## Study plan

# Name of study plan: Master Full-Time LA from 2024/25

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: 77

Elective courses credits: 43 Sum of credits in the plan: 120

Note on the plan:

Name of the block: Compulsory courses Minimal number of credits of the block: 50

The role of the block: Z

Code of the group: 1S-NP-LA-24/25

Name of the group: 1st Sem. Master Full-Time LA from 2024/25

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:

Note on the group	<b>γ</b> .					
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
11LIP2	Linear Programming 2 Pavla Pecherková, Ivan Nagy, Karel Je men Pavla Pecherková Ivan Nagy (Gar.)	Z,ZK	3	2P+1C+10B	s z	Z
11TER	Game Theory and Optimal Decision-Making Magdalena Hykšová Magdalena Hykšová (Gar.)	ZK	2	2P+0C+8B	B Z	Z
17LSC	Logistics in Smart Cities Tomáš Horák Tomáš Horák (Gar.)	Z,ZK	6	2P+2C+14B	B Z	Z
17TZND	Technology of Railway Transport Daniel Drnec, Michal Drábek, Zden k Michl, Vít Janoš, Rudolf Vávra Vít Janoš (Gar.)	Z,ZK	4	2P+2C	Z	Z
11TZOR	Inventory, Replacement and Scheduling Theory Karel Je men, Dušan Teichmann Dušan Teichmann Dušan Teichmann (Gar.)	Z,ZK	3	2P+1C	Z	Z
14GISS	Geographical Information Systems Vít Fábera, František Kekula, Tomáš Janata, Zuzana Purkrábková Tomáš Janata Tomáš Janata (Gar.)	KZ	2	0P+2C+8B	B Z	Z
17MADS	Management of Transport Systems Roman Št rba Roman Št rba (Gar.)	KZ	2	2P+0C+8B	B Z	Z
17TSI	Technology of Road Transport Daniel Drnec, Michal Drábek, Vít Janoš, Rudolf Vávra Michal Drábek (Gar.)	KZ	2	2P+0C+8B	B Z	Z
15J2A1	Language - English 1 Jitka He manová, Dana Boušová, Lenka Monková, Peter Morpuss, Markéta Vojanová, Marie Michlová, Markéta Musilová, Jan Feit, Eva Rezlerová	Z	2	0P+2C+10B	s z	Z

#### Characteristics of the courses of this group of Study Plan: Code=1S-NP-LA-24/25 Name=1st Sem. Master Full-Time LA from 2024/25

11LIP2	Linear Programming 2	Z,ZK	3				
Formulation of the task	of integer programming, branch and bound method of numerical solution, problems about knapsack, travelling salesman, sets,	location of stores	and post boxes,				
tasks of scheduling, he	uristics, 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 o	james, evolutiona	ry game theory.				
Cooperative games with	hout transferable payoffs. Cooperative games with transferable payoffs (imputation, core, Shapley value, nucleolus). Applicati	ons of game theo	ry above all in				
economics and transportation.							
17LSC	Logistics in Smart Cities	Z,ZK	6				

Development of cities in time, city and region, mobility of city residents and movement of goods, sustainability as a concept, Smart Cities, city as a system and its components, quality of life, individual quality of life, city "smartness" assessment, legislation in Smart Cities, Smart Cities transformation, last mile logistics, e-commerce, new approaches in last mile logistics, last mile logisitics in cities and in regions.

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 com	pared with infras	tructure 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.		
11TZOR	Inventory, Replacement and Scheduling Theory	Z,ZK	3
Inventory theory - introd	uction, static models, deterministic dynamic models, stochastic dynamic models. Replacement theory - introduction, models f	or replacement of	of items that
deteriorate with time, mo	odels for replacement of items that fail completely. Scheduling theory - introduction, single machine scheduling problems, parall	el machine sche	duling problems,
flow shop scheduling pro	oblems and job shop scheduling problems.		
14GISS	Geographical Information Systems	KZ	2
Construction of saving for	ormat of space-oriented information land-survey and cartography minimum basic tasks of spatial operations principles of terrii	torial identification	n
17MADS	Management of Transport Systems	KZ	2
Functions, processes ar	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 agreer	nents, requireme	ents on the
parameters and speciali	zation of transport, handling and loading/unloading means, maintenance, service and repairs of road vehicles, safety of road	transport and ch	oice 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.	'	

Code of the group: 2S-NP-LA-24/25

Name of the group: 2nd Sem. Master Full-Time LA from 2024/25

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 g	Ji Cap.					
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 <b>Šárka Vorá ová</b> Šárka Vorá ová (Gar.)	ZK	2	2P+0C+8B	L	Z
11KMD	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 <b>Jana Kaliková</b> Jana Kaliková (Gar.)	KZ	2	0P+2C+8B	L	Z
14TEL	<b>Telecommunications</b> Tomáš Zelinka, Radek Holý, Zden k Lokaj, Martin Šrotý <b>Tomáš Zelinka</b> Tomáš Zelinka (Gar.)	KZ	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  Jitka He manová, Dana Boušová, Lenka Monková, Peter Morpuss, Markéta Vojanová, Marie Michlová, Markéta Musilová, Jan Feit, Eva Rezlerová,	Z	2	0P+2C+10B	L	Z

Characteristics of the courses of this group of Study Plan: Code=2S-NP-LA-24/25 Name=2nd Sem. Master Full-Time LA from 2024/25

11THRO
Queuing Theory
ZK
2

Discrete event process, definition, random distribution, and probability. Basic processes, process of revitalisation. Markov process, Markov models, Kendall classification, 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.

11KMD 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 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 heuristics (metaheuristics) 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 front of new challenges. The

IT and their use in building IS of modern transport company. New EU legislation on cyber security and data protection puts transport organizations in front of new challenges. 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 the timetable 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 procedure), organizational

structure of the project, sources of financing, customer-supplier relations, feasibility studies, sensitivity and multi-criteria analysis, financial and value analysis, management 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 Databases. Document

Databases. Graph Databases-Basic Principles. Graph Databases-Advanced Aspects. Indexing. Interpretation. Advanced Principles Big Data Management. NewSQL Database. Cloud computing. Data warehouses and Big Data. Cloud computing. Data warehouses and Big Data issues.

14TEL Telecommunications KZ 3
Status quo and new trends in telecommunications systems. Economical and legal aspects of telecommunications networks design and telecommunications services provisioning,

identification and quantification of hiererchical telecommunications networks and telecommunication services performance based on addopted performance parameters, telecommunication services typically applied within transport and specifically logistic solutions.

17DOCH Travel Behavior

Investigation of causal effects in travel behavior research (quasi-experimental and experimental approaches). Data collection (theory of measurement; design of research instrument and data collection). Analysis and interpretation of data (advanced regression models; issues of analysis and interpretation of results: effect size, practical vs. statistical significance).

Analysis and interpr. of data (surveys, choice exp., panel. data).

15JBA2 Language - English 2

Presentation Skills - expert technical discourse and style; Analysis of expert texts and their production; Preparation for overseas work engagement.

Name of the block: Semestrální projekt Minimal number of credits of the block: 13

The role of the block: ZP

Code of the group: X2-NP-LA-20/21

Name of the group: Research Groups Master Full-Time LA from 2020/21 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 Daniel Chlebek, Jakub Zají ek, Zuzana arská, Dagmar Ko árková, Kristýna Neubergová, Martin Jacura, Jan Kruntorád, Ond ej Trešl, David Vodák,	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 Josef Mik, P emysl Toman	Z	2	0P+2C+4B	Z	ZP
17XN1	Master Project 1 Karel Je men, Tomáš Horák, Eliška Glaserová, Michal Drábek, Zden k Michl, Vít Janoš, Rudolf Vávra, Dušan Teichmann, Denisa Mocková,	Z	2	0P+2C+4B	Z	ZP
18XN1	Master Project 1 Daniel Kytý, Václav Rada, Nela Kr má ová	Z	2	0P+2C+4B	Z	ZP
20XN1	Master Project 1 Milan Sliacky, Ji í R ži ka	Z	2	0P+2C+4B	Z	ZP
21XN1	Master Project 1 Milan Kameník, Stanislav Pleninger, Stanislav Kušmírek, Jakub Trýb, Iveta Kameníková, Jakub Kraus, Andrej Lališ, Slobodan Stoji , Terézia Pilmannová,	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 Daniel Chlebek, Jakub Zají ek, Zuzana arská, Dagmar Ko árková, Kristýna Neubergová, Martin Jacura, Jan Kruntorád, Ond ej Trešl, David Vodák,	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 Josef Mik, P emysl Toman	Z	2	0P+2C+8B	L	ZP
17XN2	Master Project 2 Tomáš Horák, Michal Drábek, Zden k Michl, Vít Janoš, Rudolf Vávra, Dušan Teichmann, Roman Št rba, Denisa Mocková, Václav Baroch, Vít Janoš (Gar.)	Z	2	0P+2C+8B	L	ZP
18XN2	Master Project 2 Nela Kr má ová, Petr Koudelka Daniel Kytý	Z	2	0P+2C+8B	L	ZP
20XN2	Master Project 2 Ji í R ži ka, Patrik Horaž ovský	Z	2	0P+2C+8B	L	ZP
21XN2	Master Project 2 Jakub Trýb, Jakub Kraus, Andrej Lališ, Slobodan Stoji , Terézia Pilmannová, Jakub Hospodka, Lenka Hanáková, Peter Vittek, Lukáš Popek,	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 Jakub Zají ek, Zuzana arská, Dagmar Ko árková, Martin Jacura, Jan Kruntorád, Ond ej Trešl, David Vodák, Tomáš Javo ík, Pavel Purkart,	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 Josef Mík, P emysl Toman, Michal Cenkner, Josef Svoboda	Z	1	0P+4C	Z	ZP
17XN3	Master Project 3 Karel Je men, Tomáš Horák, Eliška Glaserová, Michal Drábek, Zden k Michl, Vít Janoš, Rudolf Vávra, Dušan Teichmann, Denisa Mocková,	Z	1	0P+4C	Z	ZP
18XN3	Master Project 3 Daniel Kytý, Nela Kr má ová, Tomáš Fíla	Z	1	0P+4C	Z	ZP
20XN3	Master Project 3 Ji í R ži ka, Patrik Horaž ovský	Z	1	0P+4C	Z	ZP
21XN3	Master Project 3 Terézia Pilmannová, Miloš Strouhal, Ota Hajzler	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  Jakub Zají ek, Zuzana arská, Dagmar Ko árková, Kristýna Neubergová, Martin Jacura, Jan Kruntorád, Ond ej Trešl, David Vodák, Tomáš Javo ík,	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 Mík, Michal Cenkner	Z	8	0P+4C	L	ZP
17XN4	Master Project 4 Tomáš Horák, Michal Drábek, Zden k Michl, Vít Janoš, Rudolf Vávra, Dušan Teichmann, Roman Št rba, Denisa Mocková, Václav Baroch, Václav Baroch (Gar.)	Z	8	0P+4C	L	ZP
18XN4	Master Project 4 Petr Koudelka, Tomáš Fíla	Z	8	0P+4C	L	ZP
20XN4	Master Project 4 Ji í R ži ka, Patrik Horaž ovský Patrik Horaž ovský	Z	8	0P+4C	L	ZP
21XN4	Master Project 4 Stanislav Pleninger, Iveta Kameníková, Slobodan Stoji , Terézia Pilmannová, Vladimír Socha, Peter Vittek, Jakub Steiner, Miloš Strouhal, Ota Hajzler,	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=X2-NP-LA-20/21 Name=Research Groups Master Full-Time LA from 2020/21

