## Study plan

## Name of study plan: navaz. mag. PRE program DS 23/24

Faculty/Institute/Others:

Department:

Branch of study guaranteed by the department: Welcome page

Garantor of the study branch:

Program of study: Transportation Systems and Technology

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: 1.S.NPDS 20/21

Name of the group: 1.sem.nav.prez (od) 20/21 - program DS

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

Requirement courses in the group: In this group you have to complete 7 courses

Credits in the group: 22 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
12IKD	Rail Transport Infrastructure Lukáš Týfa, Ond ej Trešl	Z,ZK	5	2P+2C	Z	Z
12TKVP	Highway Engineering Materials Otakar Vacín	Z,ZK	4	2P+2C	Z	Z
18GAZ	Geomechanics and Foundation Engineering  Jitka ezní ková, Linda erná Vydrová Linda erná Vydrová (Gar.)	Z,ZK	3	2P+1C	Z	Z
18TIK	Theory of Engineering Structures Petr Koudelka, Petr Zlámal, Ond ej Jiroušek	Z,ZK	4	2P+1C	Z	Z
14GISS	Geographical Information Systems František Kekula, Tomáš Janata, Zuzana Purkrábková Tomáš Janata Tomáš Janata (Gar.)	KZ	2	0P+2C+8B	Z	Z
22MSV	Modelling and Vehicle Movement Simulation Michal Frydrýn, Drahomír Schmidt Drahomír Schmidt (Gar.)	KZ	2	0P+2C	Z	Z
15J2A1	Language - English 1 Barbora Horá ková, Jitka He manová, Dana Boušová, Lenka Monková, Peter Morpuss, Markéta Vojanová, Marie Michlová, Marek Tome ek, Markéta Musilová,	Z	2	0P+2C+10B	Z	Z

Characteristics of	of the courses of this group of Study Plan: Code=1.S.NPDS 20/21 Name=1.sem.nav.prez (od	) 20/21 - progr	am DS
12IKD	Rail Transport Infrastructure	Z,ZK	5
Non-compensated late	eral acceleration, parameters eduction for transition curve and cant transition, curves without straight, track spacing change. Track	detailed construction	n. Substructure
design, slab track. Tra	m-train. Interoperability. Noise precautions. Railway line modernization for non-tilting and tilting trains.		
12TKVP	Highway Engineering Materials	Z,ZK	4
The theory of road co	nstruction - Material Aspects. The course emphasizes the development of road construction from the beginning of the 20th ce	ntury to the present	, focusing on
materials, understand	ing the production and placing of asphalt mixtures.		
18GAZ	Geomechanics and Foundation Engineering	Z,ZK	3
Geology (basics of pe	rtiographyand stratigraphy), mechanics of soils (classification of fundamental soils, mechanic properties of fundamental soils,	permeability), plan	ar foundations
(footings, footers, plat	es, depth of founding), determination of planar foundations bearing and deformation, depth foundations – classification of depi	th foundations elem	ents, examples
of their use, piles (class	ssification, technology od performing).		
18TIK	Theory of Engineering Structures	Z,ZK	4
The course builds upo	in the knowledge gained in basic mechanics courses in bachelor study (especially Statics and Elasticity) in the field of mathem	atical theory of elas	ticity. Emphasis
is placed on plane and	d axisymmetric problems, as well as on the calculation of stress and strain in plates and shells. Students are further acquainte	d with methods of r	modeling the
behavior of subsoil us	ed in the design of line structures.		
14GISS	Geographical Information Systems	KZ	2
Construction of saving	format of space-oriented information land-survey and cartography minimum basic tasks of spatial operations principles of ter	ritorial identification	ı

22MSV	Modelling and Vehicle Movement Simulation	KZ	2				
Principles and posibilities of simulation tools with regards to vehicle movement analysis and vehicle crash analysis. Kinematic and dynamic modelling of vehicle/set of vehicles movement.							
View conditions. Propos	View conditions. Proposed road space passage. Processing of road 3D models.						
15J2A1	Language - English 1	Z	2				
Presentation Skills - expert technical discourse and style; Analysis of expert texts and their production; Preparation for overseas work engagement.							

Code of the group: 1.S.NPDS VÝB R 22/23

Name of the group: 1.sem.nav.prez (od) 22/23 výb r p edm tu - program DS Requirement credits in the group: In this group you have to gain 4 credits

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

Credits in the group: 4 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
17DOPD	Transportation Planning and Modeling Milan K íž, Ond ej P ibyl	Z,ZK	4	2P+2C	Z	Z
17TZND	Technology of Railway Transport Zden k Michl, Vít Janoš Vít Janoš (Gar.)	Z,ZK	4	2P+2C	Z	Z

## Characteristics of the courses of this group of Study Plan: Code=1.S.NPDS VÝB R 22/23 Name=1.sem.nav.prez (od) 22/23 výb r p edm tu - program DS

17DOPD Transportation Planning and Modeling

Basic steps and tools used within four step model (trip generation, trip distribution, mode choice and trip distribution). Mobility and availability in urban areas, land use. New trends for transportation planning and modelling.

17TZND Technology of Railway Transport

Z,ZK 4

Track line capacity assessment, model operational situation with a system running time between IPT-nodes, calculation of traction energy savings compared with infrastructure 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 centralised operational traffic control and management.

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

Name of the group: 2.sem.nav.prez (od) 20/21 - program DS

Requirement credits in the group: In this group you have to gain 20 credits

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

Credits in the group: 20 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
12NAPI	Design and Maintenance of Transportation Structures  Otakar Vacín	Z,ZK	4	2P+2C	L	Z
12UMUP	Sustainable Mobility and Land - Use Planning Dagmar Ko árková, Václav Novotný Dagmar Ko árková (Gar.)	Z,ZK	5	2P+2C	L	Z
12ZSUZ	Railway Stations and Centres Ond ej Trešl, Martin Jacura, Tomáš Javo ík	Z,ZK	3	2P+1C	L	Z
16PDP	Principles of Vehicle Design Jaroslav Machan, David Lehet Jaroslav Machan (Gar.)	ZK	2	2P+0C+8B	L	Z
22AMMD	Measuring Methods Applied to Transportation Michal Frydrýn, Drahomír Schmidt, Tomáš Mi unek, Luboš Nouzovský, Zden k Svatý Tomáš Mi unek (Gar.)	KZ	4	1P+3C	L	Z
15JBA2	Language - English 2 Barbora Horá ková, Jitka He manová, Dana Boušová, Lenka Monková, Peter Morpuss, Markéta Vojanová, Marie Michlová, Marek Tome ek, Markéta Musilová,	Z	2	0P+2C+10B	L	Z

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

12NAPI	Design and Maintenance of Transportation Structures	Z,ZK	4				
Design and construction	Design and construction of cement-concrete pavements and their maintenance. Construction of bridge objects, examples and choice of bridge construction materials. Construct						
and operation of tunne	and operation of tunnels.						
12UMUP	Sustainable Mobility and Land - Use Planning	Z,ZK	5				

Spatial planning - objectives and tasks, development over time. Land-use planning tools. SUMP Territorial and transport planning context. Ways of urban growth in connection with transport. Basic principles of the transport solution. The impact of transport on the size and shape of the city, on the development of the street and the square and the roads. Solutions for pedestrian and bicycle transport. Suburbanization and transport. City economics.

12ZSUZ Railway Stations and Centres

Equipment for passenger transport. Platform construction. Access roads to platforms. Modification of railway stations according to the TSI PRM. Station heads design. Variant solutions of station heads for current ride. Junction stations. Crossing stations. Passenger stations. Moving stations. Public transport terminals.

Z,ZK

Code of the group: 2.S.NPDS VÝB R 20/21

Name of the group: 2.sem.nav.prez (od) 20/21 výb r p edm tu - program DS Requirement credits in the group: In this group you have to gain 4 credits

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

Credits in the group: 4 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
12BED	Road Safety Audit Dagmar Ko árková, Josef Kocourek, Polina Zayats, Karel Kocián Josef Kocourek (Gar.)	Z,ZK	4	2P+1C	L	Z
18TEAM	Theoretical and Applied Mechanics Ond ej Jiroušek, Radim Dvo ák	Z,ZK	4	2P+1C	L	Z

## Characteristics of the courses of this group of Study Plan: Code=2.S.NPDS VÝB R 20/21 Name=2.sem.nav.prez (od) 20/21 výb r p edm tu - program DS

P	20					
12BED	Road Safety Audit	Z,ZK	4			
Schedules of applications of safety assessments (especially Road Safety Audit, Road Safety Inspection) during the process of preparations, and of the particular realization of the road						
network that should mir	nimize traffic accident risks for all those who take part in road traffic. Application of European Directive 2008/96/EC on road s	afety infrastructure	e management.			
18TEAM	Theoretical and Applied Mechanics	Z,ZK	4			
Fundamentals of theory of plasticity. Plasticity conditions. Elastoplastic and plastic states of cross-sections and beams. Reliability and durability of structures. The stress and strain						
state around a notch. Stress intensity factor. Fracture toughness. Energy methods of linear fracture mechanics. Crack driving force.						

