Study plan

Name of study plan: navaz. mag. PRE program LA 20/21 (nová akreditace)

Faculty/Institute/Others: Department: Branch of study guaranteed by the department: Welcome page Garantor of the study branch: Program of study: Logistics and Transport Processes Control 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: 93 The role of the block: Z

Code of the group: 1.S.NPLA 20/21 Name of the group: 1.sem.nav.prez (od) 20/21 - program LA 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 9 courses Credits in the group: 26 Note on the group:

Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their Code Completion Credits Scope Semester Role members) Tutors, authors and guarantors (gar.) Linear Programming 2 11LIP2 Z.ZK 2P+1C+10B 7 3 7 Ivan Nagy, Karel Je men Ivan Nagy Ivan Nagy (Gar.) Game Theory and Optimal Decision-Making 11TER ΖK 2 2P+0C+8B Ζ Ζ Magdalena Hykšová Magdalena Hykšová Magdalena Hykšová (Gar.) **Logistics in Smart Cities** 17LSC Z,ZK 6 2P+2C+14B Ζ 7 Tomáš Horák Technology of Railway Transport Zden k Michl, Vít Janoš Vít Janoš (Gar.) 17TZND Z,ZK 4 2P+2C Ζ Ζ Inventory, Replacement and Scheduling Theory Ζ 17TZOR Z,ZK 3 2P+1C 7 Dušan Teichmann Dušan Teichmann (Gar.) **Geographical Information Systems** 14GISS ΚZ 2 0P+2C+8B 7 František Kekula, Tomáš Janata, Zuzana Purkrábková Tomáš Janata Tomáš Ζ Janata (Gar.) Management of Transport Systems 17MADS 2 2P+0C+8B Ζ KΖ z Roman Št rba, Veronika Faifrová **Technology of Road Transport** 17TSI ΚZ 2 2P+0C+8B Ζ 7 Michal Drábek Language - English 1 Barbora Horá ková, Jitka He manová, Dana Boušová, Lenka Monková, Peter 15J2A1 7 2 0P+2C+10B 7 7 Morpuss, Markéta Vojanová, Marie Michlová, Marek Tome ek, Markéta Musilová.

Characteristics of the courses of this group of Study Plan: Code=1.S.NPLA 20/21 Name=1.sem.nav.prez (od) 20/21 - program LA

11LIP2	Linear Programming 2	Z,ZK	3
Formulation of the task of	f integer programming, branch and bound method of numerical solution, problems about knapsack, travelling salesman, sets	location of stores	and post boxes,
tasks of scheduling, heu	ristics, metaheuristics - genetic algorithms, ant colony optimization.		
11TER	Game Theory and Optimal Decision-Making	ZK	2
Decision-making theory,	utility theory. Explicit form games, backward induction. Normal form games. Antagonistic conflict, matrix games. Repeated g	ames, evolutiona	ry game theory.
Cooperative games without transferable payoffs. Cooperative games with transferable payoffs (imputation, core, Shapley value, nucleolus). Applications of game theory above all in			
		one of game aloo	y above an in
economics and transpor			y abovo an m
economics and transpor 17LSC		Z,ZK	6
17LSC	tation.	Z,ZK	6
17LSC Development of cities in	tation. Logistics in Smart Cities	Z,ZK ystem and its corr	6 ponents, quality

17TZND	Technology of Railway Transport	Z,ZK	4
Track line capacity asse	sment, model operational situation with a system running time between IPT-nodes, calculation of traction energy savings con	mpared with infra	structure costs
for designing of fleeting	crossing station, solving of capacity problem and blocking time in relation to train protection system, robustness of timetable	, system concept	of freight train
paths, guidelines for cer	ntralised operational traffic control and management.		
17TZOR	Inventory, Replacement and Scheduling Theory	Z,ZK	3
Inventory theory - introc	uction, static models, deterministic dynamic models, stochastic dynamic models. Replacement theory - introduction, models	for replacement	of items that
deteriorate with time, me	odels for replacement of items that fail completely. Scheduling theory - introduction, single machine scheduling problems, para	llel machine sche	duling problems,
flow shop scheduling pr	oblems and job shop scheduling problems.		
14GISS	Geographical Information Systems	KZ	2
Construction of saving f	ormat of space-oriented information land-survey and cartography minimum basic tasks of spatial operations principles of ter	ritorial identificatio	on
17MADS	Management of Transport Systems	KZ	2
Functions, processes a	nd systems of management in transport, organisational structures, strategy, social responsibility, soft skills.		
17TSI	Technology of Road Transport	KZ	2
Legislative, operational,	technical, logistic and safety conditions of road transport, basic transport technologies, special transport, international agree	ements, requirem	ents on the
parameters and special	ization of transport, handling and loading/unloading means, maintenance, service and repairs of road vehicles, safety of road	d transport and ch	noice of optimal
transport unit.			
15J2A1	Language - English 1	Z	2
Presentation Skills - exp	ert technical discourse and style; Analysis of expert texts and their production; Preparation for overseas work engagement.	-	•
E			

Code of the group: 2.S.NPLA 20/21

Name of the group: 2.sem.nav.prez (od) 20/21 - program LA Requirement credits in the group: In this group you have to gain 24 credits Requirement courses in the group: In this group you have to complete 8 courses Credits in the group: 24 Note on the group:

Note on the grou						
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
11THRO	Queuing Theory Šárka Vorá ová Šárka Vorá ová Šárka Vorá ová (Gar.)	ZK	2	2P+0C+8B	L	Z
17KMD	Quantitative Methods in Transport Dušan Teichmann, Denisa Mocková Denisa Mocková (Gar.)	Z,ZK	6	2P+2C	L	Z
17MID	Managerial Information Systems in Transport Václav Baroch Václav Baroch (Gar.)	Z,ZK	3	2P+1C+10B	L	Z
17RKOP	Management of commercial projects in transport Petra Skolilová, Alexandra Dvo á ková Petra Skolilová Petra Skolilová (Gar.)	Z,ZK	3	2P+1C+10B	L	Z
14BIG	Big Data Jana Kaliková, Jan Kr ál Jana Kaliková Jana Kaliková (Gar.)	KZ	2	0P+2C+8B	L	Z
14TEL	Telecommunications Tomáš Zelinka, Radek Holý, Zden k Lokaj, Martin Šrotý Tomáš Zelinka Tomáš Zelinka (Gar.)	КZ	3	2P+1C+10B	L	Z
17DOCH	Travel Behavior Vít Janoš, Milan K íž Vít Janoš (Gar.)	KZ	3	3P+0C+10B	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+10B	L	Z

Characteristics of the courses of this group of Study Plan: Code=2.S.NPLA 20/21 Name=2.sem.nav.prez (od) 20/21 - program LA

11THRO Queuing Theory	ZK	2		
Discrete event process, definition, random distribution, and probability. Basic processes, process of revitalisation. Markov process, Markov models, Kenda	dall classification	n, model M/M/1,		
models M/M/n. Non-markovian models, model M/C/n, models G/G/n. Models with continuous flow. Service net, examples of Petri net. Computer simulation	tion.			
17KMD Quantitative Methods in Transport	Z,ZK	6		
The course focuses on the issue of the use of undirected graphs tree type, planar graphs and their coloring. Further distribution problems, facility location	on problems are	formulated and		
solved such as models of integer linear programming. Besides the use of exact methods there are described simple and also more sofisticated heuristic	cs (metaheurist	tics) methods.		
17MID Managerial Information Systems in Transport	Z,ZK	3		
IT and their use in building IS of modern transport company. New EU legislation on cyber security and data protection puts transport organizations in fro	ont of new chal	lenges. The		
course focuses on the security of IS and possible sources of danger. The practical part deals with the process of building a new IS from the idea through	n the timetable a	and the financial		
budget, the basic documents for the possible assignment of the contract.				
17RKOP Management of commercial projects in transport	Z,ZK	3		
Business project (customer, activities, output - quality, time, money), project surroundings, location of the project (area analysis, traffic flows, authorization	ion procedure),	organizational		
structure of the project, sources of financing, customer-supplier relations, feasibility studies, sensitivity and multi-criteria analysis, financial and value an	nalysis, manage	ement of project		
changes.				
14BIG Big Data	KZ	2		
Principle of MapReduce. Basic Principles of Big Data Management. Comparison and Classification of NoSQL Databases. Key Database Value Database .	Column Datab	ases. Document		
Databases. Graph Databases-Basic Principles. Graph Databases-Advanced Aspects. Indexing. Interpretation. Advanced Principles Big Data Management	ent. NewSQL D	atabase. Cloud		
computing. Data warehouses and Big Data. Cloud computing. Data warehouses and Big Data. Other Big Data issues.				
14TEL Telecommunications	KZ	3		
tatus quo and new trends in telecommunications systems. Economical and legal aspects of telecommunications networks design and telecommunications services provisioning,				
identification and quantification of hlererchical telecommunications networks and telecommunication services performance based on addopted performance performance based on addopted performance performance based on addopted performance	parameters, tel	ecommunication		
services typically applied within transport and specifically logistic solutions.				

17DOCH	Travel Behavior	KZ	3
Investigation of causal e	effects in travel behavior research (quasi-experimental and experimental approaches). Data collection (theory of measurements)	nt; design of resea	arch instrument
and data collection). An	alysis and interpretation of data (advanced regression models; issues of analysis and interpretation of results: effect size, pra	actical vs. statistic	al significance).
Analysis and interpr. of	data (surveys, choice exp., panel. data).		
15JBA2	Language - English 2	Z	2
Presentation Skills - exr	pert technical discourse and style: Analysis of expert texts and their production. Preparation for overseas work engagement		

Code of the group: 3.S.NPLA 21/22 Name of the group: 3.sem.nav.prez (od) 21/22 - program LA 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 6 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
11DOPM	Transportation Planning and Modeling	Z,ZK	6	2P+2C	Z	Z
11STS	Stochastic Systems Šárka Vorá ová, Evženie Uglickich, Natálie Blahitka, Michal Matowicki, Pavla Pecherková Pavla Pecherková Šárka Vorá ová (Gar.)	Z,ZK	4	2P+2C+14B	Z	Z
17PPC	Carriage Processes Roman St rba	ZK	3	2P+0C	Z	Z
17RVIP	Public Project Management in Transport Alexandra Dvo á ková, Olga Mertlová, Daniel Pilát Olga Mertlová (Gar.)	Z,ZK	5	2P+2C+14B	Z	Z
17AMAN	Application of Marketing Tools in Transport Industry Petra Skolilová Petra Skolilová (Gar.)	KZ	3	2P+0C	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

Characteristics of the courses of this group of Study Plan: Code=3.S.NPLA 21/22 Name=3.sem.nav.prez (od) 21/22 - program LA

11DOPM	Transportation Planning and Modeling	Z,ZK	6
Basic steps and tools u	sed within four step model (trip generation, trip distribution, mode choice and trip distribution). Mobility and availability in urba	n areas, land use	. New trends for
transportation planning	and modelling.		
11STS	Stochastic Systems	Z,ZK	4
The subject deals with t	he problems of mathematical modelling of dynamical systems, estimation od these models and their utilization for prediction	. The results are i	lustrated on
practical transportation	tasks. Mathematical theory roots from probability and mathematical statistics and they use the methods of the Bayesian prob	abilistic approact	۱.
17PPC	Carriage Processes	ZK	3
Domestic carriages, inte	ernational carriages, nomenclature of goods, pricing, contracting, responsibility for damages.		
17RVIP	Public Project Management in Transport	Z,ZK	5
Basic concepts of proje	t management in the public sector, used procedures and standards of project management, organizational structure in projec	t management in	the public sector,
project and pre-project	preparation in transport and transport infrastructure and their specifics, feasibility study and CBA, project evaluation.		
17AMAN	Application of Marketing Tools in Transport Industry	KZ	3
Strategic marketing plan	ns. Implementation of marketing campaigns. Branding and brand promotion. Multimedia presentations. Direct marketing and re	elated lead generation	ation campaigns.
15JBA3	Language - English 3	Z	2
Presentation Skills - exp	ert technical discourse and style; Analysis of expert texts and their production; Preparation for overseas work engagement.	Dptional courses f	or certificates
FCE, CAE.			