2020/21			
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

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-NP-LA-24/25

Name of the group: Comp. Sel. Courses Master Full-Time LA from 2024/25 Requirement credits in the group: In this group you have to gain 6 credits

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

Credits in the group: 6 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members)  Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
00Y2XN	Active participation in a scientific project, workshop, short-term trip abroad  Patrik Horaž ovský Patrik Horaž ovský (Gar.)	KZ	2	2P+0C		PV
17Y2AM	Application of Marketing Tools in Transportation	KZ	2	2P+0C	L	PV
12Y2BM	Safety on The Local Roads	KZ	2	2P+0C	Z	PV
23Y2BP	Security Class	KZ	2	2P+0C	Z	PV
21Y2BS	Unmanned aircraft systems 2 Tomáš Tlu ho, Michal erný Tomáš Tlu ho	KZ	2	2P+0C+8E	3 Z	PV
14Y2C1	CATIA I	KZ	2	2P+0C	L	PV
14Y2C2	CATIA II	KZ	2	2P+0C	Z	PV
14Y2CS	Sensitivity of Systems	KZ	2	2P+0C	L	PV
21Y2CR	CRM Ladislav Capoušek	KZ	2	2P+0C+8E	L L	PV
12Y2DU	Transport in the Context of Sustainability Kristýna Neubergová	KZ	2	2P+0C	L	PV
15Y2DN	Transportation Psychology in German Speaking Countries	KZ	2	2P+0C	L	PV
18Y2DC	Dynamics of Transport Routes and Vehicles	KZ	2	2P+0C	Z	PV
18Y2EM	Electron microscopy Nela Kr má ová	KZ	2	2P+0C	L	PV
16Y2EE	Emissions and Ergonomics of Vehicles	KZ	2	2P+0C	L	PV
17Y2FM	Financing in Urban Mass Transportation Václav Baroch, Petra Skolilová, Olga Mertlová Petra Skolilová (Gar.)	KZ	2	2P+0C	Z	PV
21Y2FM	Aviation Company Financial Management Radoslav Zozu ák Radoslav Zozu ák	KZ	2	2P+0C+8E	B Z	PV
23Y2FB	Physics for Security Branches	KZ	2	2P+0C	Z	PV
18Y2FZ	Physical foundation of materials' properties	KZ	2	2P+0C	L	PV
15Y2HS	Road Transport History Zuzana arská	KZ	2	2P+0C	L	PV
16Y2HP	Vehicle Hygiene	KZ	2	2P+0C	L	PV

14Y2IS	Intelligent Systems in Postal Services	KZ	2	2P+0C	L	PV
12Y2IS	Urban Networks	KZ	2	2P+0C	Z	PV
14Y2JM	One-Chip Controllers	KZ	2	2P+0C	Z	PV
15Y2JH	Job Hunting in English Lenka Monková	KZ	2	2P+0C	Z	PV
14Y2KI	Capital Investment in Transportation and Telecommunications	KZ	2	2P+0C	L	PV
16Y2KV	Car Body Design	KZ	2	2P+0C	L	PV
12Y2KS	Rail Transport in Settlements and Regions Miroslav Veliš	KZ	2	2P+0C	Z	PV
12Y2KE	Landscape Ecology Dagmar Ko árková, Kristýna Neubergová	KZ	2	2P+0C	Z	PV
21Y2LS	Air Traffic Services	KZ	2	2P+0C+8B	L	PV
11Y2LG	Logics of Engineer's Judgement  Magdalena Hykšová Magdalena Hykšová (Gar.)	KZ	2	2P+0C	L	PV
23Y2MA	Risk Analysis and Management	KZ	2	2P+0C	L	PV
21Y2MQ	Quality Management Luboš Socha	KZ	2	2P+0C+8B	L	PV
15Y2MS	Sociology for Managers  Martina Śmidochová	KZ	2	2P+0C	Z	PV
21Y2MK	Marketing of Air Transport Peter Vittek Peter Vittek	KZ	2	2P+0C+8B	Z	PV
12Y2MH	Measurement and Modeling of Traffic Noise	KZ	2	2P+0C	L	PV
12Y2MI	Urban Engineering	KZ	2	2P+0C	L	PV
18Y2MP	Finite Element Method And Its Application  Ján Kopa ka, Radek Kolman	KZ	2	2P+0C	L	PV
16Y2MK	Quality Methods for Vehicles	KZ	2	2P+0C	L	PV
12Y2MD	Methods of Traffic Regulation and Prediction Zuzana arská	KZ	2	2P+0C	L	PV
17Y2MO	International Organisations in Transportation	KZ	2	2P+0C	L	PV
17Y2MS	Microsimulation of Railway Operation  Zden k Michl Zden k Michl (Gar.)	KZ	2	2P+0C	Z	PV
17Y2MD	Modelling and optimization on transport networks	KZ	2	2P+0C	Z	PV
21Y2MC	CNS Systems Modelling Stanislav Pleninger Stanislav Pleninger	KZ	2	2P+0C+8B	Z	PV
17Y2MT	Modern History for Engineering Students Petra Skolilová Petra Skolilová (Gar.)	KZ	2	2P+0C	Z	PV
12Y2MZ	Modernization of Railway Lines and Stations  Dagmar Ko árková, Miroslav Veliš	KZ	2	2P+0C	L	PV
12Y2NS	Shared Space Design Vojt ch Novotný, Karel Hájek	KZ	2	2P+0C	Z	PV
14Y2OP	Object Oriented Programming in Transport	KZ	2	2P+0C	L	PV
15Y2OZ	Health Protection in Transportation and EU	KZ	2	2P+0C	Z	PV
15Y2OF	Specialised French for Transportation and Telecommunications	KZ	2	2P+0C	Z	PV
18Y2OB	Optical Contactless Strain Measurements	KZ	2	2P+0C	L	PV
16Y2PG	Computer Graphics and Virtual Reality Stanislav Novotný, Petr Bouchner	KZ	2	2P+0C	Z	PV
22Y2PS	Traffic Accidents Computer Simulation and Analysis	KZ	2	2P+0C	L	PV
15Y2PT	Food in Transportation	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
12Y2PV	Public transport priority Vojt ch Novotný Vojt ch Novotný (Gar.)	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
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
15Y2SP	Seminar on Political Philosophy  Marek Tome ek	KZ	2	2P+0C	Z	PV
17Y2SJ	Network Timetabling on the Railway Zden k Michl, Vít Janoš, Rudolf Vávra 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  Daniel Kytý Daniel Kytý Daniel Kytý (Gar.)	KZ	2	2P+0C	Z	PV
15Y2SR	Stylistics and Rhetorics	KZ	2	2P+0C	Z	PV
15Y2TS	Technician and Contemporary Society  Jan Feit	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
14Y2UI	Artificial Intelligence	KZ	2	2P+0C+8B	Z,L	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
15Y2ZA	Basic Principles of English Academic Writing and Abstract in English  Dana Boušová	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-NP-LA-24/25 Name=Comp. Sel. Courses Master Full-Time LA from 2024/25

2024/23			
00Y2XN	Active participation in a scientific project, workshop, short-term trip abroad	KZ	2
17Y2AM	Application of Marketing Tools in Transportation	KZ	2
Application of market	ting principles in transport issues, marketing tools suitable for transport, case studies of the use of marketing in the sphe	ere of public passenger tran	nsport.
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 fro	m the point of view of safety	. Psychologica
right of way. Rounda	bouts. Pedestrian transport, cyclists. Traffic lights coordination. Transport control and regulation.		
23Y2BP	Security Class	KZ	2
The most prevalent	opics include data management, data and text mining applications, terrorism informatics, deception and intent detection	, terrorist and criminal soci	al network
analysis, crime anal	vsis, cyber-infrastructure protection, transportation infrastructure security, and information assurance, among others.		
21Y2BS	Unmanned aircraft systems 2	KZ	2
Modern trends in un	manned aircraft development. Use of unmanned aircraft. Managerial activities related to the operation of unmanned aircraft	t. Flights beyond the applica	able legislation
14Y2C1	CATIA I	KZ	2
undaments of work	ing with CATIA, making basic parts and bodies. Making 2D sketches, geometric stucture, parametric linking, making ada	aptive models from 2D sket	ches. Import
and export of made	parts and bodies. Making assemble and visualization.		
14Y2C2	CATIA II	KZ	2
Extension of basic of	ourse. Modeling compound bodies. Possibility of enumeration, comunications with other systems. Surface x solid bodies.	. Kinematic mechanism. Pro	oject making
and project coopera	ion. Outputs of projects.		
14Y2CS	Sensitivity of Systems	KZ	2
Design of systems v	with defined reliability. The impact of changing parameters and subsystems within a system. System sensitivity computing	ر, definition of sensitivity fur	nctions and
matrices and their u	sability in system design.		
21Y2CR	CRM	KZ	2
ntroduction to CRM	. Analysis of air accidents. Human factor. Error. Historical development of CRM. Health and fitness. Stress and its effect of	on the human body. Fatigue	Sleep &
Vigilance. Informatio	n Processing. Situational Awareness. Workload Management. Decision Making. Communication. Leadership & Decision Making. Communication & Decision &	n Behaviour. Automation.	
I2Y2DU	Transport in the Context of Sustainability	KZ	2
Definitions of sustain	nable transport, historical context, development in our country and in the world. Sustainable development and sustainable	transport. Demand for trans	sport. Inductio
of transport. Example	es of sustainable transport. Biofuels. Electromobility. New trends in transport. Practical examples.		
15Y2DN	Transportation Psychology in German Speaking Countries	KZ	2
ntroduction into bro	ader view of traffic problems with regard to the work with texts (Physics for drivers, abusing alcohol during driving, exhau	stion, getting of driving lice	nce, children
n traffic, traffic accid	ent, traffic psychology in the internet etc.)		
18Y2DC	Dynamics of Transport Routes and Vehicles	KZ	2
Basic theory and cal	culations of more mass systems. Analysis of the forces acting between the vehicle and transport route. Creation of dynamic	ic models of vehicles and tr	ansport routes
√ibration of systems	with a finite number of degrees of freedom. Methods of stiffness constants and pliability constants. Fundamentals of vibration	tion of bridges. Criteria for th	ne admissibili
of oscillation. Experi	mental methods in dynamics.		

