (Physics for drivers, abusing alcohol during driving, exhaustion, gett	ing of driving licend	ce, children
	in traffic, traffic accident, traffic psychology in the internet etc.)		
15Y2HS	Road Transport History	KZ	2
	affic in the Ancient Age, corridors of main mediveal pathways. Development of road traffic in the modern period, acceleration of road		-
1st part of 20th cer	ntury. Development of road layout, geometric and construction layers. Beginning of modern road civil engineering. Development of road	ad travelling in mod	dern period.
45)(0)(0)	History of road intercections, bridges and traffic control, development of road signs.	1/7	0
15Y2MS	Sociology for Managers oach to a corporation. Corporation and its organization. Corporation and its running - human role and communication. Corporation, i	KZ	2
	luman's work position in free market economy. Corporate directorship, work groups, adaptation, strife, different roles and positions in		ai system.
15Y2OZ	Health Protection in Transportation and EU	KZ	2
	in transportation in CR in the past and present. Conditions before 1989 and after, current legislature, future prospects. Harmonisatio		
	members. Fundamental principles of health protection and support in selected EU countries.	Ü	
15Y2PS	Practical Spanish for Transportation, Management and Business	KZ	2
Development of	communication skills, training of correct written expression of formal character, basic technical vocabulary, cultural specifics of the S	panish speaking c	ountries.
	Terminology of transport and commerce, business letter.		
15Y2PT	Food in Transportation	KZ	2
The nutrition policy	Interaction transportation and foodstuffs. The health risks. Hygienic safeguard. The practical examples from the Czech Republic and	d from the world. Th	ne issues of
45)(05)	dining cars, work trains and other railroad equipment. Legislation.	147	
15Y2PU	Publications and Their Creation	KZ T	2
Scientific texts typ	pes. Footnotes and references. Exploration of facts. Quotations. Formal document layout. Working with information databases. Typogr editors - MS Word, Tex/LaTeX. Practical creation of simple scientific documents.	apnic principles. Iy	pograpnic
15Y2SP	Seminar on Political Philosophy	KZ	2
131235	Interpreting of philosophical texts, view of society, state and their system of government.	KZ	2
15Y2SR	Stylistics and Rhetorics	KZ	2
	and written expression as a means of human communication. Basic information about speech, articulation, oral and written language		
	ng. Language semantics, language syntactic and the pragmatic aspect. Creative thought and its oral and written expression. Practice -		
15Y2TS	Technician and Contemporary Society	KZ	2
	at in a room and open a door for a lady, are there simple solutions, science vs belief, do we need to know or is it enough to turn on a	PC, it must be true	- it's on the
	Internet and in newspapers, what are the sights for, interest in public affairs - a hangover from the past?		
16XN1	Master Project 1	Z	2
16XN2	Master Project 2	Z	2
16XN3	Master Project 3	Z	1
16Y2HP	Vehicle Hygiene	KZ	2
Emissions and ergo	onomy of vehicles and the influence on man and nature. National and international law related to the hygiene. Noise and vibrations - s	sources creation r	ronagation
1		sources, ereation, p	nopagation,
	ys of measuring, prevention, elimination. Exhausts - creation, measurement, reduction, non-regular fuels and drives. Ergonomy - sitting		
physical values, wa	reach. Condition - heating, ventilation, air-conditioning, filtration, tiredom.	g, standing, control,	operational
physical values, way	reach. Condition - heating, ventilation, air-conditioning, filtration, tiredom. Car Body Design	g, standing, control,	operational
physical values, way 16Y2KV Personal cars b	reach. Condition - heating, ventilation, air-conditioning, filtration, tiredom. Car Body Design ody, high-load car body, bus car body, and motorcycle as a construction set. Principles of design, production, testing and operation.	y, standing, control, KZ Materials used for o	operational 2 car body
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17Y2KI			
	Capital Investment in Transportation and Telecommunications	KZ	2
47)/01/10	Financial market, investment desicion making - long term goals and investment strategies, long term financing.	1/7	
17Y2MS	Microsimulation of Railway Operation characteristics of simulation tools, creation of a simulation model of railway infrastructure, verification of a specific operational conce	KZ	2
	frastructure model and modification to the infrastructure to allow the implementation of the proposed operational concept. Stability tes	-	
adaptation of the in	of sensitivity of the operational concept to delays.	no arra ovalaciono.	Lvaldation
17Y2P	Insurance Bussiness	KZ	2
	rance bussiness - history and progress. Insurance company, insurance - sorts. Risks and damages. Reinsurance company, principle		_
17Y2PR	Carriage Processes	KZ	2
	al liability. Ordering and contracting of carriage. Intergovernmental conventions on international carriage. Contract on passenger carriag	e. Contract on freig	ht carriage.