Code of the group: 4.S.NPLA 21/22

Name of the group: 4.sem.nav.prez (od) 21/22 - program LA

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

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

Credits in the group: 2

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
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+10B	L	Z

Characteristics of the courses of this group of Study Plan: Code=4.S.NPLA 21/22 Name=4.sem.nav.prez (od) 21/22 - program LA

15JBA4	Language - English 4	ZK	2
Presentation Skills - exp	pert technical discourse and style; Analysis of expert texts and their production; Preparation for overseas work engagement.	Optional courses f	or certificates
FCE, CAE.			

Code of the group: XNDP LA 21/22

Name of the group: Diplomová práce program LA (od) 21/22 Requirement credits in the group: In this group you have to gain 18 credits Requirement courses in the group: In this group you have to complete 1 course Credits in the group: 18

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
11XNDM	Master Thesis for study programme LA	Z	18	0P+20C+70E	B L	Z
12XNDM	Master Thesis for study programme LA	Z	18	0P+20C+70B	B L	Z
14XNDM	Master Thesis for study programme LA	Z	18	0P+20C+70B	B L	Z
15XNDM	Master Thesis for study programme LA	Z	18	0P+20C+70B	B L	Z
16XNDM	Master Thesis for study programme LA	Z	18	0P+20C+70B	B L	Z
17XNDM	Master Thesis for study programme LA Tomáš Horák, Zden k Michl, Vít Janoš, Rudolf Vávra, Dušan Teichmann, Roman Št rba, Veronika Faifrová, Michal Drábek, Denisa Mocková, Václav Baroch (Gar.)	Z	18	0P+20C+70B	B L	z
18XNDM	Master Thesis for study programme LA	Z	18	0P+20C+70B	B L	Z
20XNDM	Master Thesis for study programme LA	Z	18	0P+20C+70B	B L	Z
21XNDM	Master Thesis for study programme LA	Z	18	0P+20C+70B	B L	Z
22XNDM	Master Thesis for study programme LA	Z	18	0P+20C+70B	B L	Z
23XNDM	Master Thesis for study programme LA	Z	18	0P+20C+70B	B L	Z

Characteristics of the courses of this group of Study Plan: Code=XNDP LA 21/22 Name=Diplomová práce program LA (od) 21/22

11XNDM	Master Thesis for study programme LA	Z	18
12XNDM	Master Thesis for study programme LA	Z	18
14XNDM	Master Thesis for study programme LA	Z	18
15XNDM	Master Thesis for study programme LA	Z	18
16XNDM	Master Thesis for study programme LA	Z	18
17XNDM	Master Thesis for study programme LA	Z	18
18XNDM	Master Thesis for study programme LA	Z	18
20XNDM	Master Thesis for study programme LA	Z	18
21XNDM	Master Thesis for study programme LA	Z	18
22XNDM	Master Thesis for study programme LA	Z	18
23XNDM	Master Thesis for study programme LA	Z	18

Name of the block: Semestrální projekt Minimal number of credits of the block: 13 The role of the block: ZP

Code of the group: XN LA 1-4 20/21 Name of the group: Projekty nav.prez.1.-4.sem (od) 20/21 programu LA Requirement credits in the group: In this group you have to gain 13 credits Requirement courses in the group: In this group you have to complete 4 courses Credits in the group: 13 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
11XN1	Master Project 1 Ivan Nagy	Z	2	0P+2C+4B	Z	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
14XN1	Master Project 1	Z	2	0P+2C+4B	Z	ZP
15XN1	Master Project 1	Z	2	0P+2C+4B	Z	ZP
16XN1	Master Project 1 P emysl Toman	Z	2	0P+2C+4B	Z	ZP

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17XN1	Master Project 1 Karel Je men, Tomáš Horák, Eliška Glaserová, Zden k Michl, Vít Janoš, Rudolf Vávra, Dušan Teichmann, Veronika Faifrová, Michal Drábek,	Z	2	0P+2C+4B	Z	ZP
18XN1	Master Project 1 Václav Rada, Nela Kr má ová	Z	2	0P+2C+4B	Z	ZP
20XN1	Master Project 1 Ji í R ži ka	Z	2	0P+2C+4B	Z	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
22XN1	Master Project 1 Michal Frydrýn, Karel Kocián, Luboš Nouzovský, Zden k Svatý, Jakub Nová ek	Z	2	0P+2C+4B	Z	ZP
23XN1	Master Project 1	Z	2	0P+2C+4B	Z	ZP
11XN2	Master Project 2 Ivan Nagy	Z	2	0P+2C+8B	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
14XN2	Master Project 2 Vít Fábera, Tomáš Brandejský, Mária Jánešová, Jan Zelenka	Z	2	0P+2C+8B	L	ZP
15XN2	Master Project 2	Z	2	0P+2C+8B	L	ZP
16XN2	Master Project 2 P emysl Toman, Josef Mik	Z	2	0P+2C+8B	L	ZP
17XN2	Master Project 2 Tomáš Horák, Zden k Michl, Vít Janoš, Rudolf Vávra, Dušan Teichmann, Roman Št rba, Veronika Faifrová, Michal Drábek, Denisa Mocková, Vít Janoš (Gar.)	Z	2	0P+2C+8B	L	ZP
18XN2	Master Project 2 Daniel Kytý	Z	2	0P+2C+8B	L	ZP
20XN2	Master Project 2	Z	2	0P+2C+8B	L	ZP
21XN2	Ji í R ži ka, Patrik Horaž ovský Master Project 2 Jakub Kraus, Andrej Lališ, Slobodan Stoji , Terézia Pilmannová, Jakub Hospodka, Lenka Hanáková, Peter Vittek, Jakub Steiner, Natalia Guskova, 	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
23XN2	Master Project 2	Z	2	0P+2C+8B	L	ZP
11XN3	Master Project 3	Z	1	0P+4C	Z	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
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
17XN3	Master Project 3 Karel Je men, Tomáš Horák, Eliška Glaserová, Zden k Michl, Vít Janoš, Rudolf Vávra, Dušan Teichmann, Veronika Faifrová, Michal Drábek,	Z	1	0P+4C	Z	ZP
18XN3	Master Project 3 Daniel Kytý	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
11XN4	Master Project 4	Z	8	0P+4C	L	ZP
12XN4	Master Project 4 Zuzana arská, Dagmar Ko árková, Kristýna Neubergová, Martin Jacura, Jan Kruntorád, Ond ej Trešl, David Vodák, Tomáš Javo Ik, Pavel Purkart,	Z	8	0P+4C	L	ZP
14XN4	Master Project 4	Z	8	0P+4C	L	ZP
15XN4	Master Project 4	Z	8	0P+4C	L	ZP
16XN4	Master Project 4 Josef Mik, Michal Cenkner	Z	8	0P+4C	L	ZP
17XN4	Josef Mix, Michar Cenkrier Master Project 4 Tomáš Horák, Zden k Michl, Vít Janoš, Rudolf Vávra, Dušan Teichmann, Roman Št rba, Veronika Faifrová, Michal Drábek, Denisa Mocková, Václav Baroch (Gar.)	Z	8	0P+4C	L	ZP
18XN4	Master Project 4	Z	8	0P+4C	L	ZP
20XN4	Master Project 4	Z	8	0P+4C	L	ZP

21XN4	Master Project 4 Slobodan Stoji , Terézia Pilmannová, Vladimír Socha, Peter Vittek, Jakub Steiner, Miloš Strouhal, Ota Hajzler, Iveta Kameníková, Petr Lukeš,	Z	8	0P+4C	L	ZP
22XN4	Master Project 4 Michal Frydrýn, Karel Kocián, Luboš Nouzovský, Zden k Svatý	Z	8	0P+4C	L	ZP
23XN4	Master Project 4	Z	8	0P+4C	L	ZP

Characteristics of the courses of this group of Study Plan: Code=XN LA 1-4 20/21 Name=Projekty nav.prez.1.-4.sem (od) 20/21 programu LA

LA			
11XN1	Master Project 1	Z	2
12XN1	Master Project 1	Z	2
14XN1	Master Project 1	Z	2
15XN1	Master Project 1	Z	2
16XN1	Master Project 1	Z	2
17XN1	Master Project 1	Z	2
18XN1	Master Project 1	Z	2
20XN1	Master Project 1	Z	2
21XN1	Master Project 1	Z	2
22XN1	Master Project 1	Z	2
23XN1	Master Project 1	Z	2
11XN2	Master Project 2	Z	2
12XN2	Master Project 2	Z	2
14XN2	Master Project 2	Z	2
15XN2	Master Project 2	Z	2
16XN2	Master Project 2	Z	2
17XN2	Master Project 2	Z	2
18XN2	Master Project 2	Z	2
20XN2	Master Project 2	Z	2
21XN2	Master Project 2	Z	2
22XN2	Master Project 2	Z	2
23XN2	Master Project 2	Z	2
11XN3	Master Project 3	Z	1
12XN3	Master Project 3	Z	1
14XN3	Master Project 3	Z	1
15XN3	Master Project 3	Z	1
16XN3	Master Project 3	Z	1
17XN3	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
11XN4	Master Project 4	Z	8
12XN4	Master Project 4	Z	8
14XN4	Master Project 4	Z	8
15XN4	Master Project 4	Z	8
16XN4	Master Project 4	Z	8
17XN4	Master Project 4	Z	8
18XN4	Master Project 4	Z	8
20XN4	Master Project 4	Z	8
21XN4	Master Project 4	Z	8
22XN4	Master Project 4	Z	8
23XN4	Master Project 4	Z	8
23XN4	Master Project 4	Z	8

Name of the block: Compulsory elective courses Minimal number of credits of the block: 6 The role of the block: PV

Code of the group: Y2-NPLA 20/21 Name of the group: PVP nav.prez. program LA 20/21 Requirement credits in the group: In this group you have to gain 6 credits Requirement courses in the group: In this group you have to complete 3 courses Credits in the group: 6

Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their Code **Completion** Credits Scope Semester Role members) Tutors, authors and guarantors (gar.) 2P+0C 17Y2AM ΚZ 2 L **Application of Marketing Tools in Transportation** ΡV 12Y2BM ΚZ 2 2P+0C Ζ ΡV Safety on The Local Roads Security Class 23Y2BP ΚZ 2 2P+0C Ζ ΡV Zuzana Kosová Unmanned aircraft systems 2 21Y2BS ΚZ 2 2P+0C L ΡV Tomáš Tlu ho , Michal erný 14Y2C1 ΚZ 2 2P+0C L ΡV CATIA I 14Y2C2 ΚZ 2 2P+0C Ζ ΡV CATIA II 14Y2CS K7 2 2P+0C L ΡV Sensitivity of Systems Transport in the Context of Sustainability 2 2P+0C L 12Y2DU K7 ΡV Kristýna Neubergová 15Y2DN K7 2 2P+0C L P\/ Transportation Psychology in German Speaking Countries Ζ 18Y2DC **Dynamics of Transport Routes and Vehicles** ΚZ 2 2P+0C ΡV 2 16Y2EE **Emissions and Ergonomics of Vehicles** ΚZ 2P+0C L ΡV Financing in Urban Mass Transportation Ζ 2 17Y2FM ΚZ 2P+0C ΡV Václav Baroch Ζ 2 2P+0C 11Y2FX ΚZ ΡV **Functions of Complex Variable** 2 2P+0C Ζ 23Y2FB K7 ΡV Physics for Security Branches Physical foundation of materials' properties ΚZ 2 2P+0C L 18Y2FZ ΡV Jaroslav Valach **Road Transport History** 15Y2HS ΚZ 2 2P+0C L ΡV Eva Rezlerová, Zuzana 16Y2HP K7 2 2P+0C L P١ Vehicle Hygiene 14Y2IS ΚZ 2 2P+0C L Intelligent Systems in Postal Services ΡV 2 2P+0C Ζ 12Y2IS ΚZ ΡV **Urban Networks** 2 Ζ ΚZ 14Y2JM 2P+0C **One-Chip Controllers** ΡV Job Hunting in English 2 Ζ 15Y2JH ΚZ 2P+0C ΡV Lenka Monkov 2 2P+0C L 14Y2KI **Capital Investment in Transportation and Telecommunications** ΚZ ΡV 16Y2KV ΚZ 2 2P+0C L **Car Body Design** ΡV **Rail Transport in Settlements and Regions** ΚZ 2 2P+0C Ζ 12Y2KS ΡV Miroslav Veliš Landscape Ecology Ζ 12Y2KE ΚZ 2 2P+0C ΡV Kristýna Neubergová 21Y2LS ΚZ 2 2P+0C+8B L ΡV **Air Traffic Services** 2 11Y2LG ΚZ 2P+0C L ΡV Logics of Engineer's Judgement 23Y2MA ΚZ 2 2P+0C L **Risk Analysis and Management** PV/ Sociology for Managers ΚZ 2 2P+0C Ζ 15Y2MS ΡV Martina Šmidochová 12Y2MH K7 2 2P+0C L Measurement and Modeling of Traffic Noise P\/ 2 L ΚZ 12Y2MI 2P+0C **Urban Engineering** ΡV Finite Element Method And Its Application 2 18Y2MP ΚZ 2P+0C L ΡV Radek Kolman 2 16Y2MK ΚZ 2P+0C L ΡV **Quality Methods for Vehicles** Methods of Traffic Regulation and Prediction 2 12Y2MD ΚZ 2P+0C L ΡV Zuzana arská 2 2P+0C 17Y2MO ΚZ L International Organisations in Transportation ΡV **Microsimulation of Railway Operation** Ζ 17Y2MS ΚZ 2 2P+0C ΡV Zden k Michl Ζ 21Y2MS ΚZ 2 2P+0C Aerospace Engineering Simulation and Modelling ΡV Modern History for Engineering Students Ζ 17Y2MT ΚZ 2 2P+0C ΡV Tomáš Horák, Petra Skolilová Modernization of Railway Lines and Stations 12Y2MZ ΚZ 2 2P+0C L ΡV Dagmar Ko árková, Miroslav Veliš 14Y2OP ΚZ 2 2P+0C L ΡV **Object Oriented Programming in Transport** Health Protection in Transportation and EU 2 Ζ 15Y2OZ ΚZ 2P+0C ΡV Eva Rezlerová, Petr Musil **Specialised French for Transportation and** Ζ 2 ΡV 15Y2OF ΚZ 2P+0C Telecommunications