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

The role of the block: ZP

Code of the group: XN DS 1-4 20/21

Name of the group: Projekty nav.prez.1.-4.sem (od) 20/21 programu DS 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	e 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	Z	2	0P+2C+4E	Z	ZP
12XN1	Master Project 1 Lukáš Týfa, Ond ej Trešl, Gabriela Sidorinová, Dagmar Ko árková, Václav Novotný, Iva Šturmová, Martin Jacura, Tomáš Javo ík, Josef Kocourek,	Z	2	0P+2C+4E	3 Z	ZP
14XN1	Master Project 1	Z	2	0P+2C+4E	B Z	ZP
15XN1	Master Project 1	Z	2	0P+2C+4E	Z	ZP
16XN1	Master Project 1 P emysl Toman	Z	2	0P+2C+4E	B Z	ZP
17XN1	Master Project 1 Milan K íž, Zden k Michl, Vít Janoš, Rudolf Vávra, Václav Baroch, Michal Drábek, Alexandra Dvo á ková, Veronika Faifrová, Eliška Glaserová,	Z	2	0P+2C+4E	B Z	ZP
18XN1	Master Project 1 Václav Rada, Nela Kr má ová	Z	2	0P+2C+4E	3 Z	ZP
20XN1	Master Project 1 Ji í R ži ka	Z	2	0P+2C+4E	B Z	ZP
21XN1	Master Project 1 Jakub Kraus, Andrej Lališ, Slobodan Stoji , Terézia Pilmannová, Jakub Hospodka, Lenka Hanáková, Vladimír Socha, Peter Vittek, Lukáš Popek,	Z	2	0P+2C+4E	B Z	ZP

22XN1	Master Project 1 Michal Frydrýn, Luboš Nouzovský, Zden k Svatý, Karel Kocián, 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	Z	2	0P+2C+8B	L	ZP
12XN2	Master Project 2 Lukáš Týfa, Ond ej Trešl, Gabriela Sidorinová, Dagmar Ko árková, Václav Novotný, Martin Jacura, Tomáš Javo Ik, Josef Kocourek, Polina Zayats,	Z	2	0P+2C+8B	L	ZP
14XN2	Master Project 2  Vít Fábera, Tomáš Brandejský, Mária Jánešová, Jan Zelenka	Z	2	0P+2C+8B	L	ZP
15XN2	Master Project 2	Z	2	0P+2C+8B	L	ZP
16XN2	Master Project 2 P emysl Toman, Josef Mik	Z	2	0P+2C+8B	L	ZP
17XN2	Master Project 2 Milan K íž, Zden k Michl, Vít Janoš, Rudolf Vávra, Václav Baroch, Michal Drábek, Alexandra Dvo á ková, Veronika Faifrová, Rudolf F. Heidu, Vít Janoš (Gar.)	Z	2	0P+2C+8B	L	ZP
18XN2	Master Project 2  Daniel Kytý	Z	2	0P+2C+8B	L	ZP
20XN2	Master Project 2 Ji i R ži ka, Patrik Horaž ovský	Z	2	0P+2C+8B	L	ZP
21XN2	Master Project 2 Jakub Kraus, Andrej Lališ, Slobodan Stoji , Terézia Pilmannová, Jakub Hospodka, Lenka Hanáková, Peter Vittek, Jakub Steiner, Natalia Guskova,	Z	2	0P+2C+8B	L	ZP
22XN2	Master Project 2 Michal Frydrýn, Luboš Nouzovský, Zden k Svatý, Karel Kocián, 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 Lukáš Týfa, Ond ej Trešl, Dagmar Ko árková, Václav Novotný, Martin Jacura, Tomáš Javo ík, Josef Kocourek, Polina Zayats, Zuzana arská,	Z	1	0P+4C	Z	ZP
14XN3	Master Project 3	Z	1	0P+4C	Z	ZP
15XN3	Master Project 3	Z	1	0P+4C	Z	ZP
16XN3	Master Project 3 P emysl Toman, Josef Mik, Michal Cenkner, Josef Svoboda	Z	1	0P+4C	Z	ZP
17XN3	Master Project 3  Milan K íž, Zden k Michl, Vít Janoš, Rudolf Vávra, Václav Baroch, Michal Drábek, Alexandra Dvo á ková, Veronika Faifrová, Eliška Glaserová,	Z	1	0P+4C	Z	ZP
18XN3	Master Project 3 Daniel Kytý	Z	1	0P+4C	Z	ZP
20XN3	Master Project 3	Z	1	0P+4C	Z	ZP
21XN3	Master Project 3 Terézia Pilmannová, Miloš Strouhal	Z	1	0P+4C	Z	ZP
22XN3	Master Project 3 Michal Frydrýn, Tomáš Mi unek, Luboš Nouzovský, Zden k Svatý, Karel Kocián	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 Lukáš Týfa, Ond ej Trešl, Gabriela Sidorinová, Dagmar Ko árková, Martin Jacura, Tomáš Javo ík, Josef Kocourek, Polina Zayats, Zuzana arská,	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 Milan K íž, Zden k Michl, Vít Janoš, Rudolf Vávra, Václav Baroch, Michal Drábek, Alexandra Dvo á ková, Veronika Faifrová, Rudolf F. Heidu, Václav Baroch (Gar.)	Z	8	0P+4C	L	ZP
18XN4	Master Project 4	Z	8	0P+4C	L	ZP
20XN4	Master Project 4	Z	8	0P+4C	L	ZP
21XN4	Master Project 4 Slobodan Stoji , Terézia Pilmannová, Vladimír Socha, Peter Vittek, Jakub Steiner, Miloš Strouhal, Ota Hajzler, Iveta Kameníková, Petr Lukeš,	Z	8	0P+4C	L	ZP
22XN4	Master Project 4 Michal Frydrýn, Luboš Nouzovský, Zden k Svatý, Karel Kocián	Z	8	0P+4C	L	ZP
23XN4	Master Project 4	Z	8	0P+4C	L	ZP

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

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-NPDS 23/24

Name of the group: PVP nav.prez. program DS 23/24

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
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 Zuzana Kosová	KZ	2	2P+0C	Z	PV
21Y2BS	Unmanned aircraft systems 2 Tomáš Tlu ho , Michal erný	KZ	2	2P+0C	L	PV

14Y2C1	CATIA I	KZ	2	2P+0C	L	PV
14Y2C2	CATIA II	KZ	2	2P+0C	Z	PV
14Y2CS	Sensitivity of Systems	KZ	2	2P+0C	L	PV
21Y2CR	CRM	KZ	2	2P+0C	L	PV
12Y2DU	Transport in the Context of Sustainability	KZ	2	2P+0C	L	PV
15Y2DN	Kristýna Neubergová Transportation Psychology in German Speaking Countries	KZ	2	2P+0C	L	PV
18Y2DC	Dynamics of Transport Routes and Vehicles	KZ	2	2P+0C	 	PV
18Y2EM	Electron microscopy	KZ	2	2P+0C	L	PV
16Y2EE	Nela Kr má ová	KZ	2	2P+0C	 	PV
	Emissions and Ergonomics of Vehicles Financing in Urban Mass Transportation			+		
17Y2FM	Václav Baroch	KZ	2	2P+0C	Z	PV
21Y2FM	Aviation Company Financial Management Radoslav Zozu ák Radoslav Zozu ák	KZ	2	2P+0C+8B	Z	PV
23Y2FB	Physics for Security Branches	KZ	2	2P+0C	Z	PV
18Y2FZ	Physical foundation of materials' properties  Jaroslav Valach	KZ	2	2P+0C	L	PV
15Y2HS	Road Transport History	KZ	2	2P+0C	L	PV
16Y2HP	Eva Rezlerová, Zuzana arská  Vehicle Hygiene	KZ	2	2P+0C	L	PV
14Y2IS	Intelligent Systems in Postal Services	KZ	2	2P+0C		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	KZ	2	2P+0C	Z	PV
12Y2KE	Landscape Ecology 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	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 Šmidochová	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 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	KZ	2	2P+0C	L	PV
17Y2MO	Zuzana arská International Organisations in Transportation	KZ	2	2P+0C	L	PV
17Y2MS	Microsimulation of Railway Operation	KZ	2	2P+0C	 	PV
17Y2MD	Zden k Michl  Modelling and optimization on transport networks	KZ	2	2P+0C	Z	PV
21Y2MC	CNS Systems Modelling	KZ	2	2P+0C+8B	 	PV
	Stanislav Pleninger Stanislav Pleninger  Modern History for Engineering Students					
17Y2MT	Modern History for Engineering Students Tomáš Horák, Petra Skolilová  Modernization of Railway Lines and Stations	KZ	2	2P+0C	Z	PV
12Y2MZ	Dagmar Ko árková, Miroslav Veliš  Shared Space Design	KZ	2	2P+0C		PV
12Y2NS	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 Eva Rezlerová, Petr Musil	KZ	2	2P+0C	Z	PV
15Y2OF	Specialised French for Transportation and Telecommunications	KZ	2	2P+0C	Z	PV

18Y2OB	Optical Contactless Strain Measurements Petr Zlámal	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 Eva Rezlerová, Petr Musil	KZ	2	2P+0C	L	PV
23Y2PD	Practical vehicle dynamics	KZ	2	2P+0C	L	PV
15Y2PD	Practical Spanish for Transportation	KZ	2	2P+0C	Z	PV
21Y2PP	Law and Operation in Air Transport Radoslav Zozu ák	KZ	2	2P+0C+8B	L	PV
20Y2PR	Prediction of time series	KZ	2	2P+0C	L	PV
12Y2PV	Public transport priority	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	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	KZ	2	2P+0C	Z	PV
17Y2SJ	Network Timetabling on the Railway Vit Janoš Vit 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	KZ	2	2P+0C	Z	PV
15Y2SR	Stylistics and Rhetorics	KZ	2	2P+0C	Z	PV
15Y2TS	Technician and Contemporary Society  Jan Feit. Eva Rezlerová	KZ	2	2P+0C	L	PV
20Y2TE	Technology of Electronic Systems	KZ	2	2P+0C	Z	PV
14Y2TU	Telecommunications Systems and Multimedia	KZ	2	2P+0C	Z	PV
16Y2TT	Transportation and Building Technology and Equipment	KZ	2	2P+0C	Z	PV
23Y2TP	Creation of legal and technical regulations	KZ	2	2P+0C	L	PV
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 Radek Kolman	KZ	2	2P+0C	L	PV
23Y2VR	Cope with Risks in Engineering Branches  Danuše Procházková	KZ	2	2P+0C		PV
15Y2ZA	Basic Principles of English Academic Writing and Abstract in English	KZ	2	2P+0C	Z	PV
12Y2ZK	Traffic Calming Zuzana arská	KZ	2	2P+0C	Z	PV
23Y2ZM	Intelligence Means and Methods  Miloslav Ku era	KZ	2	2P+0C	Z	PV

1112/11/1	Application of Marketing 1003 in Transportation	1112	
Application of marketing	principles in transport issues, marketing tools suitable for transport, case studies of the use of marketing in the sphere of pu	ublic passenger tr	ansport.
12Y2BM	Safety on The Local Roads	KZ	2
Classification of road ac	cidents rates, social looses. Collision points, diagrams. Tools and methods for safer road transportation. Crossroads from the po	oint of view of safe	ty. Psychological
right of way. Roundabou	uts. Pedestrian transport, cyclists. Traffic lights coordination. Transport control and regulation.		
23Y2BP	Security Class	KZ	2
The most prevalent top	cs include data management, data and text mining applications, terrorism informatics, deception and intent detection, terroris	st and criminal so	cial network
analysis, crime analysis	s, cyber-infrastructure protection, transportation infrastructure security, and information assurance, among others.		
21Y2BS	Unmanned aircraft systems 2	KZ	2
Modern trends in unmai	ned aircraft development. Use of unmanned aircraft. Managerial activities related to the operation of unmanned aircraft. Flights	beyond the appli	cable legislation.
14Y2C1	CATIA I	KZ	2
Fundaments of working	with CATIA, making basic parts and bodies. Making 2D sketches, geometric stucture, parametric linking, making adaptive m	odels from 2D sk	etches. Import
and export of made par	ts and bodies. Making assemble and visualization.		