18Y2EM	Electron microscopy	KZ	2
	tron microscopy, construction, control and maintenance of SEM, sample preparation, signal detection, types of detectors and		
	of results and automation of data processing, energy dispersive X-ray microanalysis and other analytical methods in electron ctor, practical examples of ED microanalysis on samples.	i microscopy. Eval	luation of data
16Y2EE	Emissions and Ergonomics of Vehicles	KZ	2
	ny of vehicles and the influence on man and nature. National and international law related to the hygiene. Noise and vibrations	1	l
physical values, ways of	f measuring, prevention, elimination. Exhausts - creation, measurement, reduction, non-regular fuels and drives. Ergonomy - sit	tting, standing, cor	ntrol, operational
	ng, ventilation, air-conditioning, filtration, tiredom.		
17Y2FM	Financing in Urban Mass Transportation	KZ	2
	pment in Prague and other cities in the world. Building and operation of public tram, bus, and trolleybus networks. Undergrou opment in small towns. Particularities of investment and operation financing of individual UMT types. Historic and present mo		
* *	spring it in small towns. Failedianties of investment and operation mancing of individual own types. Historic and present more sengers. Tourism & DMT. UMT typology & Discourse of optimum financing.	dels of Olvir Illian	cing. mansport
21Y2FM	Aviation Company Financial Management	KZ	2
	nance - financial statements, budget, forecast. Financial policy of the company. Financial resources - long-term financial reso	1	l
earnings, shares, bonds	s, loans, leasing, capital. Financial and economic analysis of the company - structure and content.		
23Y2FB	Physics for Security Branches	KZ	2
	substances and phenomena at extreme conditions. Grounds of rheology. Physics of Earth's interior. Geophysics. Physics of a	tmosphere. Applic	cations in
dengineering branches	,	1/7	2
18Y2FZ	Physical foundation of materials' properties edefects influence on properties of materials, stiffness, plasticity, strength, fracture, fatigue, creep, corrosion, effects of enviro	KZ	_
behavior are the main d		Jimon and loadii	ig on materiale
15Y2HS	Road Transport History	KZ	2
	n the Ancient Age, corridors of main mediveal pathways. Development of road traffic in the modern period, acceleration of road	1	lopment during
	Development of road layout, geometric and construction layers. Beginning of modern road civil engineering. Development of	road travelling in	modern period.
-	tions, bridges and traffic control, development of road signs.		
16Y2HP	Vehicle Hygiene	KZ	2
<del>-</del>	ny of vehicles and the influence on man and nature. National and international law related to the hygiene. Noise and vibrations f measuring, prevention, elimination. Exhausts - creation, measurement, reduction, non-regular fuels and drives. Ergonomy - sit		
• •	ng, ventilation, air-conditioning, filtration, tiredom.	ing, standing, con	ntioi, operational
14Y2IS	Intelligent Systems in Postal Services	KZ	2
The use of information	systems in the postal services (ITIS, and POST, T + T, PS, KMP, DS), application of information technology in the processing	of mail processin	g nodes in the
	ng logistics processes in the post. The appreciation of the real implementation of the Czech post in operation both in lectures are	nd in the framewor	rk of the practical
desk.			
12Y2IS	Urban Networks	KZ	2
•	e position of UN as public and technical infrastructure / utillities, metodology of the UN master planning, of UN design, UN coc cal standards of UN, trenchless technologies for UN).	ordination, ON ins	staliation and ON
14Y2JM	One-Chip Controllers	KZ	2
	chitecture, embedded peripherals (counters, timers, converters, ports) and their utilisation. Practical tasks are programmed w		l
15Y2JH	Job Hunting in English	KZ	2
The course provides a p	practical guide to applying for a job in English. The interview process is mapped out, with the course including skills practise f	or all the stages of	of this process,
	bb-hunting in English. Students will also be introduced to the English vocabulary and phraseology necessary for a successful		1
	Capital Investment in Transportation and Telecommunications	KZ	2
	tment desicion making - long term goals and investment strategies, long term financing	1/7	
16Y2KV	Car Body Design h-load car body, bus car body, and motorcycle as a construction set. Principles of design, production, testing and operation. N	Materials used for	2 car body
	I passive safety parts. Ergonomics, HMI, view out of the vehicle, operational extent, view behind the car. Conditioning tools, s		•
	and artistic design principles. Practical training.	0	•
12Y2KS	Rail Transport in Settlements and Regions	KZ	2
	elopment of railway infrastructure in Czech Republic. Arrangement of railway networks and junctions. Suburban railway service		iguration and
· · · · · · · · · · · · · · · · · · ·	ems. Network configuration and operation of tram systems. Special thematic lectures (rail transport in selected countries / rec		
12Y2KE	Landscape Ecology	KZ	2
	ndscape - definition, types, evolution. Landscape systems. Anthropogenic impacts on landscape. Methods using for evaluating Itions in landscape ecology. Landscape planning.	g landscape. Frac	tai geometry
21Y2LS	Air Traffic Services	KZ	2
	zech Republic and other countries. Introduction and description of ATS units in Czech Republic. Practical examples of TWR, A		l
	vakia. ATS - Model of financing. Training Systém of Air Traffic Controllers. Future development of ATS.		
11Y2LG	Logics of Engineer's Judgement	KZ	2
-	ineer's judgement, its propositional and predicative logical base. Solutions of logical tasks through the methods of truthfulness	ss and semantic a	nalysis charts.
	I. Logical basis for network design for the solution of technical tasks.	1/7	
23Y2MA Concept of risks and tel	Risk Analysis and Management Risk Analysis and Management Risks Switch (Management Risk Sources, definition of hazard, impacts and risks. Methods for identification, analysis, assessment and management	KZ of risks Risk end	ineering targets
	rrisk sources, definition of nazard, impacts and risks, wethous for identification, analysis, assessment and management practice. Methods, tools and techniques for risk engineering. System of systems risk. Application of strategic and system appr		
	, emergency and crisis planning. Human factor - its role.		.,
21Y2MQ	Quality Management	KZ	2
	Pioneers in the field of quality. International quality organisations and quality promotion in the Czech Republic. Quality mana	-	
- ·	Integrated management systems. Risk management in the context of the requirements of ISO standards. Sectoral quality management and property assignment as a sectoral quality management in the context of the requirements of ISO standards. Sectoral quality management in the context of the requirements of ISO standards.	agement systems.	. Comprehensive
	ccellence models and corporate social responsibility. Quality audits.	KZ	2
15Y2MS Sociological approach t	Sociology for Managers o a corporation. Corporation and its organization. Corporation and its running - human role and communication. Corporation,		l
	in free market economy. Corporate directorship, work groups, adaptation, strife, different roles and positions in corporation.	I I I I I I I I I I I I I I I I I I I	