Note on the group:

18Y2OB	Optical Contactless Strain Measurements	KZ	2	2P+0C	L	PV
16Y2PG	Petr Zlámal Computer Graphics and Virtual Reality	KZ	2	2P+0C	Z	PV
22Y2PS	Stanisłav Novotný, Petr Bouchner	KZ	2	2P+0C	L	
	Traffic Accidents Computer Simulation and Analysis Food in Transportation					PV
15Y2PT	Eva Rezlerová, Petr Musil	KZ	2	2P+0C	L	PV
23Y2PD	Practical vehicle dynamics	KZ	2	2P+0C	L	PV
15Y2PD	Practical Spanish for Transportation	KZ	2	2P+0C	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
11Y2PM	Programming in MATLAB Šárka Vorá ová	KZ	2	2P+0C	L	PV
21Y2PL	Operational Aspects of Aerodromes	KZ	2	2P+0C	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
17Y2RZ	Control of Transport Processes	KZ	2	2P+0C	Z	PV
21Y2S1	Diploma Thesis Seminar 1	KZ	2	2P+0C	L	PV
21Y2S2	Diploma Thesis Seminar 2	KZ	2	2P+0C	Z	PV
15Y2SP	Seminar on Political Philosophy	KZ	2	2P+0C	Z	PV
17Y2SJ	Network Timetabling on the Railway Vít Janoš Vít Janoš (Gar.)	KZ	2	2P+0C	L	PV
16Y2ST	Special Technologies in Transport and Telecommunications	KZ	2	2P+0C	L	PV
16Y2SV	Special technologies in vehicle manufacturing	KZ	2	2P+0C	L	PV
18Y2SD	Reliability and Diagnostics, Experimental Methods	ΚZ	2	2P+0C	Z	PV
15Y2SR	Stylistics and Rhetorics	KZ	2	2P+0C	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
23Y2TP	Creation of legal and technical regulations	KZ	2	2P+0C	L	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
18Y2VC	Computational Mechanics in Transportation	KZ	2	2P+0C	L	PV
23Y2VR	Cope with Risks in Engineering Branches	KZ	2	2P+0C		PV
12Y2VT	High Speed Railways	KZ	2	2P+0C	Z	PV
12Y2ZK	Traffic Calming Zuzana arská	KZ	2	2P+0C	Z	PV
23Y2ZM	Intelligence Means and Methods	KZ	2	2P+0C	Z	PV

Characteristics of the courses of this group of Study Plan: Code=Y2-NPLA 20/21 Name=PVP nav.prez. program LA 20/21

17Y2AM	Application of Marketing Tools in Transportation	KZ	2		
Application of marketing principles in transport issues, marketing tools suitable for transport, case studies of the use of marketing in the sphere of public passenger transport.					
12Y2BM	Safety on The Local Roads	KZ	2		
Classification of road accidents rates, social looses. Collision points, diagrams. Tools and methods for safer road transportation. Crossroads from the point of view of safety. Psychological					
right of way. Roundabouts. Pedestrian transport, cyclists. Traffic lights coordination. Transport control and regulation.					
23Y2BP	Security Class	KZ	2		
The most prevalent topics include data management, data and text mining applications, terrorism informatics, deception and intent detection, terrorist and criminal social network					
analysis, crime analys	s, cyber-infrastructure protection, transportation infrastructure security, and information assurance, among others.				

		,	
	nanned aircraft systems 2	KZ	2
	ircraft development. Use of unmanned aircraft. Managerial activities related to the operation of unmanned aircraft. Flights	· · · ·	
14Y2C1 CAT	TA T CATIA, making basic parts and bodies. Making 2D sketches, geometric stucture, parametric linking, making adaptive m	Odels from 2D ske	2 Atches Import
-	I bodies. Making assemble and visualization.		nonco. Import
14Y2C2 CAT	FIA II	KZ	2
Extension of basic course. Mo	odeling compound bodies. Possibility of enumeration, comunications with other systems. Surface x solid bodies. Kinem	atic mechanism. P	roject making
and project cooperation. Outp			
	sitivity of Systems	KZ	2
Design of systems with define matrices and their usability in	ed reliability. The impact of changing parameters and subsystems within a system. System sensitivity computing, definit system design	tion of sensitivity for	unctions and
· · · · · · · · · · · · · · · · · · ·	nsport in the Context of Sustainability	KZ	2
-	sport, historical context, development in our country and in the world. Sustainable development and sustainable transpo		
of transport. Examples of sus	tainable transport. Biofuels. Electromobility. New trends in transport. Practical examples.		
15Y2DN Trar	nsportation Psychology in German Speaking Countries	KZ	2
	of traffic problems with regard to the work with texts (Physics for drivers, abusing alcohol during driving, exhaustion, g	etting of driving lic	ence, children
	c psychology in the internet etc.)	1/7	
	namics of Transport Routes and Vehicles of more mass systems. Analysis of the forces acting between the vehicle and transport route. Creation of dynamic mode	KZ	2
	ite number of degrees of freedom. Methods of stiffness constants and pliability constants. Fundamentals of vibration of b		•
of oscillation. Experimental m			,
16Y2EE Emi	issions and Ergonomics of Vehicles	KZ	2
	ehicles and the influence on man and nature. National and international law related to the hygiene. Noise and vibration		
	suring, prevention, elimination. Exhausts - creation, measurement, reduction, non-regular fuels and drives. Ergonomy - si	tting, standing, cor	trol, operational
-	ntilation, air-conditioning, filtration, tiredom. ancing in Urban Mass Transportation	KZ	2
	t in Prague and other cities in the world. Building and operation of public tram, bus, and trolleybus networks. Undergrou		
	It in small towns. Particularities of investment and operation financing of individual UMT types. Historic and present mo	-	
	ers. Tourism & UMT. UMT typology & choice of optimum financing.		.
11Y2FX Fun	ctions of Complex Variable	KZ	2
	n, holomorphic function, complex exponential series, integration, Cauchy theorem. Taylor series, Laurent series of com	plex variable funct	ion. Basics of
Laplace and Z-transformation			
	rsics for Security Branches nces and phenomena at extreme conditions. Grounds of rheology. Physics of Earth´s interior. Geophysics. Physics of a	KZ	2 ations in
dengineering branches direct		unosphere. Applic	
	rsical foundation of materials' properties	KZ	2
	cts influence on properties of materials, stiffness, plasticity, strength, fracture, fatigue, creep, corrosion, effects of envir	I I	_
behavior are the main discuss	sed topics.		
	ad Transport History	KZ	2
	Ancient Age, corridors of main mediveal pathways. Development of road traffic in the modern period, acceleration of ro	-	
	lopment of road layout, geometric and construction layers. Beginning of modern road civil engineering. Development o bridges and traffic control, development of road signs.	r road travelling in	modern period.
	icle Hygiene	KZ	2
	whicles and the influence on man and nature. National and international law related to the hygiene. Noise and vibration		
physical values, ways of meas	uring, prevention, elimination. Exhausts - creation, measurement, reduction, non-regular fuels and drives. Ergonomy - si	tting, standing, cor	trol, operational
	ntilation, air-conditioning, filtration, tiredom.		
	Iligent Systems in Postal Services	<u>_</u> KZ _	2
	ns in the postal services (ITIS, and POST, T + T, PS, KMP, DS), application of information technology in the processing istics processes in the post. The appreciation of the real implementation of the Czech post in operation both in lectures a	-	-
desk.	ומוס אוסט אוסט או איז	nd in the namewor	k of the plactical
	an Networks	KZ	2
	ion of UN as public and technical infrastructure / utillities, metodology of the UN master planning, of UN design, UN co	I I	tallation and UN
operation (basic technical sta	ndards of UN, trenchless technologies for UN).		
	e-Chip Controllers	KZ	2
15Y2JH Job	ure, embedded peripherals (counters, timers, converters, ports) and their utilisation. Practical tasks are programmed w	,	
The course provides a practic	Hunting in English	KZ	2 f this process
	Hunting in English al guide to applying for a job in English. The interview process is mapped out, with the course including skills practise	KZ for all the stages o	
including specifics for job-hun	Hunting in English al guide to applying for a job in English. The interview process is mapped out, with the course including skills practise ting in English. Students will also be introduced to the English vocabulary and phraseology necessary for a successful	KZ for all the stages o interview.	f this process,
including specifics for job-hun 14Y2KI Cap	Hunting in English al guide to applying for a job in English. The interview process is mapped out, with the course including skills practise	KZ for all the stages o	
including specifics for job-hun 14Y2KI Cap Financial market, investment	Hunting in English al guide to applying for a job in English. The interview process is mapped out, with the course including skills practise ting in English. Students will also be introduced to the English vocabulary and phraseology necessary for a successful pital Investment in Transportation and Telecommunications	KZ for all the stages o interview.	f this process,
including specifics for job-hun 14Y2KI Cap Financial market, investment 16Y2KV Car Personal cars body, high-load	Hunting in English al guide to applying for a job in English. The interview process is mapped out, with the course including skills practise iting in English. Students will also be introduced to the English vocabulary and phraseology necessary for a successful pital Investment in Transportation and Telecommunications desicion making - long term goals and investment strategies, long term financing Body Design I car body, bus car body, and motorcycle as a construction set. Principles of design, production, testing and operation.	KZ for all the stages of interview. KZ KZ Materials used for	f this process, 2 2 car body
including specifics for job-hun 14Y2KI Cap Financial market, investment 16Y2KV Car Personal cars body, high-load construction. Active and pass	Hunting in English al guide to applying for a job in English. The interview process is mapped out, with the course including skills practise iting in English. Students will also be introduced to the English vocabulary and phraseology necessary for a successful pital Investment in Transportation and Telecommunications desicion making - long term goals and investment strategies, long term financing Body Design I car body, bus car body, and motorcycle as a construction set. Principles of design, production, testing and operation. I ive safety parts. Ergonomics, HMI, view out of the vehicle, operational extent, view behind the car. Conditioning tools, s	KZ for all the stages of interview. KZ KZ Materials used for	f this process, 2 2 car body
including specifics for job-hun 14Y2KI Cap Financial market, investment 16Y2KV Car Personal cars body, high-load construction. Active and pass of the car body. Design and a	Hunting in English al guide to applying for a job in English. The interview process is mapped out, with the course including skills practise iting in English. Students will also be introduced to the English vocabulary and phraseology necessary for a successful bital Investment in Transportation and Telecommunications desicion making - long term goals and investment strategies, long term financing Body Design I car body, bus car body, and motorcycle as a construction set. Principles of design, production, testing and operation. I ive safety parts. Ergonomics, HMI, view out of the vehicle, operational extent, view behind the car. Conditioning tools, s rtistic design principles. Practical training.	KZ for all the stages of interview. KZ KZ Materials used for ignaling function.	f this process, 2 2 car body Aerodynamics
including specifics for job-hun 14Y2KI Cap Financial market, investment 16Y2KV Car Personal cars body, high-load construction. Active and pass of the car body. Design and a 12Y2KS Rail	Hunting in English al guide to applying for a job in English. The interview process is mapped out, with the course including skills practise iting in English. Students will also be introduced to the English vocabulary and phraseology necessary for a successful bital Investment in Transportation and Telecommunications desicion making - long term goals and investment strategies, long term financing Body Design I car body, bus car body, and motorcycle as a construction set. Principles of design, production, testing and operation. I ive safety parts. Ergonomics, HMI, view out of the vehicle, operational extent, view behind the car. Conditioning tools, s rtistic design principles. Practical training.	KZ for all the stages of interview. KZ KZ Vaterials used for signaling function. KZ	f this process, 2 2 car body Aerodynamics 2
including specifics for job-hun 14Y2KI Cap Financial market, investment 16Y2KV Car Personal cars body, high-load construction. Active and pass of the car body. Design and a 12Y2KS Rail Modernization and development	Hunting in English al guide to applying for a job in English. The interview process is mapped out, with the course including skills practise iting in English. Students will also be introduced to the English vocabulary and phraseology necessary for a successful bital Investment in Transportation and Telecommunications desicion making - long term goals and investment strategies, long term financing Body Design I car body, bus car body, and motorcycle as a construction set. Principles of design, production, testing and operation. I ive safety parts. Ergonomics, HMI, view out of the vehicle, operational extent, view behind the car. Conditioning tools, s rtistic design principles. Practical training.	KZ for all the stages of interview. KZ KZ Materials used for signaling function. KZ KZ	f this process, 2 2 car body Aerodynamics 2
including specifics for job-hun 14Y2KI Cap Financial market, investment 16Y2KV Car Personal cars body, high-load construction. Active and pass of the car body. Design and a 12Y2KS Rail Modernization and developmed operation of metro systems. N	Hunting in English al guide to applying for a job in English. The interview process is mapped out, with the course including skills practise iting in English. Students will also be introduced to the English vocabulary and phraseology necessary for a successful pital Investment in Transportation and Telecommunications desicion making - long term goals and investment strategies, long term financing Body Design I car body, bus car body, and motorcycle as a construction set. Principles of design, production, testing and operation. I ive safety parts. Ergonomics, HMI, view out of the vehicle, operational extent, view behind the car. Conditioning tools, s rtistic design principles. Practical training.	KZ for all the stages of interview. KZ KZ Materials used for signaling function. KZ KZ	f this process, 2 2 car body Aerodynamics 2
including specifics for job-hun 14Y2KI Cap Financial market, investment 16Y2KV Car Personal cars body, high-load construction. Active and pass of the car body. Design and a 12Y2KS Rail Modernization and developmed operation of metro systems. N 12Y2KE Lan	Hunting in English al guide to applying for a job in English. The interview process is mapped out, with the course including skills practise iting in English. Students will also be introduced to the English vocabulary and phraseology necessary for a successful bital Investment in Transportation and Telecommunications desicion making - long term goals and investment strategies, long term financing Body Design I car body, bus car body, and motorcycle as a construction set. Principles of design, production, testing and operation. I vive safety parts. Ergonomics, HMI, view out of the vehicle, operational extent, view behind the car. Conditioning tools, s ritstic design principles. Practical training. I Transport in Settlements and Regions ent of railway infrastructure in Czech Republic. Arrangement of railway networks and junctions. Suburban railway servic letwork configuration and operation of tram systems. Special thematic lectures (rail transport in selected countries / reg	KZ for all the stages of interview. KZ Materials used for signaling function. KZ ces. Network config gions). KZ	f this process, 2 2 car body Aerodynamics guration and 2