Forwarding con	tract. Liability and rights based on carrying contract. Contractual carrying conditions. Guarantee of carrying contract by more operator	rs. Internationally a	ccepted
	commercial terms (INCOTERMS). Tariff and calculation of prices.		
17Y2PS	Case Studies in Transportation	KZ	2
•	discussions on the topics - the impact of transport on the environment and the economy, energy, construction of transport infrastructu		
lesson presente	d one current and the real issue, which solutions will have to think of each other. Each of them will be represent another role (public a	uthorities, investor	s, carrier
17) (200	representative interest groups, residents, etc.).		
17Y2RS	Regional Transport - Mobility of Small Towns	KZ	2
Basic terms, netwo	rks of railway and bus lines, alternative forms of regional transport, influence in regional transport in vicinity of big cities, solutions of p	assenger and freig	nt transport
17Y2RZ	in regions, activities related to regional transport, passenger transport safety in regions. Control of Transport Processes	KZ	2
	transport system, decomposition, factors influencing control, quality diagnosis, methods of control, systems for decision making sup	ı	2
Theoretical bases	telematics.	port, risk of decision	in making,
17Y2SG	Systematic Creating of Railway Timetables	KZ	2
	Capacity allocation, technological intervals in railway operation. Rules and regulations of train paths, running times, time adds and s	l l	
· ····otable camples	crew circulation planning. Rules of train-diagramm creating. Train-diagramm construction in case of more service-levels on the		9 0.00 a
17Y2SK	Urban and Regional Rail Transport System	KZ	2
	g transport demand, modal-split, traffic flows distribution on public transit network. Line network optimization and configuration. Timeta	l l	
_	d periodic timetable. Rolling stock circulation, staff and crew services optimization and their order to rosters. Framework legislation, non		
	of public transport. Marketing.		
18XN1	Master Project 1	Z	2
18XN2	Master Project 2	Z	2
18XN3	Master Project 3	Z	1
18Y2D2	Dynamics of Transport Routes and Vehicles 2	KZ	2
	n the vehicle and transport routes and their influence on the stress and strain components of the vehicle structure or behavior of traff	l l	of dynamic
models of vehicles	and transport routes. Vibration of systems with a finite number of degrees of freedom. Methods of constant stiffness and constant com	pliance. Dynamic o	calculations
	of structural systems. Criteria for the admissibility of oscillation.		
	of structural systems. Officina for the duffissibility of oscillation.		
18Y2FZ	Physical foundation of materials' properties	KZ	2
	Physical foundation of materials' properties attice defects influence on properties of materials, stiffness, plasticity, strength, fracture, fatigue, creep, corrosion, effects of environments.		I
Atomistic models,	Physical foundation of materials' properties attice defects influence on properties of materials, stiffness, plasticity, strength, fracture, fatigue, creep, corrosion, effects of environm behavior are the main discussed topics.	nent and loading or	n materials'
Atomistic models,	Physical foundation of materials' properties lattice defects influence on properties of materials, stiffness, plasticity, strength, fracture, fatigue, creep, corrosion, effects of environm behavior are the main discussed topics. Reliability and Diagnostics, Experimental Methods	nent and loading or	n materials'
Atomistic models, 18Y2SD The course is focus	Physical foundation of materials' properties lattice defects influence on properties of materials, stiffness, plasticity, strength, fracture, fatigue, creep, corrosion, effects of environm behavior are the main discussed topics. Reliability and Diagnostics, Experimental Methods led on theoretical background and practical experience in the field of reliability of constructions, implementation of diagnostic procedur	nent and loading or KZ es for the detection	n materials' 2 I of material
Atomistic models, 18Y2SD The course is focus	Physical foundation of materials' properties attice defects influence on properties of materials, stiffness, plasticity, strength, fracture, fatigue, creep, corrosion, effects of environm behavior are the main discussed topics. Reliability and Diagnostics, Experimental Methods ed on theoretical background and practical experience in the field of reliability of constructions, implementation of diagnostic procedur ination of residual life of structures. For this purpose, non-destructive methods of experimental mechanics (e. g. strain-gauge measure	nent and loading or KZ es for the detection	n materials' 2 I of material
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20Y2MK Overview of quality	Quality Tools in the Development Phase management methods, data acquisition and analysis of customer requirements, methods, QFD, DFM, DFA, DFS. FMEA (Analysis of details).	KZ efects and their cons	2 sequences).