21Y2MK Marketing of Air Transport	KZ	2
The content of the course "Marketing in air transport" is the management of activities and processes using available marketing tools and processes for	-	
and implementation of sales of goods and services in the aviation industry. In addition to the theoretical foundations of marketing, the lectures present and product analysis, creation of marketing strategies and planning.	i systems of mar	ket, competition
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. M	leasurement and	calculation of
noise from road traffic. Modelling of traffic noise in the CADNA A.		
12Y2MI Urban Engineering  Teaching aming an utilities storage in steel coordination angineering activities in area, arrangement of public appearance of publ	KZ	2
Teaching aming on utilities 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 formulation of the Finite Element Method. Direct Stiffness Method used in structural mechanics. Evaluation of stiffness matrices for		
variational principles. Element formulation (bar and beam elements, CST, LST, quadrilateral, tetrahedral and brick elements). Natural coordinates, natural	ural shape functi	ons and
isoparametric representation. Numerical integration. Introduction to dynamics. FEM programming.		
16Y2MK   Quality Methods for Vehicles   Quality management methods list, customer data acquisition and analysis of customer requirements, QFD, DFM, DFA, DFS. FMEA (Failure mode effective management)	KZ	2
(team) design.	ct analysis). Liei	nents of paraller
12Y2MD Methods of Traffic Regulation and Prediction	KZ	2
Basic ways of traffic prognosis, traffic prognosis for large area (calculation of future traffic volumes, calculation of future traffic volumes between areas (and traffic prognosis).	nalogical and syr	nthetic methods,
modal split, traffic distribution to road network). Shock wave in traffic flow. Service levels and their traffic volumes. Acceleration noise.	1/7	
17Y2MO International Organisations in Transportation International relations in transport, UN, EEC UN, Intergovernmental organisations, EU Offices and Agencies, Conference of European Ministries of tra	KZ	2 ional mode
organisations of public transport, Air-Rail, railways, roads, air, waterways, forwarding and postal services.	ansport, internat	onal mode
17Y2MS Microsimulation of Railway Operation	KZ	2
Introduction to the characteristics of simulation tools, creation of a simulation model of railway infrastructure, verification of a specific operational concerns.		
adaptation of the infrastructure model and modification to the infrastructure to allow the implementation of the proposed operational concept. Stability to f sensitivity of the operational concept to delays.	ests and evaluat	ions. Evaluation
17Y2MD Modelling and optimization on transport networks	KZ	2
Coordination problems on public transport networks, scheduling vehicles, design of control plans for light-controlled intersections including green wave	Į.	
modelling of advanced problems in distribution systems - exact, heuristic and metaheuristic principles of solving problems.	·	
21Y2MC CNS Systems Modelling	KZ	2
The course is designed as a set of model tasks in the field of communication navigation and surveillance systems in aviation, addressed using mather tools. A large part is devoted to air targets tracking, measurement-to-track association, track filtering and multisensor tracking.	natical approach	es and software
17Y2MT Modern History for Engineering Students	KZ	2
Selected chapters from the 19. century history. Geopolitical situation in Europe explained on the examples of Great Britain, Germany and Austrian Em	l	<del>-</del>
American Civil War, transatlantic transportation development. Imperial China: Late Qing dynasty. Selected chapters from the 20. century history: From	Bellé Epoque to	Cold War.
Czechoslovak historical myths.	1/7	
12Y2MZ   Modernization of Railway Lines and Stations   Line speed increasing. AGC and AGTC Agreement. AGC and AGTC railway network. Principles of modernization (conceptual papers, definitions of basic	KZ	2
Tellic speed indicasing. Not and Not or Ngreement. Not and Not or tallway network. I miniples of modernization (conceptual papers, definitions of basic	concents indivi	dual principles)
Track geometrical characteristics on modernized railway lines. Superstructure and substructure on upgraded lines. Designing of railway stations. Bridg	· ·	
Track geometrical characteristics on modernized railway lines. Superstructure and substructure on upgraded lines. Designing of railway stations. Bridg and realization of projects. Technical description of the tranzit corridors.	· ·	
and realization of projects. Technical description of the tranzit corridors.  12Y2NS Shared Space Design	es and tunnels.	Development 2
and realization of projects. Technical description of the tranzit corridors.  12Y2NS   Shared Space Design   Introducing students to the concept of integrated use of public spaces by sharing space with all users. Active promotion of settlements and sustainable	KZ e mobility in the	Development  2  public space of
and realization of projects. Technical description of the tranzit corridors.  12Y2NS Shared Space Design Introducing students to the concept of integrated use of public spaces by sharing space with all users. Active promotion of settlements and sustainable towns and cities. Analysis of implemented foreign examples, principles of zone design in the context of legal and technical requirements. Linking traffic	KZ e mobility in the	Development  2  public space of
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and realization of projects. Technical description of the tranzit corridors.  12Y2NS   Shared Space Design   Introducing students to the concept of integrated use of public spaces by sharing space with all users. Active promotion of settlements and sustainable towns and cities. Analysis of implemented foreign examples, principles of zone design in the context of legal and technical requirements. Linking traffic and architecture in the process of designing quality public spaces.  14Y2OP   Object Oriented Programming in Transport   Class, object, encapsulation, inheritance, polymorphism, templates, retyping, stream, exceptions, repository, collections, virtual methods and classes. from microscopic simulation system, discrete event simulation, celular automata simulation and virtual life area.  15Y2OZ   Health Protection in Transportation and EU   Health protection 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.  15Y2OF   Specialised French for Transportation and Telecommunications   Basic transportation (public transport, railway, air, road and ship transport) and telecommunications terminology. Special focus on independent speaking 18Y2OB   Optical Contactless Strain Measurements   In the course students will get theoretical knowledge and practical experience in optical strain measurement methods. Students will get experience with the course students will get experience with the course students will get theoretical knowledge and practical experience in optical strain measurement methods. Students will get experience with the course students will get theoretical knowledge and practical experience in optical strain measurement methods.	KZ e mobility in the congineering, under the congineering the cong	Development  2 public space of ban planning  2 will be chosen  2 rith other EU  2 kills.  2 pry cameras,
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and realization of projects. Technical description of the tranzit corridors.  12Y2NS   Shared Space Design   Introducing students to the concept of integrated use of public spaces by sharing space with all users. Active promotion of settlements and sustainable towns and cities. Analysis of implemented foreign examples, principles of zone design in the context of legal and technical requirements. Linking traffic and architecture in the process of designing quality public spaces.  14Y2OP   Object Oriented Programming in Transport   Class, object, encapsulation, inheritance, polymorphism, templates, retyping, stream, exceptions, repository, collections, virtual methods and classes. from microscopic simulation system, discrete event simulation, celular automata simulation and virtual life area.  15Y2OZ   Health Protection in Transportation and EU   Health protection 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.  15Y2OF   Specialised French for Transportation and Telecommunications   Basic transportation (public transport, railway, air, road and ship transport) and telecommunications terminology. Special focus on independent speaking 18Y2OB   Optical Contactless Strain Measurements   In the course students will get theoretical knowledge and practical experience in optical strain measurement methods. Students will get experience with the course students will get experience with the course students will get theoretical knowledge and practical experience in optical strain measurement methods. Students will get experience with the course students will get theoretical knowledge and practical experience in optical strain measurement methods.	KZ e mobility in the congineering, under the congineering the cong	Development  2 public space of ban planning  2 will be chosen  2 rith other EU  2 cills.  2 pry cameras, calculation.  2
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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 organisations.	_	
aviation. Execution of state administration and state supervision in matters of civil aviation, in accordance with Act No. 49/1997 Col. Facilitation. Respassengers, luggage and cargo. The safe transport of dangerous goods.	ponsibilities of air	carriers for
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 sta		
prediction, prediction for general formula of loss function. Calculation and programming environment R. Regression models, basics of linear regression.		
regression, statistical tests of linear dependence, selection of input variables.	. , . ,	
12Y2PV Public transport priority	KZ	2
Public transport as the backbone of sustainable mobility. Public transport priority (PTP) in strategic documents. PTP in the Czech Republic and abroa	d. Types of PTP m	easures. Design
of PTP measures. Relationship between Basics of public transport stops and stations design. PTP measures and evaluation of their operation. Econ	omic and envirom	ental effects of
PTP. The process of preparing PTP measures.		
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 or SOA (Service Oriented Architecture). Inforamtion systems implementation and operations description in the Czech Republic (technical and process)		=
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++.	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	iou and operater
14Y2PH CAD Interface Programming	KZ	2
Introduction to CAD interface programming techniques with the help of LIST and VBA programming languages. Possibilities of proper objects (comm	ı nands), dialogues,	interfaces, and
applications creation in CAD systems. Programming of cooperation with other applications (databases, spread-sheets).		
11Y2PM Programming in MATLAB	KZ	2
To explain the principle of modelling and simulation, description of Matlab environment and its settings, optimization and program code debugging, of	lata fitting and des	signing GUI in
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 te	erminals. Operation	n under winter
conditions. Firefighting units. Protection against unlawful interference. Local transport connection. Environmental protection.	KZ	2
15Y2PU Publications and Their Creation Scientific texts types. Footnotes and references. Exploration of facts. Quotations. Formal document layout. Working with information databases. Typo		
editors - MS Word, Tex/LaTeX. Practical creation of simple scientific documents.	grapriic principies	Typograpriic
12Y2RD Realization of Transport Buildings	KZ	2
Transport Buildings Types. Project Documentation Types. Building Code. Land Permission and Building Permission Process. Building Process. Project		
17Y2RZ Control of Transport Processes	KZ	2
Theoretical bases, transport system, decomposition, factors influencing control, quality diagnosis, methods of control, systems for decision making s	support, risk of de	cision making,
telematics.		
15Y2SP Seminar on Political Philosophy	KZ	2
Interpreting of philosophical texts, view of society, state and their system of government.		
17Y2SJ Network Timetabling on the Railway	KZ	2
Timetable samples. Capacity allocation, technological intervals in railway operation. Rules and regulations of train paths, running times, time adds a		_
circulation planning. Rules of train-diagramm creating. Timetables for more service-levels on the line. Construction slot conflicts between passenger-relations and waiting times, timetables for lines under construction.	and freight transp	ort. Network line
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.	y iir roddolloir and	mending of
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 technology		
vehicles, laser and laser technologies, soldering, gluing, ultrasound, diffusion, friction and explosion technologies, micro stoves, gas.		
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 process.		
defects and determination of residual life of structures. For this purpose, non-destructive methods of experimental mechanics (e. g. strain-gauge mea	surement, photoel	asticimetry) and
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 langu	age. reaching to s	•
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organs, voice training. Language semantics, language syntactic and the pragmatic aspect. Creative thought and its oral and written expression. Practic		2
organs, voice training. Language semantics, language syntactic and the pragmatic aspect. Creative thought and its oral and written expression. Practic 15Y2TS Technician and Contemporary Society	KZ	2 true - it's on the
organs, voice training. Language semantics, language syntactic and the pragmatic aspect. Creative thought and its oral and written expression. Practic 15Y2TS  Technician and Contemporary Society  Why to take off a hat in a room and open a door for a lady, are there simple solutions, science vs belief, do we need to know or is it enough to turn or	KZ	_
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organs, voice training. Language semantics, language syntactic and the pragmatic aspect. Creative thought and its oral and written expression. Practic 15Y2TS  Technician and Contemporary Society  Why to take off a hat in a room and open a door for a lady, are there simple solutions, science vs belief, do we need to know or is it enough to turn or	KZ n a PC, it must be	true - it's on the
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organs, voice training. Language semantics, language syntactic and the pragmatic aspect. Creative thought and its oral and written expression. Practice 15Y2TS    Technician and Contemporary Society	KZ n a PC, it must be	true - it's on the
organs, voice training. Language semantics, language syntactic and the pragmatic aspect. Creative thought and its oral and written expression. Practice 15Y2TS    Technician and Contemporary Society	KZ n a PC, it must be  KZ complex systems	true - it s on the  2 . Semiconductor
organs, voice training. Language semantics, language syntactic and the pragmatic aspect. Creative thought and its oral and written expression. Practice 15Y2TS  Technician and Contemporary Society  Why to take off a hat in a room and open a door for a lady, are there simple solutions, science vs belief, do we need to know or is it enough to turn or Internet and in newspapers, what are the sights for, interest in public affairs - a hangover from the past?  20Y2TE  Technology of Electronic Systems  Principle technologies for an effective operation of electronically controlled systems. Maintaining, measuring, optimization of safety and reliability of technologies, printed circuits, assembly operations, interconnection and repairs technologiesusers and operators.  14Y2TU  Telecommunications Systems and Multimedia  New trends in telecommunications namely applied in transport solutions, identification and quantification of telecommunications networks and services architecture, provissioning of guaranteed service quality, two generations of the handover principles.	KZ n a PC, it must be  KZ complex systems  KZ sperformance bas	true - it s on the  2 . Semiconductor  2 ed on redundant
organs, voice training. Language semantics, language syntactic and the pragmatic aspect. Creative thought and its oral and written expression. Practice 15Y2TS    Technician and Contemporary Society	KZ n a PC, it must be  KZ complex systems  KZ s performance bas	true - it's on the  2 . Semiconductor  2 ed on redundant
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organs, voice training. Language semantics, language syntactic and the pragmatic aspect. Creative thought and its oral and written expression. Practic 15Y2TS    Technician and Contemporary Society   Why to take off a hat in a room and open a door for a lady, are there simple solutions, science vs belief, do we need to know or is it enough to turn or Internet and in newspapers, what are the sights for, interest in public affairs - a hangover from the past?    20Y2TE	KZ n a PC, it must be  KZ complex systems  KZ s performance bas  KZ structions. Transposions. Terrestrial ve	true - it's on the  2 . Semiconductor  2 ed on redundant  2 ort surface chicles operation
organs, voice training. Language semantics, language syntactic and the pragmatic aspect. Creative thought and its oral and written expression. Practic 15Y2TS    Technician and Contemporary Society	KZ n a PC, it must be  KZ complex systems  KZ s performance bas  KZ structions. Transposions. Terrestrial verifications.	true - it's on the  2 Semiconductor  2 ed on redundant  2 ort surface chicles operation
organs, voice training. Language semantics, language syntactic and the pragmatic aspect. Creative thought and its oral and written expression. Practic 15Y2TS    Technician and Contemporary Society   Why to take off a hat in a room and open a door for a lady, are there simple solutions, science vs belief, do we need to know or is it enough to turn or Internet and in newspapers, what are the sights for, interest in public affairs - a hangover from the past?    20Y2TE	KZ n a PC, it must be  KZ complex systems  KZ s performance bas  KZ structions. Transposions. Terrestrial verifications.	true - it's on the  2 Semiconductor  2 ed on redundant  2 ort surface chicles operation
organs, voice training. Language semantics, language syntactic and the pragmatic aspect. Creative thought and its oral and written expression. Practic 15Y2TS  Technician and Contemporary Society  Why to take off a hat in a room and open a door for a lady, are there simple solutions, science vs belief, do we need to know or is it enough to turn or Internet and in newspapers, what are the sights for, interest in public affairs - a hangover from the past?  20Y2TE  Technology of Electronic Systems  Principle technologies for an effective operation of electronically controlled systems. Maintaining, meassuring, optimization of safety and reliability of technologies, printed circuits, assembly operations, interconnection and repairs technologiesusers and operators.  14Y2TU  Telecommunications Systems and Multimedia  New trends in telecommunications namely applied in transport solutions, identification and quantification of telecommunications networks and services architecture, provissioning of guaranteed service quality, two generations of the handover principles.  16Y2TT  Transportation and Building Technology and Equipment  Transportation and building technology and equipment. Transport of solid and mass material, soil and rock above all. Highway and underground constructions, description and construction features, delivered mass calculation, economy of operation. Technics and technology of underground construct management methodology (ultrasound, laser, GPS, total stations).  23Y2TP  Creation of legal and technical regulations  Creation of legislation, structure of the bills of law, legal process, compatibility with the EC law, the creation of technical standards and their publication.	KZ n a PC, it must be  KZ complex systems  KZ s performance bas  KZ structions. Transposions. Terrestrial verifications.	true - it's on the  2 Semiconductor  2 ed on redundant  2 ort surface chicles operation