		1/7	0
21Y2LS	Air Traffic Services	KZ	2
Airspace structure in C	zech Republic and other countries. Introduction and description of ATS units in Czech Republic. Practical examples of TWR, A	APP a ACC contro	I. History of ATS
at USA and Czechoslo	vakia. ATS - Model of financing. Training Systém of Air Traffic Controllers. Future development of ATS.		
11Y2LG	Logics of Engineer's Judgement	KZ	2
Logical structure of end	ineer's judgement, its propositional and predicative logical base. Solutions of logical tasks through the methods of truthfulnes		nalvsis charts.
-	d. Logical basis for network design for the solution of technical tasks.		
		1/7	0
23Y2MA	Risk Analysis and Management	KZ	2
	rms. Risk sources, definition of hazard, impacts and risks. Methods for identification, analysis, assessment and management	-	
and good engineering	practice. Methods, tools and techniques for risk engineering. System of systems risk. Application of strategic and system appr	roach for benefit o	f security and
development. Territoria	l, emergency and crisis planning. Human factor - its role.		
15Y2MS	Sociology for Managers	KZ	2
	to a corporation. Corporation and its organization. Corporation and its running - human role and communication. Corporation,	1	
			ciai system.
	in free market economy. Corporate directorship, work groups, adaptation, strife, different roles and positions in corporation.		
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 road traffic.	Modelling of traffic noise in the CADNA A.		
12Y2MI	Urban Engineering	KZ	2
			2
	tites storage in area, coordination engineering activities in area, arrangement of public space, concepement of public spaces.		
18Y2MP	Finite Element Method And Its Application	KZ	2
Basic mathematical for	mulation of the Finite Element Method. Direct Stiffness Method used in structural mechanics. Evaluation of stiffness matrices	for the basic elem	ents using
variational principles. E	ement formulation (bar and beam elements, CST, LST, quadrilateral, tetrahedral and brick elements). Natural coordinates, na	atural shape funct	ons and
	tation. Numerical integration. Introduction to dynamics. FEM programming.		
· · · ·		1/7	2
16Y2MK	Quality Methods for Vehicles	KZ	2
Quality management m	nethods list, customer data acquisition and analysis of customer requirements, QFD, DFM, DFA, DFS. FMEA (Failure mode ef	fect analysis). Ele	ments of parallel
(team) design.			
12Y2MD	Methods of Traffic Regulation and Prediction	KZ	2
	ponosis, traffic prognosis for large area (calculation of future traffic volumes, calculation of future traffic volumes between areas (analogical and sv	nthetic methods
	bution to road network). Shock wave in traffic flow. Service levels and their traffic volumes. Acceleration noise.	analogical and of	initial and include,
		1/7	
17Y2MO	International Organisations in Transportation	KZ	2
International relations i	n transport, UN, EEC UN, Intergovernmental organisations, EU Offices and Agencies, Conference of European Ministries of	transport, Internat	ional mode
organisations of public	transport, Air-Rail, railways, roads, air, waterways, forwarding and postal services.		
17Y2MS	Microsimulation of Railway Operation	KZ	2
	racteristics of simulation tools, creation of a simulation model of railway infrastructure, verification of a specific operational cor		
	tructure model and modification to the infrastructure to allow the implementation of the proposed operational concept. Stability	viesis and evalua	lions. Evaluation
I of sensitivity of the one			
of contolating of and ope	rational concept to delays.		
21Y2MS	Aerospace Engineering Simulation and Modelling	KZ	2
21Y2MS		1	
21Y2MS The course is designed	Aerospace Engineering Simulation and Modelling as a set of exemplary tasks and problems based on practical aviation issues. The university degree mathematic skills and so	oftware application	ns usage will be
21Y2MS The course is designed necessary for success	Aerospace Engineering Simulation and Modelling	oftware application	ns usage will be
21Y2MS The course is designed necessary for success tools will be applied.	Aerospace Engineering Simulation and Modelling d as a set of exemplary tasks and problems based on practical aviation issues. The university degree mathematic skills and so ul figuring out. Both simple tasks, where students create own model themselves (e.g. in Matlab), and more complicated proble	oftware application ems where profess	ns usage will be sional developed
21Y2MS The course is designed necessary for success tools will be applied. 17Y2MT	Aerospace Engineering Simulation and Modelling d as a set of exemplary tasks and problems based on practical aviation issues. The university degree mathematic skills and so ul figuring out. Both simple tasks, where students create own model themselves (e.g. in Matlab), and more complicated proble Modern History for Engineering Students	oftware application of tware profess KZ	ns usage will be sional developed
21Y2MS The course is designed necessary for success tools will be applied. 17Y2MT Selected chapters from	Aerospace Engineering Simulation and Modelling d as a set of exemplary tasks and problems based on practical aviation issues. The university degree mathematic skills and so ul figuring out. Both simple tasks, where students create own model themselves (e.g. in Matlab), and more complicated proble Modern History for Engineering Students the 19. century history. Geopolitical situation in Europe explained on the examples of Great Britain, Germany and Austrian E	oftware application orms where profess KZ mpire. Rise of the	ns usage will be sional developed 2 United States,
21Y2MS The course is designed necessary for success tools will be applied. 17Y2MT Selected chapters from	Aerospace Engineering Simulation and Modelling d as a set of exemplary tasks and problems based on practical aviation issues. The university degree mathematic skills and so ul figuring out. Both simple tasks, where students create own model themselves (e.g. in Matlab), and more complicated proble Modern History for Engineering Students	oftware application orms where profess KZ mpire. Rise of the	ns usage will be sional developed 2 United States,
21Y2MS The course is designed necessary for success tools will be applied. 17Y2MT Selected chapters from	Aerospace Engineering Simulation and Modelling d as a set of exemplary tasks and problems based on practical aviation issues. The university degree mathematic skills and so ful figuring out. Both simple tasks, where students create own model themselves (e.g. in Matlab), and more complicated problem Modern History for Engineering Students the 19. century history. Geopolitical situation in Europe explained on the examples of Great Britain, Germany and Austrian E insatlantic transportation development. Imperial China: Late Qing dynasty. Selected chapters from the 20. century history: From	oftware application orms where profess KZ mpire. Rise of the	ns usage will be sional developed 2 United States,
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15Y2PD Practical Spanish for Transportation	KZ	2
Development of communication skills, training of correct written expression of formal character, basic technical vocabulary, cultural specifics of the	Spanish speaking	countries.
Terminology of transport and commerce.		
21Y2PP Law and Operation in Air Transport	KZ	2
Development of aviation law. International conventions on civil aviation. International organisations and including of the Czech Republic in these or		
aviation. Execution of state administration and state supervision in matters of civil aviation, in accordance with Act No. 49/1997 Col. Facilitation. Re	sponsibilities of air	carriers for
passengers, luggage and cargo. The safe transport of dangerous goods.		
20Y2PR Prediction of time series	KZ	2
Introduction to time series prediction, meaning of prediction, basics of quantitative prediction. Methods for predictive quality evaluation, descriptive s		
prediction, prediction for general formula of loss function. Calculation and programming environment R. Regression models, basics of linear regression	sion, simple regres	sion. Multiple
regression, statistical tests of linear dependence, selection of input variables.		-
14Y2PI Process Information Systems in Transportation	KZ	2
Introduction and detailed usage of transport information systems, e.g. EFC, ePurse and transport check-in systems for public transport with focus SOA (Service Oriented Architecture). Inforamtion systems implementation and operations description in the Czech Republic (technical and process)		
	1	
14Y2PJ C++ Programming Language	KZ	2
OOP philosophy and basics of C++ programming language. Class, object, constructor, destructor, inheritance, abstract class, virtual methods, exception overloading, abstract data type implementation in C++.	lions, streams, meu	nou anu operator
	KZ	2
14Y2PH CAD Interface Programming Introduction to CAD interface programming techniques with the help of LIST and VBA programming languages. Possibilities of proper objects (con		
applications creation in CAD systems. Programming of cooperation with other applications (databases, spread-sheets).	inanus), ulalogues	, intenaces, and
	KZ	2
11Y2PM Programming in MATLAB To explain the principle of modelling and simulation, description of Matlab environment and its settings, optimization and program code debugging		1
Matlab.		
21Y2PL Operational Aspects of Aerodromes	KZ	2
Operational aspects of aerodromes. Location of aerodrome and orientation of runways. Requirements for apron. Capacity of airports runways and		
conditions. Firefighting units. Protection against unlawful interference. Local transport connection. Environmental protection.		
17Y2PS Case Studies in Transportation	KZ	2
Simulation expert discussions on the topics - the impact of transport on the environment and the economy, energy, construction of transport infras	1	. – .
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 (publ		
representative interest groups, residents, etc.).	,	
15Y2PU Publications and Their Creation	KZ	2
Scientific texts types. Footnotes and references. Exploration of facts. Quotations. Formal document layout. Working with information databases. Type	1	. Typographic
editors - MS Word, Tex/LaTeX. Practical creation of simple scientific documents.		,, , , , , , , , , , , , , , , , , , , ,
12Y2RD Realization of Transport Buildings	KZ	2
Transport Buildings Types. Project Documentation Types. Building Code. Land Permission and Building Permission Process. Building Process. Proje	ct Economics. Proje	ect Management.
17Y2RZ Control of Transport Processes	KZ	2
Theoretical bases, transport system, decomposition, factors influencing control, quality diagnosis, methods of control, systems for decision making	j support, risk of de	cision making,
telematics.		
21Y2S1 Diploma Thesis Seminar 1	KZ	2
Types of final theses (review, applied research, basic research, work dealing with design proposals). Working with citation sources (citation databated	ses, citation styles)	. Analysis of the
current state (writing standards). Definition of the limitations of the current state. Introduction to the methodology of writing final theses.		
21Y2S2 Diploma Thesis Seminar 2	KZ	2
Methodology of writing final theses. Definition of materials and methods, approach to obtaining results, presentation and discussion of results, formu		
and presentation, basic statistics, validation of results and proposals. Achieving the objectives of the paper and evaluation of hypotheses tests. For - working with LaTeX and Word template.	mai and graphic de	sign of the paper
	1/7	0
15Y2SP Seminar on Political Philosophy Interpreting of philosophical texts, view of society, state and their system of government.	KZ	2
	KZ	2
17Y2SJ Network Timetabling on the Railway Timetable samples. Capacity allocation, technological intervals in railway operation. Rules and regulations of train paths, running times, time adds	1	1
circulation planning. Rules of train-diagramm creating. Timetables for more service-levels on the line. Construction slot conflicts between passenge		-
relations and waiting times, timetables for lines under construction.	and noight dallop	
16Y2ST Special Technologies in Transport and Telecommunications	KZ	2
Micro, nano and special technologies, electric arc and its applications, plasma technologies, dipping, beam technologies, electron beams technologies		
vehicles, laser and laser technologies, soldering, gluing, ultrasound, diffusion, friction and explosion technologies, micro stoves, gas.	gy in routon and	i mondang or
16Y2SV Special technologies in vehicle manufacturing	KZ	2
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.	5,	
18Y2SD Reliability and Diagnostics, Experimental Methods	KZ	2
The course is focused on theoretical background and practical experience in the field of reliability of constructions, implementation of diagnostic pro		
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	juage. Teaching to	speak well-vocal
organs, voice training. Language semantics, language syntactic and the pragmatic aspect. Creative thought and its oral and written expression. Prace	tice - cultivating the	skills of speech.
17Y2SK Urban and Regional Rail Transport System	KZ	2
Factors influencing transport demand, modal-split, traffic flows distribution on public transit network. Line network optimization and configuration. T	imetable designing	and evaluation
accenting integrated periodic timetable. Rolling stock circulation, staff and crew services optimization and their order to rosters. Framework legislation	1, non-barrier effect	s and preference
of public transport. Marketing.		
15Y2TS Technician and Contemporary Society	KZ	2
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	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?		