	Introduction to concurrent (team) design.		
20Y2NE	Design of Experiments in the Development Phase	KZ	2
	nent in the development of cars. A detailed overview of their own methods. Applied Statistics. Laboratory tests of durability, performa	ince, road tests, cli	matic tests,
acoustic tests,	vibration, corrosion testing, analysis of customer satisfaction, specific expert system for the VDS, the relationship with FMEA (failure	mode and effect a	nalysis).
20Y2PR	Prediction of time series	KZ	2
	series prediction, meaning of prediction, basics of quantitative prediction. Methods for predictive quality evaluation, descriptive statist	1	1
	tion for general formula of loss function. Calculation and programming environment R. Regression models, basics of linear regressio		
prodiction, prodict	regression, statistical tests of linear dependence, selection of input variables.	ii, ciiipic regioceic	
20Y2TE	Technology of Electronic Systems	KZ	2
	ies for an effective operation of electronically controlled systems. Maintaining, meassuring, optimization of safety and reliability of co		1
Trinciple technolog	technologies, printed circuits, assembly operations, interconnection and repairs technologiesusers and operators.	ripiex systems. Ger	micoridacioi
00)/0114		1/7	
20Y2UA	Artificial Neural Networks, Realization and Applications	KZ	2
History of neural ne	etworks. Basic principles. Comparing the structure of a natural and an artificial neuron. Neural classificators, predictors, compresors, ex	-	r specialised
	functional blocs and systems. Modelling of neurons. Grossberg's equations. Learning principles. Leyered and Hopfield's ne		ı
21XN1	Master Project 1	Z	2
21XN2	Master Project 2	Z	2
21XN3	Master Project 3	Z	1
21Y2LZ	Human Recources and Projects in Aviation	KZ	2
	rategy and policy, the HR specifics in aviation, managers´ and specialists´ competence in HR development, management and development.	1	_
	HR in the conditions of global market and competition, new trends and approaches to HR development. Project management as a competition is a competition of global market and competition.		
corporate culture,		Juneni practice in t	ine current
041/0140	conditions of corporate management. The philosophy and principles, of project management.		
21Y2MS	Aerospace Engineering Simulation and Modelling	KZ	2
	gned as a set of exemplary tasks and problems based on practical aviation issues. The university degree mathematic skills and softv		-
necessary for succ	essful figuring out. Both simple tasks, where students create own model themselves (e.g. in Matlab), and more complicated problems	where professiona	al developed
	tools will be applied.		
21Y2NR	Navigation and Flight Control Systems	KZ	2
	Navigtion (ANP/RNP), area navigation, FMS, FMC, A/P, A/T, FD, MCDU, GPWS.		
21Y2PL	Operational Aspects of Aerodromes	KZ	2
	ts of aerodromes. Location of aerodrome and orientation of runways. Requirements for apron. Capacity of airports runways and tern	ninals. Operation u	nder winter
	conditions. Firefighting units. Protection against unlawful interference. Local transport connection. Environmental protection	n.	