14Y2C2 CATIA II		
1412G2   CATIA II	KZ	2
Extension of basic course. Modeling compound bodies. Possibility of enumeration, comunications with other systems. Surface x solid bodies. Kinem	atic mechanism. F	roject making
and project cooperation. Outputs of projects.	V7	2
14Y2CS   Sensitivity of Systems Design of systems with defined reliability. The impact of changing parameters and subsystems within a system. System sensitivity computing, defini	KZ tion of sensitivity f	
matrices and their usability in system design.		u
21Y2CR CRM	KZ	2
Introduction to CRM. Analysis of air accidents. Human factor. Error. Historical development of CRM. Health and fitness. Stress and its effect on the h	uman body. Fatigu	ue Sleep &
Vigilance. Information Processing. Situational Awareness. Workload Management. Decision Making. Communication. Leadership & Decision Making. Communication. Leadership & Decision Making. Communication.		
12Y2DU Transport in the Context of Sustainability	KZ	2
Definitions of sustainable transport, historical context, development in our country and in the world. Sustainable development and sustainable transport	rt. Demand for tra	nsport. Induction
of transport. Examples of sustainable transport. Biofuels. Electromobility. New trends in transport. Practical examples.	1/7	0
15Y2DN Transportation Psychology in German Speaking Countries Introduction into broader view of traffic problems with regard to the work with texts (Physics for drivers, abusing alcohol during driving, exhaustion, g	KZ	2
in traffic, traffic accident, traffic psychology in the internet etc.)	etting of driving lit	cence, children
18Y2DC Dynamics of Transport Routes and Vehicles	KZ	2
Basic theory and calculations of more mass systems. Analysis of the forces acting between the vehicle and transport route. Creation of dynamic mode	1	
Vibration of systems with a finite number of degrees of freedom. Methods of stiffness constants and pliability constants. Fundamentals of vibration of b	ridges. Criteria for	the admissibility
of oscillation. Experimental methods in dynamics.		
18Y2EM Electron microscopy	KZ	2
Basic principles of electron microscopy, construction, control and maintenance of SEM, sample preparation, signal detection, types of detectors and		
analysis, quantification of results and automation of data processing, energy dispersive X-ray microanalysis and other analytical methods in electron	n microscopy. Eval	uation of data
obtained from ED detector, practical examples of ED microanalysis on samples.  16Y2EE Emissions and Ergonomics of Vehicles	KZ	2
Emissions and ergonomy of vehicles and the influence on man and nature. National and international law related to the hygiene. Noise and vibration	1	
physical values, ways of measuring, prevention, elimination. Exhausts - creation, measurement, reduction, non-regular fuels and drives. Ergonomy - si		
reach. Condition - heating, ventilation, air-conditioning, filtration, tiredom.	3, 3,	, , ,
17Y2FM Financing in Urban Mass Transportation	KZ	2
UMT history and development in Prague and other cities in the world. Building and operation of public tram, bus, and trolleybus networks. Undergro		peration. Other
UMT types. UMT development in small towns. Particularities of investment and operation financing of individual UMT types. Historic and present mo	dels of UMT finan	cing. Transport
inspection and blind passengers. Tourism & DMT. UMT typology & DMT. UMT typology & DMT. UMT typology amp; choice of optimum financing.		
21Y2FM Aviation Company Financial Management	KZ	2
Theories of corporate finance - financial statements, budget, forecast. Financial policy of the company. Financial resources - long-term financial resources above a long-term financial resource - long-term financial resources - long-term financial resour	ources, depreciation	on, retained
earnings, shares, bonds, loans, leasing, capital. Financial and economic analysis of the company - structure and content.  23Y2FB Physics for Security Branches	KZ	2
23Y2FB Physics for Security Branches Grounds of physics of substances and phenomena at extreme conditions. Grounds of rheology. Physics of Earth's interior. Geophysics. Physics of a	1	
dengineering branches directed to safety.	иноорного. Дрис	addiono in
18Y2FZ Physical foundation of materials' properties	KZ	2
Atomistic models, lattice defects influence on properties of materials, stiffness, plasticity, strength, fracture, fatigue, creep, corrosion, effects of envir	1	ng on materials'
behavior are the main discussed topics.		
15Y2HS Road Transport History	KZ	2
Roads and road traffic in the Ancient Age, corridors of main mediveal pathways. Development of road traffic in the modern period, acceleration of road traffic in the modern period		
1st part of 20th century. Development of road layout, geometric and construction layers. Beginning of modern road civil engineering. Development of	t road travelling in	modern period
	r road travolling in	modern period.
History of road intercections, bridges and traffic control, development of road signs.		
16Y2HP Vehicle Hygiene	KZ	2
	KZ s - sources, creati	2 on, propagation,
16Y2HP Vehicle Hygiene Emissions and ergonomy of vehicles and the influence on man and nature. National and international law related to the hygiene. Noise and vibration	KZ s - sources, creati	2 on, propagation,
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Intelligent Systems in the postal services  The use of information systems in the postal services (ITIS, and POST, T + T, PS, KMP, DS), application of information technology in the processing postal network, optimizing logistics processes in the post. The appreciation of the real implementation of the Czech post in operation both in lectures a desk.  12Y2IS  Urban Networks  The importance and the position of UN as public and technical infrastructure / utilities, metodology of the UN master planning, of UN design, UN cooperation (basic technical standards of UN, trenchless technologies for UN).  14Y2JM  One-Chip Controllers One-chip controllers architecture, embedded peripherals (counters, timers, converters, ports) and their utilisation. Practical tasks are programmed via 15Y2JH  Job Hunting in English The course provides a practical guide to applying for a job in English. The interview process is mapped out, with the course including specifics for job-hunting in English. Students will also be introduced to the English vocabulary and phraseology necessary for a successful 14Y2KI  Capital Investment in Transportation and Telecommunications Financial market, investment desicion making - long term goals and investment strategies, long term financing  16Y2KV  Car Body Design  Personal cars body, high-load car body, bus car body, and motorcycle as a construction set. Principles of design, production, testing and operation. construction. Active and passive safety parts. Ergonomics, HMI, view out of the vehicle, operational extent, view behind the car. Conditioning tools, of the car body, Design and artistic design principles. Practical training.	KZ s - sources, creatiting, standing, continuing, standing, continuing, standing, continuing from the framework  KZ ordination, UN instance of the stages of	2 on, propagation, ntrol, operational  2 g nodes in the k of the practical  2 stallation and UN  2 chips.  2 of this process,  2 car body Aerodynamics
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Intelligent Systems in Postal Services The use of information systems in the postal services (ITIS, and POST, T + T, PS, KMP, DS), application of information technology in the processing postal network, optimizing logistics processes in the post. The appreciation of the real implementation of the Czech post in operation both in lectures a desk.  12Y2IS Urban Networks The importance and the position of UN as public and technical infrastructure / utilities, metodology of the UN master planning, of UN design, UN coperation (basic technical standards of UN, trenchless technologies for UN).  14Y2JM One-Chip Controllers One-chip controllers architecture, embedded peripherals (counters, timers, converters, ports) and their utilisation. Practical tasks are programmed vortical specifics for job-hunting in English. The course provides a practical guide to applying for a job in English. The interview process is mapped out, with the course including specifics for job-hunting in English. Students will also be introduced to the English vocabulary and phraseology necessary for a successful 14Y2KI Capital Investment in Transportation and Telecommunications Financial market, investment desicion making - long term goals and investment strategies, long term financing Personal cars body, high-load car body, bus car body, and motorcycle as a construction set. Principles of design, production, testing and operation. construction. Active and passive safety parts. Ergonomics, HMI, view out of the vehicle, operational extent, view behind the car. Conditioning tools, so the car body. Design and artistic design principles. Practical training.  12Y2KS Rail Transport in Settlements and Regions Modernization and development of railway infrastructure in Czech Republic. Arrangement of railway networks and junctions. Suburban railway services.	KZ s - sources, creatiting, standing, continuity, standing, continuity, standing, continuity, standing, continuity, standing, continuity, standing, continuity, standing, standi	2 on, propagation, ntrol, operational  2 g nodes in the k of the practical  2 stallation and UN  2 chips.  2 of this process,  2 car body Aerodynamics
Temporation   Vehicle Hygiene	KZ s - sources, creatiting, standing, continuity of mail processing in the framework  KZ ordination, UN institute the stages of interview.  KZ Materials used for signaling function.  KZ ces. Network configions).	2 on, propagation, ntrol, operational  2 g nodes in the k of the practical  2 stallation and UN  2 chips.  2 of this process,  2 car body Aerodynamics  2 guration and  2