18Y2UB	Accident Biomechanics and Safety	KZ	2
Anatomy of man. Meth	ods of Medical Diagnostics - RTG, CT, MRI, US. Dynamics of traumatic events. Factors influencing the severity of an accident	and the extent of a	a traffic accident.
Injuries in road traffic.	Pedestrian injuries. Injury in railway and air traffic accidents. Analysis of biomechanical events in accidents and their computal	ional modeling. P	rinciples of
treatment and rehabili	tation. Protective elements and safety measures in transport.		
23Y2VZ	Leadership and Human Resource Development	KZ	2
	dy of human resources, human resources management, corporate goals, strategies, cultural and ethical aspects. Team managin human resources, ethics and corporate culture, cross-cultural differences. The labor code. Introduction into protocols.	jement, communic	cation in teams,
18Y2VC	Computational Mechanics in Transportation	KZ	2
Principle of virtual wor	k and variational principles in FEM. Bar shaped, planar and three - dimensional structures in FEM. FEM in statics and in dyna	mics of transporta	ational systems.
Elastic, elastoplastic a	nd viscoelastic material. FEM in problems of biomechanics. Numerical analysis of structural parts with programme ANSYS on	instances.	
23Y2VR	Cope with Risks in Engineering Branches	KZ	2
Types of engineering b	branches directed to risks, procedures used in risk engineering, ensuring the secured systems, ensuring the safe systems, ensu	uring the safe syst	tems of systems.
15Y2ZA	Basic Principles of English Academic Writing and Abstract in English	KZ	2
Theory, creating a phr	asal bank according to students' specialisations, rhetorical analysis or texts/abstracts, drafting an abstract, providing effective	feedback.	•
12Y2ZK	Traffic Calming	KZ	2
Principles of traffic cal	ming. Solution of road network organization. Urban road layouts. Psychological and physical obstacles (measures of traffic cal	ming) and their co	ombinations.
Traffic calming measu	res in crossroads. Pedestrian zones. Residential streets and zones.		
23Y2ZM	Intelligence Means and Methods	KZ	2
History and the preser	t of intelligence services and their role in the modern world. How intelligence services handle with information. Methods and proc	edures of collectin	ig and evaluating
information. Means of	intelligence services. Internal and external intelligence, military intelligence. The means and methods of state security service	s. Cooperation am	nong Intelligence
services within NATO,	EU. The organization of the intelligence services.		

Name of the block: Elective courses Minimal number of credits of the block: 0

The role of the block: V

Code of the group: VP-NP-LA

Name of the group: Master Full-Time LA voluntary

Requirement credits in the group: Requirement courses in the group:

Credits in the group: 0 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
15JCZ1	Czech Language for Foreign Students 1 Irena Veselková	Z	0	0P+2C	Z	V
15JCZ2	Czech Language for Foreign Students 2 Irena Veselková	Z	0	0P+2C	L	V
15JCZ3	Czech Language for Foreign Students 3 Irena Veselková	Z		0P+2C	Z	V
15JCZ4	Czech Language for Foreign Students 4 Irena Veselková	Z		0P+2C	L	V

Characteristics of the courses of this group of Study Plan: Code=VP-NP-LA Name=Master Full-Time LA voluntary

15JCZ1	Czech Language for Foreign Students 1	Z	0
Basic structures of Cze	ch language, common communication situations, study, work, leisure time activities, introduction of myself, phonetics of Czer	ch language, writi	ng skills.
15JCZ2	Czech Language for Foreign Students 2	Z	0
Basic structures of Cze	ch language, common communication situations, study, work, leisure time activities, introduction of myself, phonetics of Czer	ch language, writi	ng skills.
15JCZ3	Czech Language for Foreign Students 3	Z	
Language structures wi	th regard to the group level. Listening and oral fluency drill. Basic terminology.		
15JCZ4	Czech Language for Foreign Students 4	Z	
Language structures wi	th regard to the group level. Listening and oral fluency drill. Basic terminology.		

Name of the block: Jazyky

Minimal number of credits of the block: 8

The role of the block: J

Code of the group: JZ-NP-LA-20/21

Name of the group: Language Courses Master Full-Time LA from 2020/21 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 Irena Veselková	Z	2	0P+2C+10E	Z	J
15J2l1	Language - Italian 1 Irena Veselková	Z	2	0P+2C+10E	Z	J
15J2N1	Language - German 1 Eva Rezlerová, Martina Navrátilová, Jana Štikarová	Z	2	0P+2C+10E	B Z	J
15J2R1	Language - Russian 1 Marie Michlová	Z	2	0P+2C+10E	B Z	J
15J2S1	Language - Spanish 1 Nina Hricsina Puškinová	Z	2	0P+2C+10E	B Z	J
15JBF2	Language - French 2 Irena Veselková	Z	2	0P+2C+10E	L L	J
15JBI2	Language - Italian 2	Z	2	0P+2C+10E	B L	J
15JBN2	Language - German 2 Eva Rezlerová, Martina Navrátilová, Jana Štikarová	Z	2	0P+2C+10E	B L	J
15JBR2	Language - Russian 2 Marie Michlová	Z	2	0P+2C+10E	B L	J
15JBS2	Language - Spanish 2 Nina Hricsina Puškinová, Zuzana Krinková	Z	2	0P+2C+10E	B L	J
15JBF3	Language - French 3 Irena Veselková	Z	2	0P+2C+10E	Z	J
15JBI3	Language - Italian 3 Irena Veselková	Z	2	0P+2C+10E	Z	J
15JBN3	Language - German 3 Eva Rezlerová, Martina Navrátilová, Jana Štikarová	Z	2	0P+2C+10E	B Z	J
15JBR3	Language - Russian 3 Marie Michlová	Z	2	0P+2C+10E	B Z	J
15JBS3	Language - Spanish 3 Nina Hricsina Puškinová	Z	2	0P+2C+10E	B Z	J
15JBF4	Language - French 4 Irena Veselková	ZK	2	0P+2C+10E	B L	J
15JBI4	Language - Italian 4	ZK	2	0P+2C+10E	B L	J
15JBN4	Language - German 4 Eva Rezlerová, Martina Navrátilová, Jana Štikarová	ZK	2	0P+2C+10E	B L	J
15JBR4	Language - Russian 4 Marie Michlová	ZK	2	0P+2C+10E	B L	J
15JBS4	Language - Spanish 4 Nina Hricsina Puškinová	ZK	2	0P+2C+10E	B L	J

# Characteristics of the courses of this group of Study Plan: Code=JZ-NP-LA-20/21 Name=Language Courses Master Full-Time LA from 2020/21 15J2F1 Language - French 1 Z 2

LUZU/Z 1			
15J2F1	Language - French 1	Z	2
Grammatical Structur	es and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative sk	ills, feedback skill	s, summarising
technical text content	, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and	l technical register	rs and their use
language of manager	ment.		
15J2l1	Language - Italian 1	Z	2
Grammatical Structur	es and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative sk	ills, feedback skill	s, summarising
technical text content language of manager	, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and nent.	l technical register	s and their use
15J2N1	Language - German 1	Z	2
Grammatical Structur	es and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative sk	ills, feedback skill	s, summarising
technical text content language of manager	, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and ment.	l technical register	s and their use
15J2R1	Language - Russian 1	Z	2
	es and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative sk		
technical text content language of manager	, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal anc nent.	technical register	's and their use
15J2S1	Language - Spanish 1	Z	2
Grammatical Structur	es and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative sk	ills, feedback skill	s, summarising
technical text content	, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and	technical register	rs and their use
language of manager	nent.		
15JBF2	Language - French 2	Z	2
Grammatical Structur	es and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative sk	ills, feedback skill	s, summarising
technical text content	, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and	technical register	rs and their use
language of manager	ment.		
15JBI2	Language - Italian 2	Z	2
Grammatical Structur	es and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative sk	ills, feedback skill	s, summarising
technical text content	, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and	l technical register	rs and their use

language of management.

15JBN2 Language - German 2 Grammatical Structures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills, feedback skills, summarising technical text content, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and technical registers and their use, language of management 15JBR2 Language - Russian 2 Grammatical Structures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills, feedback skills, summarising technical text content, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and technical registers and their use, language of management. 15JBS2 Language - Spanish 2 Grammatical Structures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills, feedback skills, summarising technical text content, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and technical registers and their use, language of management. 15JBF3 Language - French 3 Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation. 15JBI3 Language - Italian 3 Ζ 2 Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation. 15JBN3 Language - German 3 Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation. 15JBR3 Language - Russian 3 Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation. Language - Spanish 3 15JBS3 Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation. Language - French 4 15JBF4 Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation. Language - Italian 4 Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation. 15.JBN4 Language - German 4 Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation. Language - Russian 4 15JBR4 ZK 2 Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation. 15JBS4 ZK Language - Spanish 4 Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation.

### List of courses of this pass:

Code	Name of the course	Completion	Credits
00Y2XN	Active participation in a scientific project, workshop, short-term trip abroad	KZ	2
11KMD	Quantitative Methods in Transport	Z,ZK	6
The course focuses	s on the issue of the use of undirected graphs tree type, planar graphs and their coloring. Further distribution problems, facility location	n problems are forr	nulated and
solved such as mo	odels of integer linear programming. Besides the use of exact methods there are described simple and also more sofisticated heurist	ics (metaheuristics	) methods.
11LIP2	Linear Programming 2	Z,ZK	3
Formulation of the t	ask 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.		
11TER	Game Theory and Optimal Decision-Making	ZK	2
Decision-making th	eory, utility theory. Explicit form games, backward induction. Normal form games. Antagonistic conflict, matrix games. Repeated gam	ies, evolutionary ga	ame theory.
Cooperative game	es without transferable payoffs. Cooperative games with transferable payoffs (imputation, core, Shapley value, nucleolus). Application	s of game theory a	bove all in

economics and transportation.