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 complex systems	. Semiconductor
technologies, printed circuits, assembly operations, interconnection and repairs technologiesusers and operators.		
14Y2TU Telecommunications Systems and Multimedia	KZ	2
New trends in telecommunications namely applied in transport solutions, identification and quantification of telecommunications networks and serv	ices performance bas	ed on redundant
architecture, provissioning of guaranteed service quality, two generations of the handover principles.		
16Y2TT Transportation and Building Technology and Equipment	KZ	2
Transportation and building technology and equipment. Transport of solid and mass material, soil and rock above all. Highway and underground c	onstructions. Transpo	ort surface
vehicles, description and construction features, delivered mass calculation, economy of operation. Technics and technology of underground const	ructions. Terrestrial ve	hicles operation
management methodology (ultrasound, laser, GPS, total stations).		
23Y2TP Creation of legal and technical regulations	KZ	2
Creation of legislation, structure of the bills of law, legal process, compatibility with the EC law, the creation of technical standards and their publi	cation, ÚNMZ (Czech	Office for
standards, metrology and testing) in Czech Republic, organizations CEN, CENELEC and ETSI, the notification process.		
12Y2UD Sustainable Transportation	KZ	2
Sustainable development, definition, history, legal framework. Sustainable development indicators. Sustainable transportation, definition, history,	legal framework. Prac	tical application
of sustainable development theory, case study.		
14Y2UI Artificial Intelligence	KZ	2
History of artificial intelligence, knowledge, its representation including frames, state space search, constraints, genetic algorithms, machine lear	ning.	
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, compre-	sors, expanders and c	other specialised
functional blocs and systems. Modelling of neurons. Grossberg's equations. Learning principles. Leyered and Hopfield's nets.		
18Y2UB Accident Biomechanics and Safety	KZ	2
Anatomy of man. Methods of Medical Diagnostics - RTG, CT, MRI, US. Dynamics of traumatic events. Factors influencing the severity of an accide	ent and the extent of a	traffic accident.
Injuries in road traffic. Pedestrian injuries. Injury in railway and air traffic accidents. Analysis of biomechanical events in accidents and their comp	utational modeling. Pi	inciples of
treatment and rehabilitation. Protective elements and safety measures in transport.		
23Y2VZ Leadership and Human Resource Development	KZ	2
Introduction to the study of human resources, human resources management, corporate goals, strategies, cultural and ethical aspects. Team ma	nagement, communio	
strategy and planning in human resources, ethics and corporate culture, cross-cultural differences. The labor code. Introduction into protocols.		_
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18Y2VC Computational Mechanics in Transportation	KZ	_
18Y2VC Computational Mechanics in Transportation Principle of virtual work and variational principles in FEM. Bar shaped, planar and three - dimensional structures in FEM. FEM in statics and in d	KZ	cation in teams,
	KZ ynamics of transporta	cation in teams,
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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-LA 20/21 Name of the group: Jazyk nav.1.-4.sem. (od) 20/21 - program LA 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 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
15J2F1	Language - French 1 Eva Rezlerová, Irena Veselková	Z	2	0P+2C+10B	Z	J
15J2I1	Language - Italian 1 Eva Rezlerová, Irena Veselková	Z	2	0P+2C+10B	Z	J
15J2N1	Language - German 1 Eva Rezlerová, Martina Navrátilová, Jana Štikarová	Z	2	0P+2C+10B	Z	J
15J2R1	Language - Russian 1 Marie Michlová, Eva Rezlerová	Z	2	0P+2C+10B	Z	J
15J2S1	Language - Spanish 1 Eva Rezlerová, Nina Hricsina Puškinová	Z	2	0P+2C+10B	Z	J

15J2F1 Language - French 1 Grammatical Structures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive technical text content, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical language of management. 15J211 Language - Italian 1 Grammatical Structures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive technical text content, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical language of management. 15J2N1 Language - German 1 Grammatical Structures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive technical text content, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical language of management. 15J2N1 Language - German 1 Grammatical Structures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive technical text content, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical language of management. 15J2R1 Language - Russian 1 Grammatical Structures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive technical text content, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical language of management. 15J2S1 Language - Spanish 1 Gramma	2 2 2 2 /k nav.14. and communic application, for	2 0P+2C+101 3 0P+2C+101 4 0P+2C+101 4 0P+2C+101 5 0P+2C+101 4 0P+2C+101 4 0P+2C+101 4 0P+2C+101 5 0P+2C+101 4 0P+2C+101 4 0P+2C+101 5 0P+2C+101 4 0P+2C+101 4 0P+2C+101 5 0P+2C+101 6	3 L 3 L 3 L 3 L 3 L 3 Z 3 Z 3 Z 3 Z 3 Z 3 Z 3 L 3	2 summarising and their use, 2 summarising and their use, 2
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15JBR2 Language - Russian 2 Grammatical Structures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive technical text content, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical language of management.			ical registers	and their use
15JBS2 Language - Spanish 2 Grammatical Structures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive technical text content, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical			Z	2

15JBF3	Language - French 3	7	2			
	Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement		_			
	municative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Wo	0 0	•			
features. Practice of oral and written presentation.						
15JBI3	Language - Italian 3	Z	2			
	Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement (-	_			
	municative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Wo					
	I and written presentation.	, i	,			
15JBN3	Language - German 3	Z	2			
Grammar and stylistics.	Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of	of language struct	ure knowledge			
and perceptive and corr	nmunicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Wo	rk with (professior	nal) text and its			
features. Practice of ora	I and written presentation.					
15JBR3	Language - Russian 3	Z	2			
Grammar and stylistics.	Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of	of language struct	ure knowledge			
and perceptive and corr	nmunicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Wo	rk with (professior	nal) text and its			
features. Practice of ora	I and written presentation.					
15JBS3	Language - Spanish 3	Z	2			
Grammar and stylistics.	Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of	of language struct	ure knowledge			
and perceptive and corr	municative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Wo	rk with (professior	nal) text and its			
features. Practice of ora	I and written presentation.					
15JBF4	Language - French 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 struct	ure knowledge			
	municative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Wo	rk with (professior	nal) text and its			
	I and written presentation.					
15JBI4	Language - Italian 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 struct	ure knowledge			
and perceptive and corr	municative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Wo	rk with (professior	nal) text and its			
	I 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 struct	ure knowledge			
and perceptive and corr	municative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Wo	rk with (professior	nal) text and its			
features. Practice of ora	I and written presentation.					
15JBR4	Language - Russian 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 struct	ure knowledge			
	municative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Wo	rk with (professior	nal) text and its			
features. Practice of ora	I and written presentation.					
15JBS4	Language - Spanish 4	ZK	2			
	Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement		-			
	municative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Wo	rk with (professior	nal) text and its			
features. Practice of ora	I and written presentation.					

List of courses of this pass:

Code	Name of the course	Completion	Credits
11DOPM	Transportation Planning and Modeling	Z,ZK	6
Basic steps and tool	Is used within four step model (trip generation, trip distribution, mode choice and trip distribution). Mobility and availability in urban a	reas, land use. Ne	w trends for
	transportation planning and modelling.		
11LIP2	Linear Programming 2	Z,ZK	3
Formulation of the ta	sk of integer programming, branch and bound method of numerical solution, problems about knapsack, travelling salesman, sets, loc	ation of stores and	post boxes,
	tasks of scheduling, heuristics, metaheuristics - genetic algorithms, ant colony optimization.		
11STS	Stochastic Systems	Z,ZK	4
The subject deals	with the problems of mathematical modelling of dynamical systems, estimation od these models and their utilization for prediction.	The results are illus	strated on
practical tran	sportation tasks. Mathematical theory roots from probability and mathematical statistics and they use the methods of the Bayesian	probabilistic appro	ach.
11TER	Game Theory and Optimal Decision-Making	ZK	2
Decision-making the	eory, utility theory. Explicit form games, backward induction. Normal form games. Antagonistic conflict, matrix games. Repeated gam	ies, evolutionary ga	ame theory.
Cooperative games	s without transferable payoffs. Cooperative games with transferable payoffs (imputation, core, Shapley value, nucleolus). Application	s of game theory a	above all in
	economics and transportation.		
11THRO	Queuing Theory	ZK	2
Discrete event proce	ess, definition, random distribution, and probability. Basic processes, process of revitalisation. Markov process, Markov models, Kenda	all classification, m	odel M/M/1,
models	s M/M/n. Non-markovian models, model M/C/n, models G/G/n. Models with continuous flow. Service net, examples of Petri net. Com	puter simulation.	
11XN1	Master Project 1	Z	2
11XN2	Master Project 2	Z	2
11XN3	Master Project 3	Z	1
	Master Project 4	Z	8
11XN4		_	-