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, A at USA and Czechoslovakia. ATS - Model of financing. Training Systém of Air Traffic Controllers. Future development of ATS.	APP a ACC control	. History of ATS
11Y2LG Logics of Engineer's Judgement	KZ	2
Logical structure of engineer's judgement, its propositional and predicative logical base. Solutions of logical tasks through the methods of truthfulnes Venn's diagram method. Logical basis for network design for the solution of technical tasks.	į.	<del>-</del>
23Y2MA Risk Analysis and Management	KZ	2
Concept of risks and terms. Risk sources, definition of hazard, impacts and risks. Methods for identification, analysis, assessment and management	Į.	
and good engineering practice. Methods, tools and techniques for risk engineering. System of systems risk. Application of strategic and system appr	oach for benefit of	security and
development. Territorial, emergency and crisis planning. Human factor - its role.		
21Y2MQ Quality Management	KZ	. 2
History, basic definition. Pioneers in the field of quality. International quality organisations and quality promotion in the Czech Republic. Quality mana management systems. 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 r		
quality management, excellence models and corporate social responsibility. Quality audits.	igement systems.	Complehensive
15Y2MS Sociology for Managers	KZ	2
Sociological approach to a corporation. Corporation and its organization. Corporation and its running - human role and communication. Corporation,	its culture and so	cial system.
Human's work position in free market economy. Corporate directorship, work groups, adaptation, strife, different roles and positions in corporation.		
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 f	-	
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.	nt systems of mari	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.	1	
noise from road traffic. Modelling of traffic noise in the CADNA A.		
12Y2MI Urban Engineering	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		ŭ
variational principles. Element formulation (bar and beam elements, CST, LST, quadrilateral, tetrahedral and brick elements). Natural coordinates, national principles. Element formulation (bar and beam elements, CST, LST, quadrilateral, tetrahedral and brick elements). Natural coordinates, national principles.	tural shape function	ons and
isoparametric representation. Numerical integration. Introduction to dynamics. FEM programming.  16Y2MK Quality Methods for Vehicles	KZ	2
16Y2MK   Quality Methods for Vehicles   Quality management methods list, customer data acquisition and analysis of customer requirements, QFD, DFM, DFA, DFS. FMEA (Failure mode eff	1	<del>-</del>
(team) design.		nome of parame.
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 (	analogical and syr	thetic methods,
modal split, traffic distribution to road network). Shock wave in traffic flow. Service levels and their traffic volumes. Acceleration noise.	<u>.</u>	
17Y2MO International Organisations in Transportation	KZ	2
	1	
International relations in transport, UN, EEC UN, Intergovernmental organisations, EU Offices and Agencies, Conference of European Ministries of the Conference of European Ministries of Europ	ransport, Internati	onal mode
organisations of public transport, Air-Rail, railways, roads, air, waterways, forwarding and postal services.		
organisations of public transport, Air-Rail, railways, roads, air, waterways, forwarding and postal services.  17Y2MS Microsimulation of Railway Operation	KZ	2
organisations of public transport, Air-Rail, railways, roads, air, waterways, forwarding and postal services.  17Y2MS   Microsimulation of Railway Operation   Introduction to the characteristics of simulation tools, creation of a simulation model of railway infrastructure, verification of a specific operational con	KZ cept on the given	2 infrastructure,
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16Y2PG Computer Graphics and Virtual Reality	KZ	2
Principles of creation and processing of bitmap and vector 2D graphics, 3D virtual scenes and algorithms used for their computerized processing. Adoption 2D virtual scenes and algorithms used for their computerized processing.	pting skills of work v	with professional
and freeware tools for creation and processing of 2D, 3D and interactive graphics, and basics of programming language VRML and graphic libraries	(OpenGL).	
22Y2PS Traffic Accidents Computer Simulation and Analysis	KZ	2
Vehicle dynamics simulation, multi body systems and vehicle active safety systems, vehicle slipping, external influence on virtual model, crash tests	evaluation, single	-track vehicle,
vehicle passangers, pedestrian, traffic accident simulation and analysis.		
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	1	_
dining cars, work trains and other railroad equipment. Legislation.	and nom the nom	
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 dynamics.	1	
measurements with passenger vehicles. Experiment evaluation.	iicies. Realization c	n experimental
	1/7	
15Y2PD Practical Spanish for Transportation	KZ	2
Development of communication skills, training of correct written expression of formal character, basic technical vocabulary, cultural specifics of the state of t	Spanish speaking o	countries.
Terminology of transport and commerce.	T T	
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 org	-	
aviation. Execution of state administration and state supervision in matters of civil aviation, in accordance with Act No. 49/1997 Col. Facilitation. Res	sponsibilities of air	carriers for
passengers, luggage and cargo. The safe transport of dangerous goods.		
20Y2PR Prediction of time series	KZ	2
Introduction to time series prediction, meaning of prediction, basics of quantitative prediction. Methods for predictive quality evaluation, descriptive sta	atistics, MAE, MAP	E, RMSE, naive
prediction, prediction for general formula of loss function. Calculation and programming environment R. Regression models, basics of linear regress	sion, simple regress	sion. Multiple
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 abroad	I I	
of PTP measures. Relationship between Basics of public transport stops and stations design. PTP measures and evaluation of their operation. Ecor		-
PTP. The process of preparing PTP measures.		ornar oncore or
14Y2PI Process Information Systems in Transportation	KZ	2
· · · · · · · · · · · · · · · · · · ·	1	
Introduction and detailed usage of transport information systems, e.g. EFC, ePurse and transport check-in systems for public transport with focus o		-
SOA (Service Oriented Architecture). Inforamtion systems implementation and operations description in the Czech Republic (technical and process	<del>                                     </del>	
14Y2PJ C++ Programming Language	KZ	2
OOP philosophy and basics of C++ programming language. Class, object, constructor, destructor, inheritance, abstract class, virtual methods, excepti	ons, streams, meth	od and operator
overloading, abstract data type implementation in C++.		
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 (common to CAD interface programming techniques with the help of LIST and VBA programming languages. Possibilities of proper objects (common to CAD interface programming techniques with the help of LIST and VBA programming languages.	mands), dialogues,	interfaces, and
		1
applications creation in CAD systems. Programming of cooperation with other applications (databases, spread-sheets).		
	KZ	2
11Y2PM Programming in MATLAB	KZ data fitting and des	2 signing GUI in
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11Y2PM Programming in MATLAB To explain the principle of modelling and simulation, description of Matlab environment and its settings, optimization and program code debugging, Matlab.	data fitting and des	signing GUI in
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20Y2TE	Technology of Electronic Systems	KZ	2
Principle technologie	s for an effective operation of electronically controlled systems. Maintaining, meassuring, optimization of safety and reliability of	f complex systems	s. Semiconductor
	circuits, assembly operations, interconnection and repairs technologiesusers and operators.	. ,	
14Y2TU	Telecommunications Systems and Multimedia	KZ	2
New trends in telecon	nunications namely applied in transport solutions, identification and quantification of telecommunications networks and services	s performance bas	sed on redundant
architecture, provissi	oning of guaranteed service quality, two generations of the handover principles.		
16Y2TT	Transportation and Building Technology and Equipment	KZ	2
Transportation and bu	uilding technology and equipment Transport of solid and mass material, soil and rock above all. Highway and underground con	structions. Transp	ort surface
vehicles, description	and construction features, delivered mass calculation, economy of operation. Technics and technology of underground construc	tions. Terrestrial v	ehicles operation
management method	dology (ultrasound, laser, GPS, total stations).		
23Y2TP	Creation of legal and technical regulations	KZ	2
Creation of legislation	n, structure of the bills of law, legal process, compatibility with the EC law, the creation of technical standards and their publicat	ion, ÚNMZ (Czec	h Office for
standards, metrology	and testing) in Czech Republic, organizations CEN, CENELEC and ETSI, the notification process.		
14Y2UI	Artificial Intelligence	KZ	2
History of artificial int	relligence, knowledge, its representation including frames, state space search, constraints, genetic algorithms, machine learnin	ig.	1
18Y2UB	Assident Discourbanies and October	177	
	Accident Biomechanics and Safety	KZ	2
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Name of the block: Jazyky

Minimal number of credits of the block: 8

The role of the block: J

Code of the group: JZ-N-DS 20/21

Name of the group: Jazyk nav.1.-4.sem. (od) 20/21 - program DS

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

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

Credits in the group: 8

Note on the	group:					
Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
15J2F1	Language - French 1 Eva Rezlerová, Irena Veselková	Z	2	0P+2C+10B	B Z	J
15J2l1	Language - Italian 1 Eva Rezlerová, Irena Veselková	Z	2	0P+2C+10B	B Z	J
15J2N1	Language - German 1 Eva Rezlerová, Martina Navrátilová, Jana Štikarová	Z	2	0P+2C+10B	B Z	J
15J2R1	Language - Russian 1 Marie Michlová, Eva Rezlerová	Z	2	0P+2C+10B	B Z	J
15J2S1	Language - Spanish 1 Eva Rezlerová, Nina Hricsina Puškinová	Z	2	0P+2C+10B	B Z	J
15JBF2	Language - French 2  Eva Rezlerová, Irena Veselková	Z	2	0P+2C+10B	B L	J
15JBI2	Language - Italian 2 Eva Rezlerová	Z	2	0P+2C+10B	L L	J
15JBN2	Language - German 2 Eva Rezlerová, Martina Navrátilová, Jana Štikarová	Z	2	0P+2C+10B	L	J
15JBR2	Language - Russian 2 Marie Michlová, Eva Rezlerová	Z	2	0P+2C+10B	B L	J

15JBS2	Language - Spanish 2 Eva Rezlerová, Nina Hricsina Puškinová	Z	2	0P+2C+10B	L	J
15JBF3	Language - French 3 Eva Rezlerová, Irena Veselková	Z	2	0P+2C+10B	Z	J
15JBI3	Language - Italian 3 Eva Rezlerová, Irena Veselková	Z	2	0P+2C+10B	Z	J
15JBN3	Language - German 3 Eva Rezlerová, Martina Navrátilová, Jana Štikarová	Z	2	0P+2C+10B	Z	J
15JBR3	Language - Russian 3 Marie Michlová, Eva Rezlerová	Z	2	0P+2C+10B	Z	J
15JBS3	Language - Spanish 3 Eva Rezlerová, Nina Hricsina Puškinová	Z	2	0P+2C+10B	Z	J
15JBF4	Language - French 4 Eva Rezlerová, Irena Veselková	ZK	2	0P+2C+10B	L	J
15JBI4	Language - Italian 4 Eva Rezlerová	ZK	2	0P+2C+10B	L	J
15JBN4	Language - German 4 Eva Rezlerová, Martina Navrátilová, Jana Štikarová	ZK	2	0P+2C+10B	L	J
15JBR4	Language - Russian 4 Marie Michlová, Eva Rezlerová	ZK	2	0P+2C+10B	L	J
15JBS4	Language - Spanish 4 Eva Rezlerová, Nina Hricsina Puškinová	ZK	2	0P+2C+10B	Ĺ	J

#### Characteristics of the courses of this group of Study Plan: Code=JZ-N-DS 20/21 Name=Jazyk nav.1.-4.sem. (od) 20/21 - program DS 15J2F1 Language - French 1 Ζ 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 15J2I1 Language - Italian 1 Grammatical Structures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills, feedback skills, summarising technical text content, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and technical registers and their use, language of management 15J2N1 Language - German 1 Grammatical Structures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills, feedback skills, summarising technical text content, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and technical registers and their use, Language - Russian 1 Grammatical Structures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills, feedback skills, summarising technical text content, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and technical registers and their use, language of management Language - Spanish 1 Grammatical Structures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills, feedback skills, summarising technical text content, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and technical registers and their use, language of management. Language - French 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. 15JBI2 Language - Italian 2 Grammatical Structures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills, feedback skills, summarising technical text content, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and technical registers and their use, language of management Language - German 2 15JBN2 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