21Y2PP	Law and Operation in Air Transport	KZ	2
	iation law. International conventions on civil aviation. International organisations and including of the Czech Republic in these organis	1	_
	on of state administration and state supervision in matters of civil aviation, in accordance with Act No. 49/1997 Col. Facilitation. Resp		
aviation: 2/1004ti	passengers, luggage and cargo. The safe transport of dangerous goods.	ronoidinado di an o	
21Y2TL	Development Trends of Aircraft Construction	KZ	2
ZIIZIL	Historical and nowadays trends. Future scenarios. Space industry. Economy.	NZ	2
041/01/4		1/7	
21Y2VA	Selected Chapters of Aerodynamics	KZ	2
	of real gases, atmosphere, aeronautical applications of external and internal aerodynamics, compressible internal flow, inlet nozzles a		
external flow, supe	rcritical wings and profiles, vertical and oblique shock wave, energy losses, aeronautical aerodynamic profiles of wings, propellers, b	lades gratings, lift,	drag, polar,
	viscosity, laminar and turbulent flow, boundary layer.		T
22TZN	Technical Expertise	KZ	2
Historical evolution	of sworn forensic engineering, forensic activity, current legislature in the Czech Republic, different disciplines, notion of forensic, forensic, forensic, forensic, forensic engineering, forensic e	ensic legislation, ba	asic forensic
acts, expert role in t	he obtaining proofs, forensic methodology. Notion of the evidence, general principles of evidence obtaining, metrology, protocol, evide	nces collection, site	e inspection,
	forensic report, elements. Finding, expert testimony / report. Appraisal and its role in the forensic.		
22XN1	Master Project 1	Z	2
22XN2	Master Project 2	Z	2
22XN3	Master Project 3	Z	1
22Y2PS	Traffic Accidents Computer Simulation and Analysis	KZ	2
	'	I	I
verlicie dynamics	simulation, multi body systems and vehicle active safety systems, vehicle slipping, external influence on virtual model, crash tests evaluation, multi body systems and vehicle active safety systems, vehicle slipping, external influence on virtual model, crash tests evaluation, staffic activities and applying	/aiuation, single-tra	ack verlicle,
00 4 D 0	vehicle passangers, pedestrian, traffic accident simulation and analysis.	1/7	1 4
23APS	Computer Systems Architecture	KZ	1
· ·	computer architecture principles, e.g. von Neumann's model, pipelining, different coupling of systems, transmission protocols, systolic		=
classification, etc. T	he Amdahl's law, effectiveness of parallel systems performance measurement, RISC and CICS architectures, superscalar architecture	res, mass parallel a	rchitectures
	and symmetric multiprocessing explained on many examples.		
23BID	Security Engineering in Distributed Systems	ZK	4
Protocols, access	s management, cryptography role, distributed systems, multilevel security, multilateral security, banking and accounting systems, mo	nitoring systems, c	ontrol and
command, security	imprint and seals, biometry, physical security, emission security. Electronic information warfare. Net attacks and protection. Commer	cial system protect	tion. Privacy
	protection. E - policy. Management instruments. System development and evaluation. Security standards.		
23BPR1	Security Training 1	KZ	4
·	Depending of semester plan.	•	
23DPBI	Diploma Thesis (for the Field BI)	KZ	12
23KRIO	Crisis Management for Engineering Branches	KZ	3
	Issets, terms, concept and safety management aims. Causes and consequences of disasters. Safety management. Crisis managem	1	
	s and comparidon with the EU and NATO. Organisational, personal, legislative, finance, material and technical provision. The IZS role		
F	and critical infrastructure. Problem solving.		or public
23KY	Cybernality	ZK	3
	behavior on the computer network and computer systems. Cybernetic crime technology. Theory basis and models. Cyberterrorism. In	1	1
j Junuluai aspecis of	behavior on the computer network and computer systems. Cybernetic crime technology. Theory basis and models. Cyberterrorism. In	iowait allu collilec	ieu aspecis.

•	Risk Analysis and Management	Z,ZK	3
and good enginee	d terms. Risk sources, definition of hazard, impacts and risks. Methods for identification, analysis, assessment and management of ri	sks. Risk engine	ering target
	ring practice. Methods, tools and techniques for risk engineering. System of systems risk. Application of strategic and system approac	ch for benefit of s	security and
	development. Territorial, emergency and crisis planning. Human factor - its role.		
2300M	Personal and property protection	ZK	2
Personal and pro	perty protection, technical and organization instruments. Definition of basic principles. Danger typology. Personal and property protect	tion legislation. I	nstitutional
ecurity manageme	nt. OECD security management principles. Super-system security adapted to an institution. Secret and personal data protection. Pro	tection systems	and intrusion
risks. Physical se	curity technical instruments. External and internal detectors. Effective response and reconstruction principles. Human, technology and	d infrastructure s	urvivability
	principles.		