11THRO	Queuing Theory	ZK	2
	ess, definition, random distribution, and probability. Basic processes, process of revitalisation. Markov process, Markov models, Kenc	1	
	ls M/M/n. Non-markovian models, model M/C/n, models G/G/n. Models with continuous flow. Service net, examples of Petri net. Con	i	
11TZOR	Inventory, Replacement and Scheduling Theory	Z,ZK	3
, ,	- introduction, static models, deterministic dynamic models, stochastic dynamic models. Replacement theory - introduction, models e, models for replacement of items that fail completely. Scheduling theory - introduction, single machine scheduling problems, parallel	•	
deteriorate with tim	flow shop scheduling problems and job shop scheduling problems.	macrime scriedum	g problems,
11XN1	Master Project 1	Z	2
11XN2	Master Project 2	Z	2
11XN3	Master Project 3	Z	1
11XN4	Master Project 4	Z	8
11Y2LG	Logics of Engineer's Judgement	KZ	2
	of engineer's judgement, its propositional and predicative logical base. Solutions of logical tasks through the methods of truthfulness	and semantic analy	sis 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 prir	nciple of modelling and simulation, description of Matlab environment and its settings, optimization and program code debugging, da Matlab.	ta fitting and desigr	ning GUI in
12XN1		7	2
12XN2	Master Project 1	Z Z	2
	Master Project 2	Z	
12XN3	Master Project 3	Z	1
12XN4	Master Project 4	KZ	8
12Y2BM	Safety on The Local Roads ad accidents rates, social looses. Collision points, diagrams. Tools and methods for safer road transportation. Crossroads from the point	1	
Classification of for	right of way. Roundabouts. Pedestrian transport, cyclists. Traffic lights coordination. Transport control and regulation.	of view of Salety. F	sychological
12Y2DU	Transport in the Context of Sustainability	KZ	2
	inable transport, historical context, development in our country and in the world. Sustainable development and sustainable transport. I	Demand for transpo	
	of transport. Examples of sustainable transport. Biofuels. Electromobility. New trends in transport. Practical examples.		
12Y2IS	Urban Networks	KZ	2
The importance an	d the position of UN as public and technical infrastructure / utillities, metodology of the UN master planning, of UN design, UN coord	ination, UN installa	tion and UN
40)(0)(5	operation (basic technical standards of UN, trenchless technologies for UN).	147	
12Y2KE	Landscape Ecology gy. Landscape - definition, types, evolution. Landscape systems. Anthropogenic impacts on landscape. Methods using for evaluating	KZ	2
Landscape ecolo	gy. Landscape - definition, types, evolution. Landscape systems. Antirropogenic impacts on landscape, Methods using for evaluating and its potential applications in landscape ecology. Landscape planning.	ianoscape. Fractai	geometry
12Y2KS	Rail Transport in Settlements and Regions	KZ	2
	id development of railway infrastructure in Czech Republic. Arrangement of railway networks and junctions. Suburban railway service	1	_
opera	ation of metro systems. Network configuration and operation of tram systems. Special thematic lectures (rail transport in selected con	untries / regions).	
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 (and		tic methods,
4.53.453.41.4	modal split, traffic distribution to road network). Shock wave in traffic flow. Service levels and their traffic volumes. Acceleration		
12Y2MH	Measurement and Modeling of Traffic Noise uction to noise from traffic. Noise from rail transport. Noise from road traffic. Measurement and calculation of noise from rail traffic. M	KZ	2
Theoretical introdu	noise from rail transport. Noise from road traffic. Measurement and calculation of noise from rail traffic. Mi	easurement and ca	iculation of
12Y2MI	Urban Engineering	KZ	2
	eaching aming on utilities storage in area, coordination engineering activities in area, arrangement of public space, concepement of	1	_
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	I	principles).
Track geometrical	characteristics on modernized railway lines. Superstructure and substructure on upgraded lines. Designing of railway stations. Bridge	es and tunnels. De	velopment
(0)(0)10	and realization of projects. Technical description of the tranzit corridors.		_
12Y2NS	Shared Space Design	KZ	2
_	its to the concept of integrated use of public spaces by sharing space with all users. Active promotion of settlements and sustainable Analysis of implemented foreign examples, principles of zone design in the context of legal and technical requirements. Linking traffic		
towns and onlos.	and architecture in the process of designing quality public spaces.	o originooning, arba	ii piaiiiiig
12Y2PV	Public transport priority	KZ	2
	the backbone of sustainable mobility. Public transport priority (PTP) in strategic documents. PTP in the Czech Republic and abroad. T	ypes of PTP measu	ires. Design
of PTP measures.	Relationship between Basics of public transport stops and stations design. PTP measures and evaluation of their operation. Economic	nic and enviromenta	al effects of
	PTP. The process of preparing PTP measures.		
12Y2RD	Realization of Transport Buildings  Types Project Decumentation Types Building Code Lend Parmission and Building Parmission Process Building Process Brainst Fe	KZ	2
	Types. Project Documentation Types. Building Code. Land Permission and Building Permission Process. Building Process. Project Ec		
12Y2ZK	Traffic Calming ic calming. Solution of road network organization. Urban road layouts. Psychological and physical obstacles (measures of traffic calr	KZ	2 hinations
i imolpies oi tiali	Traffic calming measures in crossroads. Pedestrian zones. Residential streets and zones.	g, and then coll	eniuliono.
14BIG	Big Data	KZ	2
	duce. Basic Principles of Big Data Management. Comparison and Classification of NoSQL Databases. Key Database Value Database.	1	
	Databases-Basic Principles. Graph Databases-Advanced Aspects. Indexing. Interpretation. Advanced Principles Big Data Managem		
	computing Data warehouses and Pig Data Cloud computing Data warehouses and Pig Data Other Pig Data issues		
	computing. Data warehouses and Big Data. Cloud computing. Data warehouses and Big Data. Other Big Data issues.		
14GISS	Geographical Information Systems  n of saving format of space-oriented information land-survey and cartography minimum basic tasks of spatial operations principles or	KZ	2