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. 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. 15JBS3 Language - Spanish 3 Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation. 15JBF4 Language - French 4 Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation. 15JBI4 Language - Italian 4 ZK 2 Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation. **15JBN4** Language - German 4 Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation. 15JBR4 Language - Russian 4 7K 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 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
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
Logical structure	of engineer's judgement, its propositional and predicative logical base. Solutions of logical tasks through the methods of truthfulness and Venn's diagram method. Logical basis for network design for the solution of technical tasks.	and semantic analy	ysis charts.
11Y2PM	Programming in MATLAB	KZ	2
To explain the pri	nciple of modelling and simulation, description of Matlab environment and its settings, optimization and program code debugging, dat Matlab.	a fitting and desigr	ning GUI in
12BED	Road Safety Audit	Z,ZK	4
Schedules of appli	ications of safety assessments (especially Road Safety Audit, Road Safety Inspection) during the process of preparations, and of the p		
network that shou	Ild minimize traffic accident risks for all those who take part in road traffic. Application of European Directive 2008/96/EC on road safet	ty infrastructure ma	anagement.
• • •	Ild minimize traffic accident risks for all those who take part in road traffic. Application of European Directive 2008/96/EC on road safet  Rail Transport Infrastructure	ty infrastructure ma	anagement. 5
network that should be sho		Z,ZK ailed construction.	5
network that should be sho	Rail Transport Infrastructure  lateral acceleration, parameters eduction for transition curve and cant transition, curves without straight, track spacing change. Track deta	Z,ZK ailed construction.	5
12IKD Non-compensated	Rail Transport Infrastructure  lateral acceleration, parameters eduction for transition curve and cant transition, curves without straight, track spacing change. Track deta design, slab track. Tram-train. Interoperability. Noise precautions. Railway line modernization for non-tilting and tilting trains	Z,ZK ailed construction. §	5 Substructure
12IKD Non-compensated	Rail Transport Infrastructure  I lateral acceleration, parameters eduction for transition curve and cant transition, curves without straight, track spacing change. Track deta design, slab track. Tram-train. Interoperability. Noise precautions. Railway line modernization for non-tilting and tilting trains  Design and Maintenance of Transportation Structures  truction of cement-concrete pavements and their maintenance. Construction of bridge objects, examples and choice of bridge construand operation of tunnels.	Z,ZK ailed construction. §	5 Substructure
12IKD Non-compensated  12NAPI Design and cons	Rail Transport Infrastructure  I lateral acceleration, parameters eduction for transition curve and cant transition, curves without straight, track spacing change. Track deta design, slab track. Tram-train. Interoperability. Noise precautions. Railway line modernization for non-tilting and tilting trains  Design and Maintenance of Transportation Structures  truction of cement-concrete pavements and their maintenance. Construction of bridge objects, examples and choice of bridge construand operation of tunnels.  Highway Engineering Materials  d construction - Material Aspects. The course emphasizes the development of road construction from the beginning of the 20th centure.	Z,ZK ailed construction. S Z,ZK action materials. Co	5 Substructure 4 construction
network that should 12IKD Non-compensated 12NAPI Design and cons 12TKVP The theory of road	Rail Transport Infrastructure  I lateral acceleration, parameters eduction for transition curve and cant transition, curves without straight, track spacing change. Track deta design, slab track. Tram-train. Interoperability. Noise precautions. Railway line modernization for non-tilting and tilting trains  Design and Maintenance of Transportation Structures truction of cement-concrete pavements and their maintenance. Construction of bridge objects, examples and choice of bridge construand operation of tunnels.  Highway Engineering Materials  Id construction - Material Aspects. The course emphasizes the development of road construction from the beginning of the 20th centuraterials, understanding the production and placing of asphalt mixtures.	Z,ZK ailed construction. S Z,ZK action materials. Co	5 Substructure 4 construction 4 cocusing on
12IKD Non-compensated  12NAPI Design and cons  12TKVP The theory of roa	Rail Transport Infrastructure  I lateral acceleration, parameters eduction for transition curve and cant transition, curves without straight, track spacing change. Track deta design, slab track. Tram-train. Interoperability. Noise precautions. Railway line modernization for non-tilting and tilting trains  Design and Maintenance of Transportation Structures  truction of cement-concrete pavements and their maintenance. Construction of bridge objects, examples and choice of bridge construand operation of tunnels.  Highway Engineering Materials  d construction - Material Aspects. The course emphasizes the development of road construction from the beginning of the 20th centure.	Z,ZK ailed construction. S Z,ZK action materials. Co Z,ZK ry to the present, f	5 Substructure 4 construction 4 cocusing on
12IKD Non-compensated  12NAPI Design and cons  12TKVP The theory of roa  12UMUP Spatial planning	Rail Transport Infrastructure  I lateral acceleration, parameters eduction for transition curve and cant transition, curves without straight, track spacing change. Track deta design, slab track. Tram-train. Interoperability. Noise precautions. Railway line modernization for non-tilting and tilting trains  Design and Maintenance of Transportation Structures truction of cement-concrete pavements and their maintenance. Construction of bridge objects, examples and choice of bridge construction of tunnels.  Highway Engineering Materials  Indiconstruction - Material Aspects. The course emphasizes the development of road construction from the beginning of the 20th centure materials, understanding the production and placing of asphalt mixtures.  Sustainable Mobility and Land - Use Planning	Z,ZK ailed construction. S z,ZK action materials. Co Z,ZK ry to the present, f Z,ZK an growth in conne	5 Substructure 4 construction 4 cocusing on 5 ection with
12IKD Non-compensated  12NAPI Design and cons  12TKVP The theory of roa  12UMUP Spatial planning	Rail Transport Infrastructure  I lateral acceleration, parameters eduction for transition curve and cant transition, curves without straight, track spacing change. Track deta design, slab track. Tram-train. Interoperability. Noise precautions. Railway line modernization for non-tilting and tilting trains  Design and Maintenance of Transportation Structures truction of cement-concrete pavements and their maintenance. Construction of bridge objects, examples and choice of bridge construction of tunnels.  Highway Engineering Materials Indiconstruction - Material Aspects. The course emphasizes the development of road construction from the beginning of the 20th centure materials, understanding the production and placing of asphalt mixtures.  Sustainable Mobility and Land - Use Planning - objectives and tasks, development over time. Land-use planning tools. SUMP. Territorial and transport planning context. Ways of urbans.	Z,ZK ailed construction. S z,ZK action materials. Co Z,ZK ry to the present, f Z,ZK an growth in conne	5 Substructure  4 construction  4 cocusing on  5 ection with
12IKD Non-compensated  12NAPI Design and cons  12TKVP The theory of roa  12UMUP Spatial planning	Rail Transport Infrastructure  I lateral acceleration, parameters eduction for transition curve and cant transition, curves without straight, track spacing change. Track deta design, slab track. Tram-train. Interoperability. Noise precautions. Railway line modernization for non-tilting and tilting trains  Design and Maintenance of Transportation Structures truction of cement-concrete pavements and their maintenance. Construction of bridge objects, examples and choice of bridge construction of tunnels.  Highway Engineering Materials Indiconstruction - Material Aspects. The course emphasizes the development of road construction from the beginning of the 20th centure materials, understanding the production and placing of asphalt mixtures.  Sustainable Mobility and Land - Use Planning - objectives and tasks, development over time. Land-use planning tools. SUMP. Territorial and transport planning context. Ways of urbrinciples of the transport solution. The impact of transport on the size and shape of the city, on the development of the street and the screen an	Z,ZK ailed construction. S z,ZK action materials. Co Z,ZK ry to the present, f Z,ZK an growth in conne	5 Substructure  4 construction  4 cocusing on  5 ection with
network that shou 12IKD Non-compensated 12NAPI Design and cons 12TKVP The theory of roa 12UMUP Spatial planning transport. Basic pr	Rail Transport Infrastructure  I lateral acceleration, parameters eduction for transition curve and cant transition, curves without straight, track spacing change. Track deta design, slab track. Tram-train. Interoperability. Noise precautions. Railway line modernization for non-tilting and tilting trains  Design and Maintenance of Transportation Structures  truction of cement-concrete pavements and their maintenance. Construction of bridge objects, examples and choice of bridge construation of tunnels.  Highway Engineering Materials  Indiconstruction - Material Aspects. The course emphasizes the development of road construction from the beginning of the 20th centure materials, understanding the production and placing of asphalt mixtures.  Sustainable Mobility and Land - Use Planning  - objectives and tasks, development over time. Land-use planning tools. SUMP. Territorial and transport planning context. Ways of urbiniciples of the transport solution. The impact of transport on the size and shape of the city, on the development of the street and the solution for pedestrian and bicycle transport. Suburbanization and transport. City economics.	Z,ZK ailed construction. S Z,ZK uction materials. Co Z,ZK ry to the present, f Z,ZK an growth in connequare and the roac	5 Substructure  4 construction  4 cocusing on  5 ection with ds. Solutions