11Y2FX Derivation of comp	Functions of Complex Variable plex function, holomorphic function, complex exponential series, integration, Cauchy theorem. Taylor series, Laurent series of comple	KZ ex variable function	2 A. Basics of
	Laplace and Z-transformation.		
11Y2LG	Logics of Engineer's Judgement	KZ	2
Logical structure o	f engineer's judgement, its propositional and predicative logical base. Solutions of logical tasks through the methods of truthfulness a	and semantic analy	ysis charts.
	Venn's diagram method. Logical basis for network design for the solution of technical tasks.		
11Y2PM	Programming in MATLAB	KZ	2
To explain the prin	nciple of modelling and simulation, description of Matlab environment and its settings, optimization and program code debugging, dat	a fitting and desigr	ning GUI in
	Matlab.		
12XN1	Master Project 1	Z	2
12XN2	Master Project 2	Z	2
12XN3	Master Project 3	Z	1
12XN4	Master Project 4	Z	8
12XNDM	Master Thesis for study programme LA	Z	18
12Y2BM	Safety on The Local Roads	KZ	2
1	ad accidents rates, social looses. Collision points, diagrams. Tools and methods for safer road transportation. Crossroads from the point		1
Classification of roa	right of way. Roundabouts. Pedestrian transport, cyclists. Traffic lights coordination. Transport control and regulation.	of view of salety.	sychologica
12Y2DU	Transport in the Context of Sustainability	KZ	2
1	inable transport, historical context, development in our country and in the world. Sustainable development and sustainable transport. D		1
	of transport. Examples of sustainable transport. Biofuels. Electromobility. New trends in transport. Practical examples.		
12Y2IS		KZ	2
1	Urban Networks d the position of UN as public and technical infrastructure / utillities, metodology of the UN master planning, of UN design, UN coordi		
The importance and	operation (basic technical infrastructure / utilities, metodology of the ON master plaining, of ON design, ON coordin operation (basic technical standards of UN, trenchless technologies for UN).	nation, on installa	lion and Or
		1/7	2
12Y2KE	Landscape Ecology	KZ	2
Landscape ecolo	gy. Landscape - definition, types, evolution. Landscape systems. Anthropogenic impacts on landscape. Methods using for evaluating and its potential applications in landscape ecology. Landscape planning.	ianuscape. Fraciai	geometry
40/0//0		1/7	<u> </u>
12Y2KS	Rail Transport in Settlements and Regions	KZ	2
	d development of railway infrastructure in Czech Republic. Arrangement of railway networks and junctions. Suburban railway service:	-	iration and
	ation of metro systems. Network configuration and operation of tram systems. Special thematic lectures (rail transport in selected cou	÷ .	
12Y2MD	Methods of Traffic Regulation and Prediction	KZ	2
Basic ways of traffic	c prognosis, traffic prognosis for large area (calculation of future traffic volumes, calculation of future traffic volumes between areas (ana		tic methods
	modal split, traffic distribution to road network). Shock wave in traffic flow. Service levels and their traffic volumes. Acceleration r		
12Y2MH	Measurement and Modeling of Traffic Noise	KZ	2
I neoretical introdu	uction to noise from traffic. Noise from rail transport. Noise from road traffic. Measurement and calculation of noise from rail traffic. Me	asurement and ca	iculation of
40)(0)41	noise from road traffic. Modelling of traffic noise in the CADNA A.	1/7	•
12Y2MI	Urban Engineering	KZ	2
	aching aming on utilities storage in area, coordination engineering activities in area, arrangement of public space, concepement of p		0
12Y2MZ	Modernization of Railway Lines and Stations	KZ	2
	ing. AGC and AGTC Agreement. AGC and AGTC railway network. Principles of modernization (conceptual papers, definitions of basic c characteristics on modernized railway lines. Superstructure and substructure on upgraded lines. Designing of railway stations. Bridge	-	
Hack geometrical	and realization of projects. Technical description of the tranzit corridors.	es and turnels. De	velopment
12Y2RD	Realization of Transport Buildings	KZ	2
	Types. Project Documentation Types. Building Code. Land Permission and Building Permission Process. Building Process. Project Ecc		
12Y2UD	Sustainable Transportation	KZ	2
Sustainable develo	pment, definition, history, legal framework. Sustainable development indicators. Sustainable transportation, definition, history, legal framework.	amework. Practica	гаррисацоп
40)(0)/T	of sustainable development theory, case study.	1/7	0
12Y2VT	High Speed Railways	KZ	2
	R) transport characteristics and position in transportation system. HSR vehicles types and characteristics and control-command and s		-
interoperability. No	on-adhesion HSR systems. City traffic service by HSR. HSR operating points. HSR worldwide network. HSR routing and traffic conce	puon. Specifics of	HOR LIACK
40)/07//	construction and geometrical characteristics.	1/7	0
12Y2ZK	Traffic Calming	KZ	2
Principles of traffi	ic calming. Solution of road network organization. Urban road layouts. Psychological and physical obstacles (measures of traffic calm	ing) and their com	idinations.
44010	Traffic calming measures in crossroads. Pedestrian zones. Residential streets and zones.	1/7	0
14BIG	Big Data dues Basis Brinsister of NaCOL Databases Key Database Volue Database	KZ	2
	duce. Basic Principles of Big Data Management. Comparison and Classification of NoSQL Databases. Key Database Value Database.		
Jalabases. Graph I	Databases-Basic Principles. Graph Databases-Advanced Aspects. Indexing. Interpretation. Advanced Principles Big Data Manageme computing. Data warehouses and Big Data. Cloud computing. Data warehouses and Big Data. Other Big Data issues.	THE NEWOQL Data	Jase. C1000
140100		1/7	0
14GISS	Geographical Information Systems	KZ	2
	n of saving format of space-oriented information land-survey and cartography minimum basic tasks of spatial operations principles of		1
14TEL	Telecommunications		3
	ew trends in telecommunications systems. Economical and legal aspects of telecommunications networks design and telecommunic		-
identification and qu	antification of hlererchical telecommunications networks and telecommunication services performance based on addopted performance provides two calls applied within transport and specifically logistic solutions	Jarameters, telecoi	nmunication
4.4.7.1.4	services typically applied within transport and specifically logistic solutions.	7	
14XN1	Master Project 1	Z	2
14XN2	Master Project 2	Z	2
14XN3	Master Project 3	Z	1
14/110			
14XN4	Master Project 4	Z	8
	Master Project 4 Master Thesis for study programme LA	Z Z	8 18

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Einersen hebe: nourse. Medeling rampeund holdes. Resultify of unurrentions, entrumations, Outputs of projects. 14/2CS Sensitivity of Systems KZ 2 2 Einersen with defend reliability. The impact of charging projects. KZ 2 14/2CB Comparison of the sensitivity of Systems KZ 2 14/2CB Intelligence of systems with defend reliability. The impact of charging projects meetings. KZ 2 14/2CB Intelligence of systems. The Postal Services KZ 2 14/2CB Compact Systems. The Postal Services KZ 2 14/2CB Compact Systems. The Postal Services KZ 2 14/2ZM Compact Systems. The postal Services KZ 2 14/2ZNI Copfiel Investment in Transportation and Telecontrumunications. KZ 2 14/2ZNI Copfiel Contentel Programming in Transportation and VII and services on diverse services. KZ 2 14/2ZPH COD Interface Programming Services. KZ 2 14/2ZPH COD Interface Programming Services. KZ 2 14/2ZPH COD Interface Programming Services. KZ 2 <t< td=""><td>142202</td><td></td><td>K7</td><td>2</td></t<>	142202		K7	2
Interpretation Intelligence Inteligence Intelligence Intelligence				
Design of systems with defined relatelity. The impact of ontaring parameters and data-generality of system setuity computing, definition of sensitivity functions and data addition and system. System setuitivy computing, definition of sensitivity functions and data addition and system. System setuitive computing, definition of sensitivity functions and data addition, optimizing togistics processes in the post. The space-tailoid of the rate limp/beneration of the carb part of the Carch part in parameters and in the framework of the practice of the carb parameters and the system. Specific sensitivity of the processing of and processing rate of the carb parameters and in the framework of the practice of the carb parameters and in the framework of the practice of the carb parameters and in the framework of the practice of the carb parameters and in the framework of the practice of the carb parameters and in the framework of the practice of the carb parameters and the system. Specific sensitivity of the processing of the data and the system. Specific sensitivity is a system with the processing of the procesing of the processing of the processing of the				ootmanig
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14/22IS Intelligent Systems in Postal Services KZ 2 14/22IS Comparison of the soul and services (ITS, and POST) + T, F, K, KH, (POS), application of the theorem to the theorem theorem theorem theorem theorem to the theorem theorem to the the	1		n of sensitivity fund	ctions and
The use of informiation systems in the postal services (ITS, and POST, T+ / ES, KMP, DS), application of information technology in the processing of mail processing notices in the search search of the Czeho post in operation both in lectures and in the framework of the postation search is the search of the czeho post in operation both in lectures and in the framework of the postation search is the search of the czeho post in the contractives and in the framework of the postation of the czeho post in operation both in lectures and in the framework of the postation of the czeho post in the contractive search in the framework of the postation of the czeho post in the contractive search in the framework of the postation of the czeho postation search is a search of the czeho postation and the czeho postation search is a search of the czeho postation of the czeho postation and the czeho postation of the czeho postation and the czeho postation and the czeho postation and the czeho postation and the czeho postation postation czeho postation postation czeho postation postation czeho postation czeho postation czeho postation and postation czeho postation czeho postation postation czeho postation czeho postation czeho postation czeho postation postation czeho postation postation czeho postation postation czeho postation czeho postation czeho postation czeho postation postation czeho postation czeho postation czeho postation czeho postation postation postation postation postation czeho postation postation		matrices and their usability in system design.		
estel network, operating logistics processes in the post. The appreciation of the mean index of the practice device, operation both in lectures and in the famework of the practice device. The spectra of the practice device d	14Y2IS	Intelligent Systems in Postal Services	KZ	2
data. 14Y2JI One Chip Controllers KZ 2 14Y2KI Capital Investment in Transportation and Telescommunications KZ 2 14Y2KI Capital Investment in Transportation and Telescommunications KZ 2 14Y2DI Object Oriented Programming Intransport KZ 2 2 14Y2DH CAD Interface Programming Intransport KZ 2 2 14Y2DH CAD Interface Programming Intransport KZ 2 2 14Y2DH CAD Interface Programming Intransport KZ 2 2 14Y2DP Process Information Systems in Transport KZ 2 2 14Y2PI Process Information Systems in Transportation on the transport with characte extent and vision and extex				
14Y2M One-Chip Controllers KZ 2 0x-chip commens architecture, messo convertes, cetts and their utilisation. Practical tasks are programmed with the aid of XMT criss. 14Y2RI Capital Investment in Transportation and Telecommunications KZ 2 14Y2RI Enancial masket, measurement elassion maintor - ongot term gata and anot for the sector and their utilisation. Practical tasks are programmed with the aid of XMT criss. KZ 2 14Y2DP Object Oriented Programming in Transport KZ 2 14Y2PH Chain Interdez Programming to Programming to any term and tasks. Profession (adapases, spread-sheets). KZ 2 14Y2PH Chain Interdez Programming to approximation System regimemation and transport table regimemation (XZ) with a regulation consoling and transport table regimemation and transport table regimemation (XZ) with a regulation consoling and transport table regimemation (XZ) with a regulation consoling and transport regimemation and transport regimemation (XZ) with a regulation consoling and transport regimemation and comparison (adapases, spread-sheets). 14/22PI 14Y2PI Processis Information Systems in Transportation (XZ) with a regulation (XZ)	postal network, opti		the framework of	the practica
One-obje controllers architecture, embedded peripherals (counters, times, converters, porty and their utilisation. Practical tasks are programmed with the aid of VIK chips. IAV 2K Practical market, investment to Transport can and Telecommunications KZ 2 14V2OP Object Oriented Programming in Transport KZ 2 2 2 14V2OP Object Oriented Programming in Transport KZ 2 2 14V2OP Object Oriented Programming Intransport KZ 2 2 14V2OP CAD Interface Programming Incuracys, Possibilities of proper objects (communications, states, and states, strateges, and states, and strateges, and stratege				-
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Financial markit, investment decision making - long term gaals and investment statelings. Jong term financing IX2 IX2 <td></td> <td></td> <td></td> <td></td>				
14Y2DP Object Oriented Programming in Transport KZ 2 Class, object, encapsulation, inheritance, polymorphils, methyding, stream, ecorption, repository, callections, virtual methods and disases. Poblem causes will be chosen from microscopic simulation and virtual life area. KZ 2 14V2PH CAD Interface Programming or companies methyding and system. Forgamming or cooperation with other applications creation in CAD and system. Forgamming or cooperation with other applications (diatabases, spread-cheets). KZ 2 14Y2PI Process Information Systems in Transportation KZ 2 2 05.0 (Service Oriented Achieteculue). KZ 2 <td>14Y2KI </td> <td></td> <td>KΖ</td> <td>2</td>	14Y2KI		KΖ	2
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htteduction and detailed usage of transport information systems (a, g. EFC, ePurse and transport infex/-in system for public transport with focus on architecture of the system mark SQN (Service Oriented Architecture). Information systems implementation and operations description in the Czech Republic (technical and process) included lectures and visits. 14Y2PJ C + Programming language. Class. Object. construction, destructor. Infettimane, abstract class. virtual methods, exceptions, streams, method and operation 2009 philosophy and basics of C++ programming language. Class. Object. Construction, destructor. Infettimane, abstract class. virtual methods, exceptions, streams, method and operation 2009 philosophy and basics of C++ programming language. Class. Object. Construction, destructor. Infettimane, abstract class. virtual methods, exceptions, streams, method and operation 2009 philosophy and basics of C++ programming language. Class. Object. Construction, destructor. Infettimate, abstract class. Virtual methods, exceptions, streams, method and operation 2009 philosophy and streams. The Class of	14Y2PI		KZ	2
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	language of management.		
15JBN3	Language - German 3	Z	2
-	istics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of la d communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work v		-
and perceptive and	features. Practice of oral and written presentation.	with (professional)	lext and its
15JBN4	Language - German 4	ZK	2
	istics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of la	1	
and perceptive and	d communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work w	with (professional)	text and its
	features. Practice of oral and written presentation.		
15JBR2	Language - Russian 2	Z	2
	tures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills,		- 1
	ent, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and tec language of management.	chilical registers an	u trieli use,
15JBR3	Language - Russian 3	Z	2
	stics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of la	anguage structure	
and perceptive and	d communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work w	with (professional)	text and its
	features. Practice of oral and written presentation.		
15JBR4	Language - Russian 4	ZK	2
-	stics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of la d communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work we have the second structure of the second structu		- 1
	features. Practice of oral and written presentation.	(protocolorida)	
15JBS2	Language - Spanish 2	Z	2
	tures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills,	feedback skills, su	ummarising
technical text conte	ent, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and tec	chnical registers an	d their use,
15 15 00	language of management.	_	
15JBS3 Grammar and styli	Language - Spanish 3 stics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of la	Z Z	2 knowledge
	d communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work v		
	features. Practice of oral and written presentation.	()	
15JBS4	Language - Spanish 4	ZK	2
Grammar and styli	stics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of la	anguage structure	
and perceptive and	d communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work w	with (professional)	text and its
15214	features. Practice of oral and written presentation.	7	
15XN1	Master Project 1	Z	2
15XN2 15XN3	Master Project 2	Z Z	2
15XN3 15XN4	Master Project 3 Master Project 4	Z	8
15XN4 15XNDM	Master Project 4 Master Thesis for study programme LA	Z	0 18
15Y2DN	Transportation Psychology in German Speaking Countries	KZ	2
	roader view of traffic problems with regard to the work with texts (Physics for drivers, abusing alcohol during driving, exhaustion, getti		
	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 moo	lern period.
	History of road intercections, bridges and traffic control, development of road signs.	47	
15Y2JH	Job Hunting in English es a practical guide to applying for a job in English. The interview process is mapped out, with the course including skills practise for	KZ	2
	is a practical guide to apprying for a job in English. The interview process is mapped out, with the course including skins practise for ing specifics for job-hunting in English. Students will also be introduced to the English vocabulary and phraseology necessary for a su	-	