14TEL	Telecommunications	KZ	3
	w trends in telecommunications systems. Economical and legal aspects of telecommunications networks design and telecommunications		
•	intification of hiererchical telecommunications networks and telecommunication services performance based on addopted performance p		
[	services typically applied within transport and specifically logistic solutions.	,	
14XN1	Master Project 1	Z	2
14XN2	·	<u>Z</u>	2
	Master Project 2		
14XN3	Master Project 3	Z	1
14XN4	Master Project 4	Z	8
14Y2C1	CATIA I	KZ	2
undaments of wo	king with CATIA, making basic parts and bodies. Making 2D sketches, geometric stucture, parametric linking, making adaptive mode	els from 2D sketo	ches. Impo
	and export of made parts and bodies. Making assemble and visualization.		•
14Y2C2	CATIA II	KZ	2
	course. Modeling compound bodies. Possibility of enumeration, comunications with other systems. Surface x solid bodies. Kinematic		_
-Alerision of basic	and project cooperation. Outputs of projects.	mechanism. r	Ject makii
441/000		1/7	
14Y2CS	Sensitivity of Systems	KZ	2
Design of systems	with defined reliability. The impact of changing parameters and subsystems within a system. System sensitivity computing, definition	of sensitivity fur	nctions an
	matrices and their usability in system design.		_
14Y2IS	Intelligent Systems in Postal Services	KZ	2
he use of informa	tion systems in the postal services (ITIS, and POST, T + T, PS, KMP, DS), application of information technology in the processing of i	mail processing r	nodes in th
stal network, optir	nizing logistics processes in the post. The appreciation of the real implementation of the Czech post in operation both in lectures and in	the framework of	f the practi
	desk.		
14Y2JM	One-Chip Controllers	KZ	2
- 1	ollers architecture, embedded peripherals (counters, timers, converters, ports) and their utilisation. Practical tasks are programmed w		1
14Y2KI	Capital Investment in Transportation and Telecommunications	KZ	2
1714N	Financial market, investment desicion making - long term goals and investment strategies, long term financing	ľ\Ľ	1 2
4.4\/0.05		177	
14Y2OP	Object Oriented Programming in Transport	KZ	2
class, object, enca	psulation, inheritance, polymorphism, templates, retyping, stream, exceptions, repository, collections, virtual methods and classes. F	roblem cases wi	il be chose
	from microscopic simulation system, discrete event simulation, celular automata simulation and virtual life area.		-
14Y2PH	CAD Interface Programming	KZ	2
troduction to CAD	interface programming techniques with the help of LIST and VBA programming languages. Possibilities of proper objects (command	s), dialogues, int	terfaces, a
	applications creation in CAD systems. Programming of cooperation with other applications (databases, spread-sheets).		
14Y2PI	Process Information Systems in Transportation	KZ	2
	tailed usage of transport information systems, e.g. EFC, ePurse and transport check-in systems for public transport with focus on an		system a
	ented Architecture). Inforamtion systems implementation and operations description in the Czech Republic (technical and process) in		-
14Y2PJ		KZ	2
1412PJ	C++ Programming Language		
OD = bilaaan bu an	I begins of C. I. programming language. Close chiest constructor destructor inheritance abetract close virtual methods eventions.		_
OP philosophy and	basics of C++ programming language. Class, object, constructor, destructor, inheritance, abstract class, virtual methods, exceptions, s		_
	overloading, abstract data type implementation in C++.	streams, method	and opera
14Y2TU	overloading, abstract data type implementation in C++.  Telecommunications Systems and Multimedia	streams, method	and opera
14Y2TU	overloading, abstract data type implementation in C++.  Telecommunications Systems and Multimedia  mmunications namely applied in transport solutions, identification and quantification of telecommunications networks and services per	streams, method	and opera
14Y2TU	overloading, abstract data type implementation in C++.  Telecommunications Systems and Multimedia	streams, method	and opera
14Y2TU ew trends in teleco	overloading, abstract data type implementation in C++.  Telecommunications Systems and Multimedia  mmunications namely applied in transport solutions, identification and quantification of telecommunications networks and services perlarchitecture, provissioning of guaranteed service quality, two generations of the handover principles.  Artificial Intelligence	KZ formance based	and opera
14Y2TU ew trends in teleco	overloading, abstract data type implementation in C++.  Telecommunications Systems and Multimedia  mmunications namely applied in transport solutions, identification and quantification of telecommunications networks and services perlarchitecture, provissioning of guaranteed service quality, two generations of the handover principles.	KZ formance based	and opera
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15JBF3	Language - French 3	Z	2
	tanguage - French S stics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of la	<del>-</del>	_
•	I communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work w		•
	features. Practice of oral and written presentation.		
15JBF4	Language - French 4	ZK	2
•	stics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of la		•
and perceptive and	I communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work w	vith (professional	) text and its
45 IDIO	features. Practice of oral and written presentation.	7	
15JBI2	Language - Italian 2 tures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills,	Z foodback skills	2
	nt, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and tecl		
sormour toxt contorn	language of management.	rimodi rogiotoro e	and thom doc
15JBI3	Language - Italian 3	Z	2
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and perceptive and	communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work w	vith (professional	) text and its
	features. Practice of oral and written presentation.		
15JBI4	Language - Italian 4	ZK	2
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and perceptive and	I communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work w features. Practice of oral and written presentation.	vitn (professional	) text and its
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and perceptive and	communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work w	vith (professional	) text and it
	features. Practice of oral and written presentation.		
15JBN4	Language - German 4	ZK	2
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15JBR2	Language - Russian 2	Z feedback skills.	2 summarising
Grammatical Structu	Language - Russian 2 tures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills,	feedback skills,	summarisino
Grammatical Structu	Language - Russian 2	feedback skills,	summarising
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Grammatical Structurechnical text conten	Language - Russian 2 tures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills, nt, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and tecl language of management.	feedback skills, shnical registers a	and their use
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15Y2HS	Road Transport History	KZ	2
Roads and road tra	affic in the Ancient Age, corridors of main mediveal pathways. Development of road traffic in the modern period, acceleration of road	transport developr	nent during
1st part of 20th cer	ntury. Development of road layout, geometric and construction layers. Beginning of modern road civil engineering. Development of road	ad travelling in mod	dern period.
	History of road intercections, bridges and traffic control, development of road signs.		
15Y2JH	Job Hunting in English	KZ	2
	es a practical guide to applying for a job in English. The interview process is mapped out, with the course including skills practise for	-	•
	ng specifics for job-hunting in English. Students will also be introduced to the English vocabulary and phraseology necessary for a su		
15Y2MS	Sociology for Managers	KZ	2
	oach to a corporation. Corporation and its organization. Corporation and its running - human role and communication. Corporation, i Iuman's work position in free market economy. Corporate directorship, work groups, adaptation, strife, different roles and positions in		ai system.
15Y2OF	Specialised French for Transportation and Telecommunications	KZ	2
	ortation (public transport, railway, air, road and ship transport) and telecommunications terminology. Special focus on independent sp		1
15Y2OZ	Health Protection in Transportation and EU	KZ	2
	in transportation in CR in the past and present. Conditions before 1989 and after, current legislature, future prospects. Harmonisatio		1
	members. Fundamental principles of health protection and support in selected EU countries.		
15Y2PD	Practical Spanish for Transportation	KZ	2
	communication skills, training of correct written expression of formal character, basic technical vocabulary, cultural specifics of the S	panish speaking c	1
	Terminology of transport and commerce.		
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	from the world. The	he issues of
	dining cars, work trains and other railroad equipment. Legislation.		
15Y2PU	Publications and Their Creation	KZ	2
Scientific texts typ	pes. Footnotes and references. Exploration of facts. Quotations. Formal document layout. Working with information databases. Typogr	aphic principles. Ty	/pographic
	editors - MS Word, Tex/LaTeX. Practical creation of simple scientific documents.		_
15Y2SP	Seminar on Political Philosophy	KZ	2
( = ) ( = 0 =	Interpreting of philosophical texts, view of society, state and their system of government.		
15Y2SR	Stylistics and Rhetorics	KZ	2
	and written expression as a means of human communication. Basic information about speech, articulation, oral and written language		
15Y2TS	ng. Language semantics, language syntactic and the pragmatic aspect. Creative thought and its oral and written expression. Practice -	KZ	2
	Technician and Contemporary Society 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	l	_
vviiy to take on a ne	Internet and in newspapers, what are the sights for, interest in public affairs - a hangover from the past?	o, it must be true	it 3 on the
15Y2ZA	Basic Principles of English Academic Writing and Abstract in English	KZ	2
	, creating a phrasal bank according to students' specialisations, rhetorical analysis or texts/abstracts, drafting an abstract, providing	l	_
16XN1	Master Project 1	Z	2
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16XN2		Z	
16XN2 16XN3	Master Project 2	Z Z	2
16XN3	Master Project 2 Master Project 3	Z	2
16XN3 16XN4	Master Project 2  Master Project 3  Master Project 4	Z Z	2 1 8
16XN3 16XN4 16Y2EE	Master Project 2 Master Project 3	Z Z KZ	2 1 8 2
16XN3 16XN4 16Y2EE Emissions and ergo	Master Project 2  Master Project 3  Master Project 4  Emissions and Ergonomics of Vehicles	Z Z KZ sources, creation, p	2 1 8 2 propagation,
16XN3 16XN4 16Y2EE Emissions and ergo	Master Project 2  Master Project 3  Master Project 4  Emissions and Ergonomics of Vehicles  Dromy of vehicles and the influence on man and nature. National and international law related to the hygiene. Noise and vibrations - s	Z Z KZ sources, creation, p	2 1 8 2 propagation,
16XN3 16XN4 16Y2EE Emissions and ergo	Master Project 2  Master Project 3  Master Project 4  Emissions and Ergonomics of Vehicles  nomy of vehicles and the influence on man and nature. National and international law related to the hygiene. Noise and vibrations - s ys of measuring, prevention, elimination. Exhausts - creation, measurement, reduction, non-regular fuels and drives. Ergonomy - sitting	Z Z KZ sources, creation, p	2 1 8 2 propagation,
16XN3 16XN4 16Y2EE Emissions and ergo physical values, wa 16Y2HP Emissions and ergo	Master Project 2  Master Project 3  Master Project 4  Emissions and Ergonomics of Vehicles  common of vehicles and the influence on man and nature. National and international law related to the hygiene. Noise and vibrations - seys of measuring, prevention, elimination. Exhausts - creation, measurement, reduction, non-regular fuels and drives. Ergonomy - sitting reach. Condition - heating, ventilation, air-conditioning, filtration, tiredom.  Vehicle Hygiene  Sonomy of vehicles and the influence on man and nature. National and international law related to the hygiene. Noise and vibrations - se	Z Z KZ sources, creation, p, standing, control KZ sources, creation, p	2 1 8 2 propagation, operational 2 propagation,
16XN3 16XN4 16Y2EE Emissions and ergo physical values, wa 16Y2HP Emissions and ergo	Master Project 2  Master Project 3  Master Project 4  Emissions and Ergonomics of Vehicles  conomy of vehicles and the influence on man and nature. National and international law related to the hygiene. Noise and vibrations - seys of measuring, prevention, elimination. Exhausts - creation, measurement, reduction, non-regular fuels and drives. Ergonomy - sitting reach. Condition - heating, ventilation, air-conditioning, filtration, tiredom.  Vehicle Hygiene  conomy of vehicles and the influence on man and nature. National and international law related to the hygiene. Noise and vibrations - seys of measuring, prevention, elimination. Exhausts - creation, measurement, reduction, non-regular fuels and drives. Ergonomy - sitting	Z Z KZ sources, creation, p, standing, control KZ sources, creation, p	2 1 8 2 propagation, operational 2 propagation,
16XN3 16XN4 16Y2EE Emissions and ergo physical values, was 16Y2HP Emissions and ergo physical values, was	Master Project 2  Master Project 3  Master Project 4  Emissions and Ergonomics of Vehicles  conomy of vehicles and the influence on man and nature. National and international law related to the hygiene. Noise and vibrations - sits of measuring, prevention, elimination. Exhausts - creation, measurement, reduction, non-regular fuels and drives. Ergonomy - sitting reach. Condition - heating, ventilation, air-conditioning, filtration, tiredom.  Vehicle Hygiene  conomy of vehicles and the influence on man and nature. National and international law related to the hygiene. Noise and vibrations - sits of measuring, prevention, elimination. Exhausts - creation, measurement, reduction, non-regular fuels and drives. Ergonomy - sitting reach. Condition - heating, ventilation, air-conditioning, filtration, tiredom.	Z Z KZ sources, creation, p, standing, control KZ sources, creation, p, standing, control	2 1 8 2 propagation, operational 2 propagation, operational
16XN3 16XN4 16Y2EE Emissions and ergo physical values, wa 16Y2HP Emissions and ergo physical values, wa 16Y2KV	Master Project 2  Master Project 3  Master Project 4  Emissions and Ergonomics of Vehicles conomy of vehicles and the influence on man and nature. National and international law related to the hygiene. Noise and vibrations - size of measuring, prevention, elimination. Exhausts - creation, measurement, reduction, non-regular fuels and drives. Ergonomy - sitting reach. Condition - heating, ventilation, air-conditioning, filtration, tiredom.  Vehicle Hygiene conomy of vehicles and the influence on man and nature. National and international law related to the hygiene. Noise and vibrations - size 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	Z Z KZ sources, creation, p, standing, control KZ sources, creation, p, standing, control KZ	2 1 8 2 propagation, operational 2 propagation, operational 2
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16XN3 16XN4 16Y2EE Emissions and ergo physical values, wa  16Y2HP Emissions and ergo physical values, wa  16Y2KV Personal cars b construction. Activ  16Y2MK Quality manageme  16Y2PG Principles of creatic and free 16Y2ST Micro, nano and  16Y2SV Micro, nano and  16Y2TT Transportation a vehicles, descriptio  17DOCH Investigation of cal	Master Project 2  Master Project 3  Master Project 4  Emissions and Ergonomics of Vehicles  nomy of vehicles and the influence on man and nature. National and international law related to the hygiene. Noise and vibrations - sys of measuring, prevention, elimination. Exhausts - creation, measurement, reduction, non-regular fuels and drives. Ergonomy - sitting reach. Condition - heating, ventilation, air-conditioning, filtration, tiredom.  Vehicle Hygiene  nomy of vehicles and the influence on man and nature. National and international law related to the hygiene. Noise and vibrations - sys 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. I e 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  International Programment of the analysis of customer requirements, QFD, DFM, DFA, DFS. FMEA (Failure mode effect (team) design.  Computer Graphics and Virtual Reality  In and processing of bitmap and vector 2D graphics, 3D virtual scenes and algorithms used for their computerized processing, Adopting eware tools for creation and processing of 2D, 3D and interactive graphics, and basics of programming language VRML and graphic sparse tools for creation and processing of 2D, 3D and interactive graphics, and basics of programming language VRML and graphic sparse technologies, electric arc and its applications, plasma technologies, dipping, beam technologies, electron beams technology vehicles, laser and laser technologies, soldering, gluing, ultrasound, diffusion, friction and explosion technologies, micro stoves Special technology	Z Z KZ Sources, creation, p, standing, control KZ Sources, creation, p, standing, control KZ Sources, creation, p, standing, control KZ Materials used for chaling function. Aer KZ analysis). Elemen KZ skills of work with ibraries (OpenGL) KZ in roduction and m, gas. KZ in roduction and m, gas. KZ tructions. Transpor s. Terrestrial vehicle KZ design of research	2 1 8 2 propagation, operational 2 propagation, operational 2 propagation, operational 2 professional 2 professional 2 pending of 2 pending of 2 t surface es operation 3 instrument