12XN4	Master Project 4	Z	8
12Y2BM	Safety on The Local Roads	KZ	2
Classification of roa	ad accidents rates, social looses. Collision points, diagrams. Tools and methods for safer road transportation. Crossroads from the point	of view of safety. F	Sychologic
	right of way. Roundabouts. Pedestrian transport, cyclists. Traffic lights coordination. Transport control and regulation.		
12Y2DU	Transport in the Context of Sustainability	KZ	2
efinitions of susta	inable transport, historical context, development in our country and in the world. Sustainable development and sustainable transport. D	emand for transp	ort. Inducti
	of transport. Examples of sustainable transport. Biofuels. Electromobility. New trends in transport. Practical examples.		
12Y2IS	Urban Networks	KZ	2
he importance an	d the position of UN as public and technical infrastructure / utillities, metodology of the UN master planning, of UN design, UN coordinates the position of UN as public and technical infrastructure / utillities, metodology of the UN master planning, of UN design, UN coordinates and the position of UN as public and technical infrastructure / utillities, metodology of the UN master planning, of UN design, UN coordinates are planning as the property of the UN master planning and the position of UN design, UN coordinates are planning as the property of the UN master planning and the property of the UN master planning are planning as the property of the UN master planning are planning as the UN master planning are	nation, UN install	ation and L
	operation (basic technical standards of UN, trenchless technologies for UN).		
12Y2KE	Landscape Ecology	KZ	2
Landscape ecolo	egy. Landscape - definition, types, evolution. Landscape systems. Anthropogenic impacts on landscape. Methods using for evaluating	andscape. Fracta	al geometry
10)(0)(0	and its potential applications in landscape ecology. Landscape planning.	1/7	
12Y2KS	Rail Transport in Settlements and Regions	KZ	2
	nd development of railway infrastructure in Czech Republic. Arrangement of railway networks and junctions. Suburban railway service: ation of metro systems. Network configuration and operation of tram systems. Special thematic lectures (rail transport in selected cou	_	uration and
			1 0
12Y2MD	Methods of Traffic Regulation and Prediction c prognosis, traffic prognosis for large area (calculation of future traffic volumes, calculation of future traffic volumes between areas (ana	KZ	2
asic ways or traini	c prognosis, traffic prognosis for large area (calculation of future traffic volumes, calculation of future traffic volumes between areas (and modal split, traffic distribution to road network). Shock wave in traffic flow. Service levels and their traffic volumes. Acceleration r	•	euc memod
12Y2MH		KZ	2
	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. Me		1
nieoreticai introd	noise from road traffic. Modelling of traffic noise in the CADNA A.	asurement and t	aiculation
12Y2MI	Urban Engineering	KZ	2
	eaching aming on utilities storage in area, coordination engineering activities in area, arrangement of public space, concepement of p		2
12Y2MZ	Modernization of Railway Lines and Stations	KZ	2
	ing. AGC and AGTC Agreement. AGC and AGTC railway network. Principles of modernization (conceptual papers, definitions of basic c		_
•	I characteristics on modernized railway lines. Superstructure and substructure on upgraded lines. Designing of railway stations. Bridge		
maen geemen ea	and realization of projects. Technical description of the tranzit corridors.	50 a.i.a taiii.0.0.2	010.0po.
12Y2NS	Shared Space Design	KZ	2
_	nts 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		-
	and architecture in the process of designing quality public spaces.	0 0,	
12Y2PV	Public transport priority	KZ	2
		• • • • • • • • • • • • • • • • • • • •	
ublic transport as	the backbone of sustainable mobility. Public transport priority (PTP) in strategic documents. PTP in the Czech Republic and abroad. Ty	pes of PTP meas	sures. Desi
	the backbone of sustainable mobility. Public transport priority (PTP) in strategic documents. PTP in the Czech Republic and abroad. Ty Relationship between Basics of public transport stops and stations design. PTP measures and evaluation of their operation. Econom		
	Relationship between Basics of public transport stops and stations design. PTP measures and evaluation of their operation. Econom		
of PTP measures.	Relationship between Basics of public transport stops and stations design. PTP measures and evaluation of their operation. Econom PTP. The process of preparing PTP measures.	ic and enviromer	ntal effects
of PTP measures.	Relationship between Basics of public transport stops and stations design. PTP measures and evaluation of their operation. Econom PTP. The process of preparing PTP measures.  Realization of Transport Buildings	ic and enviromer	ntal effects
of PTP measures.  12Y2RD ransport Buildings 12Y2ZK	Relationship between Basics of public transport stops and stations design. PTP measures and evaluation of their operation. Econom PTP. The process of preparing PTP measures.  Realization of Transport Buildings  Types. Project Documentation Types. Building Code. Land Permission and Building Permission Process. Building Process. Project Economics	KZ nomics. Project I	2 Manageme
of PTP measures.  12Y2RD ransport Buildings 12Y2ZK	Relationship between Basics of public transport stops and stations design. PTP measures and evaluation of their operation. Econom PTP. The process of preparing PTP measures.  Realization of Transport Buildings Types. Project Documentation Types. Building Code. Land Permission and Building Permission Process. Building Process. Project Economics Calming	KZ nomics. Project I	2 Manageme
of PTP measures.  12Y2RD ransport Buildings 12Y2ZK	Relationship between Basics of public transport stops and stations design. PTP measures and evaluation of their operation. Econom PTP. The process of preparing PTP measures.  Realization of Transport Buildings Types. Project Documentation Types. Building Code. Land Permission and Building Permission Process. Building Process. Project Economics  Traffic Calming fic calming. Solution of road network organization. Urban road layouts. Psychological and physical obstacles (measures of traffic calming)	KZ nomics. Project I	2 Manageme
12Y2RD ransport Buildings 12Y2ZK Principles of traff	Relationship between Basics of public transport stops and stations design. PTP measures and evaluation of their operation. Econom PTP. The process of preparing PTP measures.  Realization of Transport Buildings Types. Project Documentation Types. Building Code. Land Permission and Building Permission Process. Building Process. Project Economic Traffic Calming Traffic Calming. Solution of road network organization. Urban road layouts. Psychological and physical obstacles (measures of traffic calming measures in crossroads. Pedestrian zones. Residential streets and zones.	KZ nomics. Project I KZ ing) and their cor	2 Manageme 2 mbinations
12Y2RD ransport Buildings 12Y2ZK Principles of traff	Relationship between Basics of public transport stops and stations design. PTP measures and evaluation of their operation. Econom PTP. The process of preparing PTP measures.  Realization of Transport Buildings Types. Project Documentation Types. Building Code. Land Permission and Building Permission Process. Building Process. Project Economic Traffic Calming fic calming. Solution of road network organization. Urban road layouts. Psychological and physical obstacles (measures of traffic calming measures in crossroads. Pedestrian zones. Residential streets and zones.  Railway Stations and Centres	KZ nomics. Project I KZ ing) and their cor Z,ZK eads design. Var	2 Manageme 2 mbinations
12Y2RD ransport Buildings 12Y2ZK Principles of traff	Relationship between Basics of public transport stops and stations design. PTP measures and evaluation of their operation. Econom PTP. The process of preparing PTP measures.  Realization of Transport Buildings Types. Project Documentation Types. Building Code. Land Permission and Building Permission Process. Building Process. Project Economics Traffic Calming Traffic Calming. Solution of road network organization. Urban road layouts. Psychological and physical obstacles (measures of traffic calming measures in crossroads. Pedestrian zones. Residential streets and zones.  Railway Stations and Centres  senger transport. Platform construction. Access roads to platforms. Modification of railway stations according to the TSI PRM. Station in	KZ nomics. Project I KZ ing) and their cor Z,ZK eads design. Var	2 Manageme 2 mbinations
12Y2RD ransport Buildings 12Y2ZK Principles of traff 12ZSUZ quipment for pass	Relationship between Basics of public transport stops and stations design. PTP measures and evaluation of their operation. Econom PTP. The process of preparing PTP measures.  Realization of Transport Buildings Types. Project Documentation Types. Building Code. Land Permission and Building Permission Process. Building Process. Project Economics Traffic Calming fic calming. Solution of road network organization. Urban road layouts. Psychological and physical obstacles (measures of traffic calming Traffic calming measures in crossroads. Pedestrian zones. Residential streets and zones.  Railway Stations and Centres  Senger transport. Platform construction. Access roads to platforms. Modification of railway stations according to the TSI PRM. Station of station heads for current ride. Junction stations. Crossing stations. Passenger stations. Moving stations. Public transport term	KZ conomics. Project I KZ ing) and their con Z,ZK eads design. Var inals. KZ	2 Manageme 2 mbinations 3 iant solutio
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12Y2RD ransport Buildings 12Y2ZK Principles of traff  12ZSUZ quipment for pass  14GISS Constructio 14XN1 14XN2 14XN3 14XN4 14Y2C1 Fundaments of w  14Y2C2 Extension of basic  14Y2CS Design of system  14Y2IS The use of inform ostal network, opt  14Y2JM	Relationship between Basics of public transport stops and stations design. PTP measures and evaluation of their operation. Econom PTP. The process of preparing PTP measures.  Realization of Transport Buildings Types. Project Documentation Types. Building Code. Land Permission and Building Permission Process. Building Process. Project Ecc Traffic Calming Traffic calming measures in crossroads. Pedestrian zones. Residential streets and zones.  Railway Stations and Centres  Railway St	ic and enviromer  KZ  Inomics. Project I  KZ  Ing) and their cor  Z,ZK  Iterated design. Varinals.  KZ  Iterritorial identification identific	2 Manageme 2 mbinations. 3 riant solutio 2 cation 2 1 8 2 ches. Impor
12Y2RD ransport Buildings 12Y2ZK Principles of traff 12ZSUZ quipment for pass 14GISS Constructio 14XN1 14XN2 14XN3 14XN4 14Y2C1 Fundaments of w 14Y2C2 Extension of basis 14Y2CS Design of system 14Y2IS The use of inform ostal network, opt 14Y2JM One-chip conf	Relationship between Basics of public transport stops and stations design. PTP measures and evaluation of their operation. Econome PTR. The process of preparing PTP measures.  Realization of Transport Buildings I Types. Project Documentation Types. Building Code. Land Permission and Building Permission Process. Building Process. Project Economic Traffic Calming I Calming. Solution of road network organization. Urban road layouts. Psychological and physical obstacles (measures of traffic calming. Solution of road network organization. Urban road layouts. Psychological and physical obstacles (measures of traffic calming. Traffic calming measures in crossroads. Pedestrian zones. Residential streets and zones.  Railway Stations and Centres  senger transport. Platform construction. Access roads to platforms. Modification of railway stations according to the TSI PRM. Station of station heads for current ride. Junction stations. Crossing stations. Passenger stations. Moving stations. Public transport term  Geographical Information Systems  of saving format of space-oriented information land-survey and cartography minimum basic tasks of spatial operations principles of Master Project 1  Master Project 1  Master Project 2  Master Project 3  Master Project 4  CATIA I  orking with CATIA, making basic parts and bodies. Making 2D sketches, geometric stucture, parametric linking, making adaptive mod and export of made parts and bodies. Making assemble and visualization.  CATIA II  c course. Modeling compound bodies. Possibility of enumeration, comunications with other systems. Surface x solid bodies. Kinematic and project cooperation. Outputs of projects.  Sensitivity of Systems  so with defined reliability. The impact of changing parameters and subsystems within a system. System sensitivity computing, definition matrices and their usability in system design.  Intelligent Systems in Postal Services  ation systems in the postal services (ITIS, and POST, T + T, PS, KMP, DS), application of information technology in the process	ic and enviromer  KZ  Inomics. Project I  KZ  Inomics. Project I  KZ  Inomics. Project I  KZ  Inomics. Project I  I  I  I  I  I  I  I  I  I  I  I  I	atal effects  2 Manageme 2 mbinations 3 riant solution 2 cation 2 1 8 2 ches. Import 2 piject makin 2 nodes in the frhe practic 2 (R chips.