		1/-	-
15Y2MS Sociological appr	Sociology for Managers roach to a corporation. Corporation and its organization. Corporation and its running - human role and communication. Corporation, its	KZ s culture and soci	2 al system.
	luman's work position in free market economy. Corporate directorship, work groups, adaptation, strife, different roles and positions in (SI 07010111
15Y2OF	Specialised French for Transportation and Telecommunications	KZ	2
15Y2OZ	ortation (public transport, railway, air, road and ship transport) and telecommunications terminology. Special focus on independent spe Health Protection in Transportation and EU	KZ	skilis. 2
	in transportation in CR in the past and present. Conditions before 1989 and after, current legislature, future prospects. Harmonisation members. Fundamental principles of health protection and support in selected EU countries.		. –
15Y2PD	Practical Spanish for Transportation	KZ	2
Development of	communication skills, training of correct written expression of formal character, basic technical vocabulary, cultural specifics of the Sp Terminology of transport and commerce.	oanish speaking c	ountries.
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 dining cars, work trains and other railroad equipment. Legislation.	from the world. T	he issues
15Y2PU	Publications and Their Creation	KZ	2
	bes. Footnotes and references. Exploration of facts. Quotations. Formal document layout. Working with information databases. Typogra editors - MS Word, Tex/LaTeX. Practical creation of simple scientific documents.		pograph
15Y2SP	Seminar on Political Philosophy Interpreting of philosophical texts, view of society, state and their system of government.	ΚZ	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 - o		
15Y2TS	Technician and Contemporary Society	KZ	2 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 F		
	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
16XN4	Master Project 4	Z	8
16XNDM	Master Thesis for study programme LA	Z	18
16Y2EE	Emissions and Ergonomics of Vehicles	KZ	2
-	onomy of vehicles and the influence on man and nature. National and international law related to the hygiene. Noise and vibrations - so ys of measuring, prevention, elimination. Exhausts - creation, measurement, reduction, non-regular fuels and drives. Ergonomy - sitting,		
	reach. Condition - heating, ventilation, air-conditioning, filtration, tiredom.	standing, control	, operatio
16Y2HP	Vehicle Hygiene	KZ	2
1			
Emissions and ergo	onomy of vehicles and the influence on man and nature. National and international law related to the hygiene. Noise and vibrations - so	ources, creation, p	propagati
	ys of measuring, prevention, elimination. Exhausts - creation, measurement, reduction, non-regular fuels and drives. Ergonomy - sitting,		
physical values, way	ys of measuring, prevention, elimination. Exhausts - creation, measurement, reduction, non-regular fuels and drives. Ergonomy - sitting, reach. Condition - heating, ventilation, air-conditioning, filtration, tiredom.	standing, control	, operatio
ohysical values, way 16Y2KV	ys of measuring, prevention, elimination. Exhausts - creation, measurement, reduction, non-regular fuels and drives. Ergonomy - sitting, reach. Condition - heating, ventilation, air-conditioning, filtration, tiredom. Car Body Design	standing, control	, operatio
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physical values, way 16Y2KV Personal cars b	ys of measuring, prevention, elimination. Exhausts - creation, measurement, reduction, non-regular fuels and drives. Ergonomy - sitting, reach. Condition - heating, ventilation, air-conditioning, filtration, tiredom. Car Body Design vody, high-load car body, bus car body, and motorcycle as a construction set. Principles of design, production, testing and operation. M	standing, control KZ laterials used for	, operation
physical values, way 16Y2KV Personal cars b construction. Active 16Y2MK	ys of measuring, prevention, elimination. Exhausts - creation, measurement, reduction, non-regular fuels and drives. Ergonomy - sitting, 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. M re and passive safety parts. Ergonomics, HMI, view out of the vehicle, operational extent, view behind the car. Conditioning tools, sign of the car body. Design and artistic design principles. Practical training. Quality Methods for Vehicles nt methods list, customer data acquisition and analysis of customer requirements, QFD, DFM, DFA, DFS. FMEA (Failure mode effect a	KZ KZ Iaterials used for aling function. Ae KZ	, operation 2 car body rodynamic 2
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hysical values, way 16Y2KV Personal cars b construction. Active 16Y2MK Quality management 16Y2PG Principles of creatio	ys of measuring, prevention, elimination. Exhausts - creation, measurement, reduction, non-regular fuels and drives. Ergonomy - sitting, 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. M re and passive safety parts. Ergonomics, HMI, view out of the vehicle, operational extent, view behind the car. Conditioning tools, sign of the car body. Design and artistic design principles. Practical training. Quality Methods for Vehicles nt methods list, customer data acquisition and analysis of customer requirements, QFD, DFM, DFA, DFS. FMEA (Failure mode effect a	KZ Iaterials used for aling function. Aer KZ analysis). Elemen KZ skills of work with	, operatio 2 car body rodynami 2 ts of para 2 professio
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17LSC	Logistics in Smart Cities	Z,ZK	6
Development of citi	es in time, city and region, mobility of city residents and movement of goods, sustainability as a concept, Smart Cities, city as a syste	m and its compone	ents, quality
of life, individual qua	ality of life, city "smartness" assessment, legislation in Smart Cities, Smart Cities transformation, last mile logistics, e-commerce, new ap	proaches in last m	ile logistics,
	last mile logisitcs in cities and in regions.		
17MADS	Management of Transport Systems	KZ	2
(Functions, processes and systems of management in transport, organisational structures, strategy, social responsibility, soft s		
17MID	Managerial Information Systems in Transport	Z,ZK	3
	n building IS of modern transport company. New EU legislation on cyber security and data protection puts transport organizations in the security of IS and possible sources of danger. The practical part deals with the process of building a new IS from the idea through		-
	budget, the basic documents for the possible assignment of the contract.		
17PPC	Carriage Processes	ZK	3
	Domestic carriages, international carriages, nomenclature of goods, pricing, contracting, responsibility for damages.		0
17RKOP	Management of commercial projects in transport	Z,ZK	3
	customer, activities, output - quality, time, money), project surroundings, location of the project (area analysis, traffic flows, authorizati		
structure of the pro	ject, sources of financing, customer-supplier relations, feasibility studies, sensitivity and multi-criteria analysis, financial and value an	alysis, manageme	nt of project
	changes.		
17RVIP	Public Project Management in Transport	Z,ZK	5
Basic concepts of p	roject management in the public sector, used procedures and standards of project management, organizational structure in project ma		ublic sector,
	project and pre-project preparation in transport and transport infrastructure and their specifics, feasibility study and CBA, project ev		
17TSI	Technology of Road Transport	KZ	2
	ational, technical, logistic and safety conditions of road transport, basic transport technologies, special transport, international agree		
parameters and sp	becialization of transport, handling and loading/unloading means, maintenance, service and repairs of road vehicles, safety of road transport unit	ansport and choice	of optimal
	transport unit. Technology of Pailway Transport	7 74	4
17TZND Track line capacity	Technology of Railway Transport assesment, model operational situation with a system running time between IPT-nodes, calculation of traction energy savings comp	Z,ZK ared with infrastrue	
	eting crossing station, solving of capacity problem and blocking time in relation to train protection system, robustness of timetable, s		
	paths, guidelines for centralised operational traffic control and management.		5
17TZOR	Inventory, Replacement and Scheduling Theory	Z,ZK	3
-	- introduction, static models, deterministic dynamic models, stochastic dynamic models. Replacement theory - introduction, models for	· .	
deteriorate with tim	e, models for replacement of items that fail completely. Scheduling theory - introduction, single machine scheduling problems, parallel	machine schedulin	g problems,
	flow shop scheduling problems and job shop scheduling problems.		
17XN1	Master Project 1	Z	2
17XN2	Master Project 2	Z	2
17XN3	Master Project 3	Z	1
17XN4	Master Project 4	Z	8
17XNDM	Master Thesis for study programme LA	Z	18
17Y2AM	Application of Marketing Tools in Transportation	KZ	2
Application of r	narketing principles in transport issues, marketing tools suitable for transport, case studies of the use of marketing in the sphere of p	ublic passenger tra	nsport.
17Y2FM	Financing in Urban Mass Transportation	KZ	2
	evelopment in Prague and other cities in the world. Building and operation of public tram, bus, and trolleybus networks. Underground	• .	
UMT types. UMT of	levelopment in small towns. Particularities of investment and operation financing of individual UMT types. Historic and present model	s of UMT financing	. Transport
	inspection and blind passengers. Tourism & amp; UMT. UMT typology & amp; choice of optimum financing.		-
17Y2MO	International Organisations in Transportation	KZ	2
International rela	tions in transport, UN, EEC UN, Intergovernmental organisations, EU Offices and Agencies, Conference of European Ministries of transport, organisations of public transport, Air-Rail, railways, roads, air, waterways, forwarding and postal services.	ansport, internatio	hai mode
17/2/18		K7	2
17Y2MS	Microsimulation of Railway Operation characteristics of simulation tools, creation of a simulation model of railway infrastructure, verification of a specific operational conce	KZ ot on the given infr	2 astructure.
	frastructure model and modification to the infrastructure to allow the implementation of the proposed operational concept. Stability tes	-	
	of sensitivity of the operational concept to delays.		
17Y2MT	Modern History for Engineering Students	KZ	2
	from the 19. century history. Geopolitical situation in Europe explained on the examples of Great Britain, Germany and Austrian Emp	ire. Rise of the Uni	ted States,
American Civil V	/ar, transatlantic transportation development. Imperial China: Late Qing dynasty. Selected chapters from the 20. century history: From	Bellé Epoque to C	Cold War.
	Czechoslovak historical myths.		
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//207	representative interest groups, residents, etc.).	V7	2
17Y2RZ	Control of Transport Processes transport system, decomposition, factors influencing control, quality diagnosis, methods of control, systems for decision making sup	KZ	2 on making
	transport system, decomposition, factors influencing control, quality diagnosis, methods of control, systems for decision making sup telematics.	POR, HOR OF DECISIC	a making,
17Y2SJ	Network Timetabling on the Railway	KZ	2
	es. Capacity allocation, technological intervals in railway operation. Rules and regulations of train paths, running times, time adds and		
	. Rules of train-diagramm creating. Timetables for more service-levels on the line. Construction slot conflicts between passenger- and		-
	relations and waiting times, timetables for lines under construction.		
17Y2SK	Urban and Regional Rail Transport System	KZ	2
	transport demand, modal-split, traffic flows distribution on public transit network. Line network optimization and configuration. Timeta		
accenting integrate	d periodic timetable. Rolling stock circulation, staff and crew services optimization and their order to rosters. Framework legislation, non	-barrier effects and	preference
402/114	of public transport. Marketing.		
18XN1 18XN2	Master Project 1	Z	2
188112	Master Project 2	Z	2