23PDS	Advanced Database Systems	ZK	3
BS principles, indi	vidual components functions, Conceptual, physical and database approaches to the data. Database models overview. Conceptual dat	a model. Constr	ucts. Integr
nits expression. R	elation data model. Relation database schema. Database questioning languages. Decomposition quality criterions. Transactions. Erro	ors correction. Pa	rallel acce
	coordination. Data protection. Physical data model. Index. Indexed cluster. Hash cluster.		_
23PI	Transfer of Information	ZK	3
heory of informati	on - introduction. Theoretical and practical knowledge in the field of communication. Transfer ways summary. Encoding and decoding	analog and num	eric signal
Level architecture	e ISO and description of physical levels and its applications. Signal characteristics, encoding, cyclic codes, signal compressing. Analo	g signals modula	ation. Data
	transfer modulation. Transfer ways and networks, protocols level architecture.		
23PJC	Advanced Programming in C++	Z	2
Types, classes ar	nd objects, objects originating and ending, abstract data types, overloading. Genetics, virtual genetics, virtual methods. Dynamic alloc	ation, indexes, c	onversion.
atterns, generic p	ogramming, compilation. Polymorphism, containers, iterators, algorithms. Exceptions, secure programming with exceptions. Secure a	and mobile progr	amming, C
	connections.		
23PJJ	Advanced programming in JAVA	KZ	2
yntax, types, class	es, interface, objects, genealogy, packets, operators. JAVA vs. C++ differences. Exceptions management: try, catch, throw orders. Fiel	d. Chains. Memo	ry allocatio
arbage collection.	Language interpreter. Environment run - time. Development instruments. Synchronization. Fibres. Basic distribution most used packets	s summary - grou	up, collectio
.	GUI, network support.	, , ,	,
23PSE	Computer network	ZK	3
	ng principles, internet. Internet protocols - UDP, IP, TCP, ARP, http [s], ftp,SMTP/TLS, Pop[s], imap[s], ssh /scp. Network services - dii		1
	[transfer], firewalls, proxy. Network vulnerability.	3,	
23TP	Criminal Law in IT and Transportation	KZ	2
	ninal law into legal order, conception of culpability and criminal delict, consequency of other legal standards. international treaty and		1
	crime, specific indicia of criminal court cases, practical examples.	, ,	3
	Human Resources Management and Development		
23VR/		7K	3
23VRZ	· · · · · · · · · · · · · · · · · · ·	ZK munication, Hum	3 an resource
-	nanagement introduction. Company goals, strategy and culture. Human resources management, team management and internal comm		
uman resources m	nanagement introduction. Company goals, strategy and culture. Human resources management, team management and internal comp planning and development. Intercultural differences. Current legislation.	munication. Hum	an resource
uman resources m	nanagement introduction. Company goals, strategy and culture. Human resources management, team management and internal complanning and development. Intercultural differences. Current legislation. Master Project 1	munication. Hum	an resource
23XN1 23XN2	nanagement introduction. Company goals, strategy and culture. Human resources management, team management and internal complanning and development. Intercultural differences. Current legislation. Master Project 1 Master Project 2	munication. Hum Z Z	an resource
23XN1 23XN2 23XN3	nanagement introduction. Company goals, strategy and culture. Human resources management, team management and internal complanning and development. Intercultural differences. Current legislation. Master Project 1 Master Project 2 Master Project 3	munication. Hum Z Z Z	an resource 2 2 1
23XN1 23XN2 23XN2 23XN3 23Y2AE	Master Project 1 Master Project 2 Master Project 3 Acoustics and Electroacoustics in Transportation	Z Z Z Z KZ	2 2 1 2
23XN1 23XN2 23XN2 23XN3 23Y2AE	nanagement introduction. Company goals, strategy and culture. Human resources management, team management and internal complanning and development. Intercultural differences. Current legislation. Master Project 1 Master Project 2 Master Project 3	Z Z Z Z KZ	2 2 1 2