l l	e Programming	KZ	2
Introduction to CAD interface programming techniques with the help of LIST and VB/ applications creation in CAD systems. Programming of	of cooperation with other applications (databases, spread-sheets).	as), dialogues, inte	maces, and
14Y2PI Process Information S	ystems in Transportation	KZ	2
Introduction and detailed usage of transport information systems, e.g. EFC, ePurse			
SOA (Service Oriented Architecture). Inforamtion systems implementation and ope			-
		KZ	2
OOP philosophy and basics of C++ programming language. Class, object, constructor,	ming Language		
		streams, method a	ind operator
	data type implementation in C++.	177	
l l	Systems and Multimedia	KZ	2
New trends in telecommunications namely applied in transport solutions, identification	·	formance based or	n redundant
	rvice quality, two generations of the handover principles.		
14Y2UI Artificial I	ntelligence	KZ	2
History of artificial intelligence, knowledge, its representation includir	ig frames, state space search, constraints, genetic algorithms, mac	hine learning.	
15J2A1 Language	- English 1	Z	2
Presentation Skills - expert technical discourse and style; Analysis	of expert texts and their production; Preparation for overseas work	engagement.	
15J2F1 Language	e - French 1	Z	2
Grammatical Structures and Style. Selection of conversation topics relating to transp			
technical text content, structuring presentations and meeting minutes, elementary rh			-
	ge of management.	rimodi rogiotoro di i	a trion doo,
	e - Italian 1	Z	2
			_
Grammatical Structures and Style. Selection of conversation topics relating to transp			-
technical text content, structuring presentations and meeting minutes, elementary rh		fillical registers an	u trieli use,
	ge of management.		
	- German 1	Z	2
Grammatical Structures and Style. Selection of conversation topics relating to transp	· -· ·		_
technical text content, structuring presentations and meeting minutes, elementary rh		hnical registers an	d their use,
langua	ge of management.		
15J2R1 Language	- Russian 1	Z	2
Grammatical Structures and Style. Selection of conversation topics relating to transp	ortation sciences. Developing perceptive and communicative skills,	feedback skills, su	ummarising
technical text content, structuring presentations and meeting minutes, elementary rh	etorics of foreign language and practical application, formal and tec	hnical registers an	d their use,
langua	ge of management.		
15J2S1 Language	- Spanish 1	Z	2
Grammatical Structures and Style. Selection of conversation topics relating to transp		feedback skills, st	ummarising
technical text content, structuring presentations and meeting minutes, elementary rh			
	ge of management.	3	,
	- English 2	Z	2
Presentation Skills - expert technical discourse and style; Analysis of	3		_
		Z	2
] 99-	e - French 2	_	<del>-</del>
Grammatical Structures and Style. Selection of conversation topics relating to transp			•
technical text content, structuring presentations and meeting minutes, elementary rh		fillical registers an	u trieli use,
	ge of management.		
	e - French 3	Z	. 2
Grammar and stylistics. Selection of conversation and professional topics based on			_
and perceptive and communicative skills, vocabulary development. Basic stylistic for	<u> </u>	vith (professional)	text and its
features. Practice of	f oral and written presentation.		
15JBF4 Language	e - French 4	ZK	2
Grammar and stylistics. Selection of conversation and professional topics based on	the language level and study focus at the Faculty. Improvement of la	anguage structure	knowledge
and perceptive and communicative skills, vocabulary development. Basic stylistic for	ms. Presentation of own knowledge in oral and written form. Work v	with (professional)	text and its
features. Practice of	of oral and written presentation.		
15JBI2 Language	e - Italian 2	Z	2
Grammatical Structures and Style. Selection of conversation topics relating to transp	ortation sciences. Developing perceptive and communicative skills,	feedback skills, st	ummarising
technical text content, structuring presentations and meeting minutes, elementary rh	etorics of foreign language and practical application, formal and ted	hnical registers an	d their use,
langua	ge of management.		
15JBI3 Language	e - Italian 3	Z	2
Grammar and stylistics. Selection of conversation and professional topics based on			
and perceptive and communicative skills, vocabulary development. Basic stylistic for			
	f oral and written presentation.	(	
	e - Italian 4	ZK	2
Grammar and stylistics. Selection of conversation and professional topics based on			
and perceptive and communicative skills, vocabulary development. Basic stylistic for			_
	ins. Fresentation of own knowledge in oral and written form, work to foral and written presentation.	mi (professional)	ioni anu ila
		7	
	- German 2	Z	2
Grammatical Structures and Style. Selection of conversation topics relating to transp			_
technical text content, structuring presentations and meeting minutes, elementary rh		milicai registers an	u tneir use,
-	ge of management.		
	- German 3	Z	2
Grammar and stylistics. Selection of conversation and professional topics based on			-
and perceptive and communicative skills, vocabulary development. Basic stylistic for	<del>-</del>	vith (professional)	text and its
features. Practice of	f oral and written presentation.		

15JBN4	Language - German 4	ZK	2
	istics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of l		•
and perceptive an	d communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work features. Practice of oral and written presentation.	with (professiona	l) text and its
15JBR2	Language - Russian 2	Z	2
Grammatical Struc	ctures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills	, feedback skills,	summarising
technical text cont	ent, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and ter	chnical registers	and their use,
4 <i>E</i> IDD2	language of management.	7	1 2
15JBR3 Grammar and styl	Language - Russian 3 istics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of I	Z	e knowledge
· · · · · · · · · · · · · · · · · · ·	d communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work		_
	features. Practice of oral and written presentation.		•
15JBR4	Language - Russian 4	ZK	2
	listics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of I		_
and perceptive an	d communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work features. Practice of oral and written presentation.	with (professiona	I) text and its
15JBS2	Language - Spanish 2	Z	2
	tures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills	I	
	ent, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and tea		ŭ
	language of management.		
15JBS3	Language - Spanish 3	Z	2
	listics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of I		
and perceptive an	d communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work features. Practice of oral and written presentation.	with (professiona	i) text and its
15JBS4	Language - Spanish 4	ZK	2
	istics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of l		
and perceptive an	d communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work	with (professiona	l) text and its
	features. Practice of oral and written presentation.		
15XN1	Master Project 1	Z	2
15XN2	Master Project 2	Z	2
15XN3	Master Project 3	Z	1
15XN4	Master Project 4	Z	8
15Y2DN	Transportation Psychology in German Speaking Countries roader view of traffic problems with regard to the work with texts (Physics for drivers, abusing alcohol during driving, exhaustion, gett	KZ	2
introduction into b	in traffic, traffic accident, traffic psychology in the internet etc.)	ing of anving lice	rice, criliaren
15Y2HS	Road Transport History	KZ	2
	raffic in the Ancient Age, corridors of main mediveal pathways. Development of road traffic in the modern period, acceleration of road		
1st part of 20th ce	ntury. Development of road layout, geometric and construction layers. Beginning of modern road civil engineering. Development of ro	ad travelling in m	odern period.
45.70 11.1	History of road intercections, bridges and traffic control, development of road signs.	1/7	1 0
15Y2JH	Job Hunting in English les a practical guide to applying for a job in English. The interview process is mapped out, with the course including skills practise for	all the stages of	this process
	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
	roach to a corporation. Corporation and its organization. Corporation and its running - human role and communication. Corporation, i	ts culture and so	cial system.
	Human's work position in free market economy. Corporate directorship, work groups, adaptation, strife, different roles and positions in	corporation.	
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		
15Y2OZ	Health Protection in Transportation and EU in transportation in CR in the past and present. Conditions before 1989 and after, current legislature, future prospects. Harmonisatio	KZ	2
ricalii protection	members. Fundamental principles of health protection and support in selected EU countries.	n or legislation w	illi otiloi Lo
15Y2PD	Practical Spanish for Transportation	KZ	2
Development o	f communication skills, training of correct written expression of formal character, basic technical vocabulary, cultural specifics of the S	panish speaking	countries.
	Terminology of transport and commerce.		
15Y2PT	Food in Transportation	KZ	2
The nutrition policy	y. Interaction transportation and foodstuffs. The health risks. Hygienic safeguard. The practical examples from the Czech Republic and dining cars, work trains and other railroad equipment. Legislation.	I from the world.	The issues of
15Y2PU	Publications and Their Creation	KZ	2
	pes. Footnotes and references. Exploration of facts. Quotations. Formal document layout. Working with information databases. Typogr	I	1
,	editors - MS Word, Tex/LaTeX. Practical creation of simple scientific documents.		
	Seminar on Political Philosophy	KZ	2
15Y2SP			
	Interpreting of philosophical texts, view of society, state and their system of government.		
15Y2SR	Stylistics and Rhetorics	KZ	2
15Y2SR Basic skills of oral	Stylistics and Rhetorics and written expression as a means of human communication. Basic information about speech, articulation, oral and written language	e. Teaching to spe	eak well-voca
15Y2SR Basic skills of oral organs, voice traini	Stylistics and Rhetorics and written expression as a means of human communication. Basic information about speech, articulation, oral and written language ing. Language semantics, language syntactic and the pragmatic aspect. Creative thought and its oral and written expression. Practice	e. Teaching to spe cultivating the sk	ak well-voca
15Y2SR Basic skills of oral organs, voice traini 15Y2TS	Stylistics and Rhetorics and written expression as a means of human communication. Basic information about speech, articulation, oral and written language ng. Language semantics, language syntactic and the pragmatic aspect. Creative thought and its oral and written expression. Practice - Technician and Contemporary Society	E. Teaching to spectrum cultivating the sk	eak well-vocal
15Y2SR Basic skills of oral organs, voice traini 15Y2TS	Stylistics and Rhetorics and written expression as a means of human communication. Basic information about speech, articulation, oral and written language ing. Language semantics, language syntactic and the pragmatic aspect. Creative thought and its oral and written expression. Practice	E. Teaching to spectrum cultivating the sk	eak well-vocal
15Y2SR Basic skills of oral organs, voice traini 15Y2TS	Stylistics and Rhetorics and written expression as a means of human communication. Basic information about speech, articulation, oral and written language ng. Language semantics, language syntactic and the pragmatic aspect. Creative thought and its oral and written expression. Practice -  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	E. Teaching to spectrum cultivating the sk	eak well-voca ills of speech