17LSC	Logistics in Smart Cities	Z,ZK	6
•	es in time, city and region, mobility of city residents and movement of goods, sustainability as a concept, Smart Cities, city as a systematic concept, city as a system	•	
of life, individual qua	ality of life, city "smartness" assessment, legislation in Smart Cities, Smart Cities transformation, last mile logistics, e-commerce, new application last mile logistics in cities and in regions.	proaches in last m	ile logistics,
17MADS	Management of Transport Systems	KZ	2
TAMADO	Functions, processes and systems of management in transport, organisational structures, strategy, social responsibility, soft si		2
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	, ,	-
course focuses on t	he security of IS and possible sources of danger. The practical part deals with the process of building a new IS from the idea through	the timetable and t	he financial
470400	budget, the basic documents for the possible assignment of the contract.	7 71/	
17RKOP	Management of commercial projects in transport customer, activities, output - quality, time, money), project surroundings, location of the project (area analysis, traffic flows, authorizati	Z,ZK	3 anizational
	ject , sources of financing, customer-supplier relations, feasibility studies, sensitivity and multi-criteria analysis, financial and value an		
. ,	changes.	, , ,	
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	ecialization of transport, handling and loading/unloading means, maintenance, service and repairs of road vehicles, safety of road transport unit.	ansport and choice	of optimal
17TZND	Technology of Railway Transport	Z,ZK	4
	assesment, model operational situation with a system running time between IPT-nodes, calculation of traction energy savings comp	, ,	
for designing of fle	eeting crossing station, solving of capacity problem and blocking time in relation to train protection system, robustness of timetable, sy	stem concept of fi	eight train
	paths, guidelines for centralised operational traffic control and management.		
17XN1	Master Project 1	Z	2
17XN2	Master Project 2	Z	2
17XN3	Master Project 3	Z	1
17XN4	Master Project 4	Z	8
17Y2AM	Application of Marketing Tools in Transportation  narketing principles in transport issues, marketing tools suitable for transport, case studies of the use of marketing in the sphere of p	KZ	2 Insport
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 d	levelopment in small towns. Particularities of investment and operation financing of individual UMT types. Historic and present model	s of UMT financing	. Transport
477/01/15	inspection and blind passengers. Tourism & DMT. UMT typology & DMT. UMT typology amp; choice of optimum financing.	147	
17Y2MD	Modelling and optimization on transport networks  lems on public transport networks, scheduling vehicles, design of control plans for light-controlled intersections including green wave	KZ modelling convice	2
Coordination prob	modelling of advanced problems in distribution systems - exact, heuristic and metaheuristic principles of solving problems.	modelling, service	a systems,
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,	ansport, Internatio	nal mode
	organisations of public transport, Air-Rail, railways, roads, air, waterways, forwarding and postal services.		
17Y2MS	Microsimulation of Railway Operation  characteristics of simulation tools, creation of a simulation model of railway infrastructure, verification of a specific operational conce	KZ	2
	frastructure model and modification to the infrastructure to allow the implementation of the proposed operational concept. Stability tes	•	
	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		
American Civil W	ar, transatlantic transportation development. Imperial China: Late Qing dynasty. Selected chapters from the 20. century history: From Czechoslovak historical myths.	Belle Epoque to C	cold War.
17Y2RZ	Control of Transport Processes	KZ	2
	transport system, decomposition, factors influencing control, quality diagnosis, methods of control, systems for decision making sup		
<del>,</del>	telematics.		
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		٠ ١
circulation planning	relations and waiting times, timetables for lines under construction.	neight transport.	Network line
18XN1	Master Project 1	Z	2
18XN2	Master Project 2	Z	2
18XN3	Master Project 3	Z	1
18XN4	Master Project 4	Z	8
18Y2DC	Dynamics of Transport Routes and Vehicles	KZ	2
	liculations of more mass systems. Analysis of the forces acting between the vehicle and transport route. Creation of dynamic models of		·
vibration of systems	s with a finite number of degrees of freedom. Methods of stiffness constants and pliability constants. Fundamentals of vibration of bridg of oscillation. Experimental methods in dynamics.	es. Unteria for the a	urnissidility
18Y2EM	Electron microscopy	KZ	2
	of electron microscopy, construction, control and maintenance of SEM, sample preparation, signal detection, types of detectors and o		
	ation of results and automation of data processing, energy dispersive X-ray microanalysis and other analytical methods in electron m		
	obtained from ED detector, practical examples of ED microanalysis on samples.		
18Y2FZ	Physical foundation of materials' properties	KZ	2 materials
Atomistic models, I	attice defects influence on properties of materials, stiffness, plasticity, strength, fracture, fatigue, creep, corrosion, effects of environm behavior are the main discussed topics.	ient and loading of	i materiais"
	bonation are the main allegated topice.		

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		٠ ا		
variational principles. Element formulation (bar and beam elements, CST, LST, quadrilateral, tetrahedral and brick elements). Natural coordinates, natural shape functions and					
(2)(2.0.5	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 sed on theoretical background and practical experience in the field of reliability of constructions, implementation of diagnostic procedur	KZ	2 of material		
	nination 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.	mont, protociació	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
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		fic accident.		
Injuries in road t	raffic. Pedestrian injuries. Injury in railway and air traffic accidents. Analysis of biomechanical events in accidents and their computation	onal modeling. Prin	nciples of		
	treatment and rehabilitation. Protective elements and safety measures in transport.				
18Y2VC	Computational Mechanics in Transportation	KZ	2		
	work and variational principles in FEM. Bar shaped, planar and three - dimensional structures in FEM. FEM in statics and in dynamic	-	-		
	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		
20Y2PR	Prediction of time series	KZ	2		
	series prediction, meaning of prediction, basics of quantitative prediction. Methods for predictive quality evaluation, descriptive statistics				
prediction, predic	tion for general formula of loss function. Calculation and programming environment R. Regression models, basics of linear regression	ı, simple regressio	n. Multiple		
20) (275	regression, statistical tests of linear dependence, selection of input variables.				
20Y2TE	Technology of Electronic Systems	KZ	2		
Principle technolog	jes for an effective operation of electronically controlled systems. Maintaining, meassuring, optimization of safety and reliability of cor technologies, printed circuits, assembly operations, interconnection and repairs technologiesusers and operators.	npiex systems. Ser	niconductor		
21XN1		Z	2		
	Master Project 1		2		
21XN2	Master Project 2	Z	2		
21XN3	Master Project 3	Z	1		
21XN4	Master Project 4	Z	8		
21Y2BS	Unmanned aircraft systems 2	KZ	2		
	nmanned aircraft development. Use of unmanned aircraft. Managerial activities related to the operation of unmanned aircraft. Flights be				
21Y2CR	CRM  M. Anglysia of air againdants. Hymna factor, Franz Historical dayslanmant of CRM Haalth and fitness. Stress and its offeet on the hymna	KZ	2		
	M. Analysis of air accidents. Human factor. Error. Historical development of CRM. Health and fitness. Stress and its effect on the hum Information Processing. Situational Awareness. Workload Management. Decision Making. Communication. Leadership & Team E				
21Y2FM	Aviation Company Financial Management	KZ	2		
	orate finance - financial statements, budget, forecast. Financial policy of the company. Financial resources - long-term financial resou				
	earnings, shares, bonds, loans, leasing, capital. Financial and economic analysis of the company - structure and content.	, , , , ,	,		
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	a ACC control. His	story of ATS		
	at USA and Czechoslovakia. ATS - Model of financing. Training Systém of Air Traffic Controllers. Future development of ATS	3.			
21Y2MC	CNS Systems Modelling	KZ	2		
The course is design	gned as a set of model tasks in the field of communication navigation and surveillance systems in aviation, addressed using mathema		nd software		
	tools. A large part is devoted to air targets tracking, measurement-to-track association, track filtering and multisensor tracking				
21Y2MK	Marketing of Air Transport	KZ	2		
	course "Marketing in air transport" is the management of activities and processes using available marketing tools and processes for a				
and implementation	n of sales of goods and services in the aviation industry. In addition to the theoretical foundations of marketing, the lectures present s and product analysis, creation of marketing strategies and planning.	ystems of market,	competition		
21Y2MQ	Quality Management	KZ	2		
	Quality Management inition. Pioneers in the field of quality. International quality organisations and quality promotion in the Czech Republic. Quality manage				
	rms. Integrated management systems. Risk management in the context of the requirements of ISO standards. Sectoral quality management in the context of the requirements of the standards.	•			
,	quality management, excellence models and corporate social responsibility. Quality audits.	•			
21Y2PL	Operational Aspects of Aerodromes	KZ	2		
Operational aspec	cts of aerodromes. Location of aerodrome and orientation of runways. Requirements for apron. Capacity of airports runways and term	inals. Operation ur	nder winter		
	conditions. Firefighting units. Protection against unlawful interference. Local transport connection. Environmental protection				
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	on of state administration and state supervision in matters of civil aviation, in accordance with Act No. 49/1997 Col. Facilitation. Responses to the safe transport of departure goods.	onsibilities of air ca	arriers for		
20/14	passengers, luggage and cargo. The safe transport of dangerous goods.  Mostor Project 1	7	2		
22XN1	Master Project 1	Z	2		
22XN2	Master Project 2	Z	2		
22XN3	Master Project 3	Z	1		
22XN4	Master Project 4	Z	8		
22Y2PS	Traffic Accidents Computer Simulation and Analysis	KZ	2		
venicle dynamics	simulation, multi body systems and vehicle active safety systems, vehicle slipping, external influence on virtual model, crash tests ev	aiuation, single-tra	ick venicle,		
23XN1	vehicle passangers, pedestrian, traffic accident simulation and analysis.  Mactor Project 1	Z	2		
∠3∧INT	Master Project 1				

23XN2	Montay Project 2	7	2
	Master Project 2		<del>                                     </del>
23XN3	Master Project 3	Z	1
23XN4	Master Project 4	Z	8
23Y2BP	Security Class	KZ	2
The most prevale	ent topics include data management, data and text mining applications, terrorism informatics, deception and intent detection, terrorisi	and criminal soc	ial network
	analysis, crime analysis, cyber-infrastructure protection, transportation infrastructure security, and information assurance, among	others.	
23Y2FB	Physics for Security Branches	KZ	2
Grounds of phy	sics of substances and phenomena at extreme conditions. Grounds of rheology. Physics of Earth's interior. Geophysics. Physics of a	itmosphere. Appli	cations in
	dengineering branches directed to safety.		
23Y2MA	Risk Analysis and Management	KZ	2
Concept of risks ar	nd terms. Risk sources, definition of hazard, impacts and risks. Methods for identification, analysis, assessment and management of	risks. Risk engine	ering targets
and good engine	ering practice. Methods, tools and techniques for risk engineering. System of systems risk. Application of strategic and system approa	ach for benefit of s	security and
	development. Territorial, emergency and crisis planning. Human factor - its role.		
23Y2PD	Practical vehicle dynamics	KZ	2
Theory of vehicle	dynamics. Multibody vehicle modeling. Modeling with IPG CarMaker. Standard and development stage experiments with road vehicle	s. Realization of $\epsilon$	xperimental
	measurements with passenger vehicles. Experiment evaluation.		
23Y2TP	Creation of legal and technical regulations	KZ	2
Creation of legis	slation, structure of the bills of law, legal process, compatibility with the EC law, the creation of technical standards and their publication	on, ÚNMZ (Czech	Office for
	standards, metrology and testing) in Czech Republic, organizations CEN, CENELEC and ETSI, the notification process.		
23Y2VR	Cope with Risks in Engineering Branches	KZ	2
Types of engineering	ng branches directed to risks, procedures used in risk engineering, ensuring the secured systems, ensuring the safe systems, ensurin	g the safe system	s of systems
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 managem	nent, communicati	ion in teams,
	strategy and planning in human resources, ethics and corporate culture, cross-cultural differences. The labor code. Introduction into	protocols.	
23Y2ZM	Intelligence Means and Methods	KZ	2
History and the pre-	sent of intelligence services and their role in the modern world. How intelligence services handle with information. Methods and procedu	res of collecting a	nd evaluating
information. Means	s of intelligence services. Internal and external intelligence, military intelligence. The means and methods of state security services. C	ooperation among	g Intelligence
	services within NATO, EU. The organization of the intelligence services.		

For updated information see <a href="http://bilakniha.cvut.cz/en/FF.html">http://bilakniha.cvut.cz/en/FF.html</a> Generated: day 2025-05-24, time 08:50.