23XN1 23XN2 23XN3 23Y2AE assic acoustic quar	Master Project 1 Master Project 2 Master Project 3 Acoustics and Electroacoustics in Transportation Acoustics and Electroacoustics, method of equivalent circuits. Acoustic impedance, damping. Acoustics planed acoustic in solids. Acoustic planed acous	Z Z Z KZ ustic actuators, lo	2 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
23XN1 23XN2 23XN3 23Y2AE assic acoustic quar	Master Project 1 Master Project 2 Master Project 3 Acoustics and Electroacoustics, method of equivalent circuits. Acoustic impedance, damping. Acoustics, method of equivalent circuits. Acoustic impedance, damping. Acoustics, method of equivalent circuits.	Z Z Z KZ ustic actuators, lo	2 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
23XN1 23XN2 23XN3 23Y2AE asic acoustic quar	Master Project 1 Master Project 2 Master Project 3 Acoustics and Electroacoustics in Transportation Acoustics and Electroacoustics, method of equivalent circuits. Acoustic impedance, damping. Acoustics planed acoustic in solids. Acoustic planed acous	Z Z Z KZ ustic actuators, lo	2 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
23XN1 23XN2 23XN3 23Y2AE asic acoustic quarcoustic sensors, m	Master Project 1 Master Project 2 Master Project 3 Acoustics and Electroacoustics, method of equivalent circuits. Acoustic signal processing. Acoustics of closed spaces. Fundamentals of acoustics in solids. Acoustic psolutions.	Z Z Z KZ ustic actuators, loroblems in transp	2 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
23XN1 23XN2 23XN3 23Y2AE asic acoustic quarcoustic sensors, m 23Y2NE haracteristics and	Master Project 1 Master Project 2 Master Project 3 Acoustics and Electroacoustics, method of equivalent circuits. Acoustic signals processing. Acoustics of closed spaces. Fundamentals of acoustics in solids. Acoustic polytions. Design of Electronic Equipments	Z Z Z KZ ustic actuators, loroblems in transp KZ elements. Realiza	2 2 1 2 Dudspeaker port and the
23XN1 23XN2 23XN3 23Y2AE asic acoustic quarcoustic sensors, m 23Y2NE haracteristics and	Master Project 1 Master Project 2 Master Project 3 Acoustics and Electroacoustics, method of equivalent circuits. Acoustic impedance, damping. Acoustics of closed spaces. Fundamentals of acoustics in solids. Acoustic psolutions. Design of Electronic Equipments realization of semiconductor electronic components, basic electronic devices division. Sources, input and output elements, process electronic devices division. Sources, input and output elements, process electronic devices division.	Z Z Z KZ ustic actuators, loroblems in transp KZ elements. Realiza	2 2 1 2 Dudspeaker port and the
23XN1 23XN2 23XN3 23Y2AE asic acoustic quarcoustic sensors, m 23Y2NE haracteristics and	Master Project 1 Master Project 2 Master Project 3 Acoustics and Electroacoustics, method of equivalent circuits. Acoustic in solids. Acoustic polutions. Design of Electronic Equipments realization of semiconductor electronic components, basic electronic devices division. Sources, input and output elements, process ers, data converters. Analog electronic systems, analog computing. Switching elements, logic circuits, FPGA implementation. Single	Z Z Z KZ ustic actuators, loroblems in transp KZ elements. Realiza	2 2 1 2 oudspeaker port and the
23XN1 23XN2 23XN3 23Y2AE assic acoustic quar coustic sensors, m 23Y2NE haracteristics and circuits - amplifit 23Y2VS	Master Project 1 Master Project 2 Master Project 3 Acoustics and Electroacoustics in Transportation Intities, properties of acoustic signals. Basic equations in acoustics, method of equivalent circuits. Acoustics in solids. Acoustic polutions. Design of Electronic Equipments realization of semiconductor electronic components, basic electronic devices division. Sources, input and output elements, process eres, data converters. Analog electronic systems, analog computing. Switching elements, logic circuits, FPGA implementation. Single microcontrollers. Design (ORCAD), construction of electronic devices.	Z Z Z KZ ustic actuators, lc roblems in transp KZ elements. Realiza	2 2 1 2 2 Udspeakel port and the 2 ation of basuters and 2
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