18XN3	Master Project 3	Z	1
18XN4	Master Project 4	Z	8
18XNDM	Master Thesis for study programme LA	Z	18
18Y2DC	Dynamics of Transport Routes and Vehicles	KZ	2
	alculations of more mass systems. Analysis of the forces acting between the vehicle and transport route. Creation of dynamic models o		-
Vibration of system	s with a finite number of degrees of freedom. Methods of stiffness constants and pliability constants. Fundamentals of vibration of bridg	es. Criteria for the	admissibility
40/057	of oscillation. Experimental methods in dynamics.	1/7	2
18Y2FZ	Physical foundation of materials' properties lattice defects influence on properties of materials, stiffness, plasticity, strength, fracture, fatigue, creep, corrosion, effects of environn	KZ	2
Atomistic models,	behavior are the main discussed topics.	lent and loading c	ni inalenais
18Y2MP	Finite Element Method And Its Application	KZ	2
	ical formulation of the Finite Element Method. Direct Stiffness Method used in structural mechanics. Evaluation of stiffness matrices f		
variational prin	ciples. Element formulation (bar and beam elements, CST, LST, quadrilateral, tetrahedral and brick elements). Natural coordinates, n	atural shape funct	ions and
	isoparametric representation. Numerical integration. Introduction to dynamics. FEM programming.		
18Y2OB	Optical Contactless Strain Measurements	KZ	2
	dents will get theoretical knowledge and practical experience in optical strain measurement methods. Students will get experience wit speed cameras for acquisition of suitable image data and with digital image correlation algorithms for displacements measurements		
18Y2SD	Reliability and Diagnostics, Experimental Methods	KZ	2
	sed on theoretical background and practical experience in the field of reliability of constructions, implementation of diagnostic procedu		1
	ination of residual life of structures. For this purpose, non-destructive methods of experimental mechanics (e.g. strain-gauge measure		
	optical methods, including electron microscopy, will be used.	•	
18Y2UB	Accident Biomechanics and Safety	KZ	2
	lethods of Medical Diagnostics - RTG, CT, MRI, US. Dynamics of traumatic events. Factors influencing the severity of an accident and		
Injuries in road t	raffic. Pedestrian injuries. Injury in railway and air traffic accidents. Analysis of biomechanical events in accidents and their computati	onal modeling. Pri	nciples of
403/03/0	treatment and rehabilitation. Protective elements and safety measures in transport.	1/7	0
18Y2VC	Computational Mechanics in Transportation work and variational principles in FEM. Bar shaped, planar and three - dimensional structures in FEM. FEM in statics and in dynamic	KZ	2
-	elastoplastic and viscoelastic material. FEM in problems of biomechanics. Numerical analysis of structural parts with programme AN	-	-
20XN1	Master Project 1	Z	2
20XN2	Master Project 2	Z	2
20XN3	Master Project 3	Z	1
20XN4	Master Project 4	Z	8
20XNDM	Master Thesis for study programme LA	Z	18
20Y2PR	Prediction of time series	KZ	2
	e series prediction, meaning of prediction, basics of quantitative prediction. Methods for predictive quality evaluation, descriptive statisti		1
prediction, predic	tion for general formula of loss function. Calculation and programming environment R. Regression models, basics of linear regression	n, simple regressio	on. Multiple
	regression, statistical tests of linear dependence, selection of input variables.		
20Y2TE	Technology of Electronic Systems jies for an effective operation of electronically controlled systems. Maintaining, meassuring, optimization of safety and reliability of cor	KZ	2
	technologies, printed circuits, assembly operations, interconnection and repairs technologiesusers and operators.	npiex systems. Se	miconducio
20Y2UA	Artificial Neural Networks, Realization and Applications	KZ	2
	etworks. Basic principles. Comparing the structure of a natural and an artificial neuron. Neural classificators, predictors, compresors, ex		-
	functional blocs and systems. Modelling of neurons. Grossberg's equations. Learning principles. Leyered and Hopfield's net	-	
21XN1	Master Project 1	Z	2
21XN2	Master Project 2	Z	2
21XN3	Master Project 3	Z	1
21XN4	Master Project 4	Z	8
21XNDM	Master Thesis for study programme LA	Z	18
21Y2BS	Unmanned aircraft systems 2	KZ	2
Modern trends in u	, nmanned aircraft development. Use of unmanned aircraft. Managerial activities related to the operation of unmanned aircraft. Flights be	yond the applicabl	e legislation.
21Y2LS	Air Traffic Services	KZ	2
Airspace structure	in Czech Republic and other countries. Introduction and description of ATS units in Czech Republic. Practical examples of TWR, APP		istory of ATS
0.01/01/0	at USA and Czechoslovakia. ATS - Model of financing. Training Systém of Air Traffic Controllers. Future development of ATS		
21Y2MS	Aerospace Engineering Simulation and Modelling		2
	gned as a set of exemplary tasks and problems based on practical aviation issues. The university degree mathematic skills and softw essful figuring out. Both simple tasks, where students create own model themselves (e.g. in Matlab), and more complicated problems		-
	tools will be applied.		a. acreiopeu
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 term		
	conditions. Firefighting units. Protection against unlawful interference. Local transport connection. Environmental protection	1.	
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	-	
aviation. Executi	ion of state administration and state supervision in matters of civil aviation, in accordance with Act No. 49/1997 Col. Facilitation. Resp	onsibilities of air c	arriers for
01//004	passengers, luggage and cargo. The safe transport of dangerous goods.	V7	0
21Y2S1	Diploma Thesis Seminar 1 es (review, applied research, basic research, work dealing with design proposals). Working with citation sources (citation databases,	KZ	2
Types of final tiles	current state (writing standards). Definition of the limitations of the current state. Introduction to the methodology of writing final t		aiyəiə ur tire

1	Diploma Thesis Seminar 2	KZ	2
Methodology of writin	g final theses. Definition of materials and methods, approach to obtaining results, presentation and discussion of results, formulation		ata collectio
ind presentation, bas	ic statistics, validation of results and proposals. Achieving the objectives of the paper and evaluation of hypotheses tests. Formal ar	nd graphic design	of the pap
	 working with LaTeX and Word template. 		
22XN1	Master Project 1	Z	2
22XN2	Master Project 2	Z	2
22XN3	Master Project 3	Z	1
22XN4	Master Project 4	Z	8
22XNDM	Master Thesis for study programme LA	Z	18
22Y2PS	Traffic Accidents Computer Simulation and Analysis	KZ	2
Vehicle dynamics sir	nulation, multi body systems and vehicle active safety systems, vehicle slipping, external influence on virtual model, crash tests ev	aluation, single-tr	ack vehicle
	vehicle passangers, pedestrian, traffic accident simulation and analysis.		
23XN1	Master Project 1	Z	2
23XN2	Master Project 2	Z	2
23XN3	Master Project 3	Z	1
23XN4	Master Project 4	Z	8
23XNDM	Master Thesis for study programme LA	Z	18
23Y2BP	Security Class	KZ	2
The most prevalent	topics include data management, data and text mining applications, terrorism informatics, deception and intent detection, terrorist	and criminal soci	al network
	analysis, crime analysis, cyber-infrastructure protection, transportation infrastructure security, and information assurance, among	others.	
23Y2FB	Physics for Security Branches	KZ	2
Grounds of physic	s of substances and phenomena at extreme conditions. Grounds of rheology. Physics of Earth's interior. Geophysics. Physics of a	mosphere. Applic	cations in
	dengineering branches directed to safety.		
23Y2MA	Risk Analysis and Management	KZ	2
Concept of risks and	Distribution of fighting of home of the second since and since Mathematic stations and sold and the second station of the second state of the seco		
	terms. Risk sources, definition of hazard, impacts and risks. Methods for identification, analysis, assessment and management of r	isks. Risk engine	ering targe
	g practice. Methods, tools and techniques for risk engineering. System of systems risk. Application of strategic and system approa	isks. Risk engine	ering targe
and good engineerir	g practice. Methods, tools and techniques for risk engineering. System of systems risk. Application of strategic and system approa development. Territorial, emergency and crisis planning. Human factor - its role.	isks. Risk engine ch for benefit of s	ering targe
and good engineerir	g practice. Methods, tools and techniques for risk engineering. System of systems risk. Application of strategic and system approa development. Territorial, emergency and crisis planning. Human factor - its role. Practical vehicle dynamics	isks. Risk engine ch for benefit of s KZ	ering targe ecurity and
and good engineerir	g practice. Methods, tools and techniques for risk engineering. System of systems risk. Application of strategic and system approa development. Territorial, emergency and crisis planning. Human factor - its role. Practical vehicle dynamics mamics. Multibody vehicle modeling. Modeling with IPG CarMaker. Standard and development stage experiments with road vehicles	isks. Risk engine ch for benefit of s KZ	ering targe ecurity and
and good engineerir 23Y2PD	g practice. Methods, tools and techniques for risk engineering. System of systems risk. Application of strategic and system approa development. Territorial, emergency and crisis planning. Human factor - its role. Practical vehicle dynamics mamics. Multibody vehicle modeling. Modeling with IPG CarMaker. Standard and development stage experiments with road vehicles measurements with passenger vehicles. Experiment evaluation.	isks. Risk engine ch for benefit of s KZ s. Realization of e	ering targe ecurity and 2 experiment
and good engineerir 23Y2PD Theory of vehicle dyn 23Y2TP	g practice. Methods, tools and techniques for risk engineering. System of systems risk. Application of strategic and system approa development. Territorial, emergency and crisis planning. Human factor - its role. Practical vehicle dynamics mamics. Multibody vehicle modeling. Modeling with IPG CarMaker. Standard and development stage experiments with road vehicles measurements with passenger vehicles. Experiment evaluation. Creation of legal and technical regulations	isks. Risk engine ch for benefit of s KZ s. Realization of e KZ	ering targe security and 2 experiment
and good engineerir 23Y2PD Theory of vehicle dyn 23Y2TP	g practice. Methods, tools and techniques for risk engineering. System of systems risk. Application of strategic and system approa development. Territorial, emergency and crisis planning. Human factor - its role. Practical vehicle dynamics mamics. Multibody vehicle modeling. Modeling with IPG CarMaker. Standard and development stage experiments with road vehicles measurements with passenger vehicles. Experiment evaluation. Creation of legal and technical regulations ion, structure of the bills of law, legal process, compatibility with the EC law, the creation of technical standards and their publication	isks. Risk engine ch for benefit of s KZ s. Realization of e KZ	ering targe security an 2 experiment 2
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