16PDP Design of transpo	Principles of Vehicle Design	ZK	2
Pesiali di Halisbo	Principles of verticle Design ortation vehicle according to its usage and function. Marketing and user demands. Vehicle dynamics. Propulsion systems. Design pro	I .	1
3	vehicle structure. Evaluation of variant concepts. Design phases. Realiability, technological aspects etc.	Joess, furictional	uesigii anu
16XN1		Z	2
	Master Project 1	1	
16XN2	Master Project 2	Z	2
16XN3	Master Project 3	Z	1
16XN4	Master Project 4	Z	8
16Y2EE	Emissions and Ergonomics of Vehicles	KZ	2
missions and ergo	onomy of vehicles and the influence on man and nature. National and international law related to the hygiene. Noise and vibrations - s	sources, creation	, propagatio
hysical values, way	ys of measuring, prevention, elimination. Exhausts - creation, measurement, reduction, non-regular fuels and drives. Ergonomy - sitting reach. Condition - heating, ventilation, air-conditioning, filtration, tiredom.	g, standing, contr	ol, operation
16Y2HP	Vehicle Hygiene	KZ	2
	onomy of vehicles and the influence on man and nature. National and international law related to the hygiene. Noise and vibrations -	1	, propagatio
-	ys of measuring, prevention, elimination. Exhausts - creation, measurement, reduction, non-regular fuels and drives. Ergonomy - sitting reach. Condition - heating, ventilation, air-conditioning, filtration, tiredom.		
16Y2KV		KZ	2
l l	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		-
JOHSH UCHOH. ACTIVE	of the car body. Design and artistic design principles. Practical training.	naming function. A	erouyriairiic
16V2MIZ		V7	1 2
16Y2MK	Quality Methods for Vehicles  nt methods list, customer data acquisition and analysis of customer requirements, QFD, DFM, DFA, DFS. FMEA (Failure mode effect	KZ	2
	(team) design.		
16Y2PG	Computer Graphics and Virtual Reality	KZ	2
· ·	n and processing of bitmap and vector 2D graphics, 3D virtual scenes and algorithms used for their computerized processing. Adopting		-
	ware tools for creation and processing of 2D, 3D and interactive graphics, and basics of programming language VRML and graphic		-
16Y2ST	Special Technologies in Transport and Telecommunications	KZ	2
Micro, nano and s	special technologies, electric arc and its applications, plasma technologies, dipping, beam technologies, electron beams technology	in roduction and	mending of
	vehicles, laser and laser technologies, soldering, gluing, ultrasound, diffusion, friction and explosion technologies, micro stoves	s, gas.	
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		mending of
	vehicles, laser and laser technologies, soldering, gluing, ultrasound, diffusion, friction and explosion technologies, micro stoves	s, gas.	
16Y2TT	Transportation and Building Technology and Equipment	KZ	2
Transportation a	nd building technology and equipment. Transport of solid and mass material, soil and rock above all. Highway and underground cons	tructions. Transp	ort surface
ehicles, descriptior	n and construction features, delivered mass calculation, economy of operation. Technics and technology of underground construction	s. Terrestrial vehi	cles operation
	management methodology (ultrasound, laser, GPS, total stations).		
17DOPD	Transportation Planning and Modeling	Z,ZK	4
Basic steps and too	ols used within four step model (trip generation, trip distribution, mode choice and trip distribution). Mobility and availability in urban a transportation planning and modelling.	areas, land use. N	lew trends f
		7 7K	
17TZND	Technology of Railway Transport	Z,ZK	4
17TZND Track line capacity	Technology of Railway Transport assesment, model operational situation with a system running time between IPT-nodes, calculation of traction energy savings comp	pared with infrast	4 ructure cost
17TZND Track line capacity	Technology of Railway Transport assesment, model operational situation with a system running time between IPT-nodes, calculation of traction energy savings competing crossing station, solving of capacity problem and blocking time in relation to train protection system, robustness of timetable, s	pared with infrast	4 ructure cost
17TZND Track line capacity for designing of fle	Technology of Railway Transport  assesment, model operational situation with a system running time between IPT-nodes, calculation of traction energy savings competing crossing station, solving of capacity problem and blocking time in relation to train protection system, robustness of timetable, spaths, guidelines for centralised operational traffic control and management.	pared with infrast	4 ructure cost f freight trai
17TZND Track line capacity for designing of fle	Technology of Railway Transport assesment, model operational situation with a system running time between IPT-nodes, calculation of traction energy savings completing crossing station, solving of capacity problem and blocking time in relation to train protection system, robustness of timetable, spaths, guidelines for centralised operational traffic control and management.  Master Project 1	pared with infrasti system concept o	4 ructure cost f freight train
17TZND Track line capacity for designing of fle 17XN1 17XN2	Technology of Railway Transport assesment, model operational situation with a system running time between IPT-nodes, calculation of traction energy savings completing crossing station, solving of capacity problem and blocking time in relation to train protection system, robustness of timetable, spaths, guidelines for centralised operational traffic control and management.  Master Project 1  Master Project 2	eystem concept o	4 ructure cost f freight train
17TZND Track line capacity for designing of fle 17XN1 17XN2 17XN3	Technology of Railway Transport assesment, model operational situation with a system running time between IPT-nodes, calculation of traction energy savings completing crossing station, solving of capacity problem and blocking time in relation to train protection system, robustness of timetable, spaths, guidelines for centralised operational traffic control and management.  Master Project 1  Master Project 2  Master Project 3	pared with infrasti system concept o	4 ructure cost f freight train
17TZND Track line capacity for designing of fle 17XN1 17XN2	Technology of Railway Transport assesment, model operational situation with a system running time between IPT-nodes, calculation of traction energy savings completing crossing station, solving of capacity problem and blocking time in relation to train protection system, robustness of timetable, spaths, guidelines for centralised operational traffic control and management.  Master Project 1  Master Project 2	eystem concept o	4 ructure cost f freight trai
17TZND Frack line capacity for designing of fle 17XN1 17XN2 17XN3	Technology of Railway Transport assesment, model operational situation with a system running time between IPT-nodes, calculation of traction energy savings completing crossing station, solving of capacity problem and blocking time in relation to train protection system, robustness of timetable, significantly paths, guidelines for centralised operational traffic control and management.  Master Project 1  Master Project 2  Master Project 3  Master Project 4	zared with infrasti system concept o	4 ructure cost f freight trai
17TZND Track line capacity for designing of fle  17XN1 17XN2 17XN3 17XN4 17Y2AM	Technology of Railway Transport assesment, model operational situation with a system running time between IPT-nodes, calculation of traction energy savings completing crossing station, solving of capacity problem and blocking time in relation to train protection system, robustness of timetable, spaths, guidelines for centralised operational traffic control and management.  Master Project 1  Master Project 2  Master Project 3	zered with infrastresser concept of zero zero zero zero zero zero zero zero	4 ructure cost f freight trai
17TZND Track line capacity for designing of fle  17XN1 17XN2 17XN3 17XN4 17Y2AM Application of m	Technology of Railway Transport assesment, model operational situation with a system running time between IPT-nodes, calculation of traction energy savings completing crossing station, solving of capacity problem and blocking time in relation to train protection system, robustness of timetable, sepaths, guidelines for centralised operational traffic control and management.  Master Project 1  Master Project 2  Master Project 3  Master Project 4  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 principles.	zered with infrastresser concept of zero zero zero zero zero zero zero zero	4 ructure cost f freight trai
17TZND Track line capacity for designing of fle  17XN1 17XN2 17XN3 17XN4 17Y2AM Application of m	Technology of Railway Transport assesment, model operational situation with a system running time between IPT-nodes, calculation of traction energy savings completing crossing station, solving of capacity problem and blocking time in relation to train protection system, robustness of timetable, sepaths, guidelines for centralised operational traffic control and management.  Master Project 1  Master Project 2  Master Project 3  Master Project 4  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 principles in Urban Mass Transportation	Z Z Z Z KZ wublic passenger	4 ructure cost f freight train 2 2 1 8 2 transport. 2
17TZND Track line capacity for designing of fle  17XN1 17XN2 17XN3 17XN4 17Y2AM Application of m 17Y2FM JMT history and de	Technology of Railway Transport assesment, model operational situation with a system running time between IPT-nodes, calculation of traction energy savings completing crossing station, solving of capacity problem and blocking time in relation to train protection system, robustness of timetable, sepaths, guidelines for centralised operational traffic control and management.  Master Project 1  Master Project 2  Master Project 3  Master Project 4  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 principles.	Z Z Z Z KZ public passenger KZ d building and ope	4 ructure cost f freight trai  2 2 1 8 2 transport. 2 eration. Oth
17TZND Track line capacity for designing of fle  17XN1 17XN2 17XN3 17XN4 17Y2AM Application of m 17Y2FM JMT history and de JMT types. UMT d	Technology of Railway Transport assesment, model operational situation with a system running time between IPT-nodes, calculation of traction energy savings completing crossing station, solving of capacity problem and blocking time in relation to train protection system, robustness of timetable, sepaths, guidelines for centralised operational traffic control and management.  Master Project 1  Master Project 2  Master Project 3  Master Project 4  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 period in the project of the use of marketing in the sphere of period in the project in the world. Building and operation of public tram, bus, and trolleybus networks. Underground development in small towns. Particularities of investment and operation financing of individual UMT types. Historic and present model inspection and blind passengers. Tourism & Durts UMT. UMT typology & Durts Ump financing.	Z Z Z Z Wublic passenger KZ B building and opels of UMT financi	4 ructure cost f freight trai  2 2 1 8 2 transport. 2 eration. Oth
17TZND Track line capacity for designing of fle  17XN1 17XN2 17XN3 17XN4 17Y2AM Application of m 17Y2FM JMT history and de UMT types. UMT d	Technology of Railway Transport assesment, model operational situation with a system running time between IPT-nodes, calculation of traction energy savings completing crossing station, solving of capacity problem and blocking time in relation to train protection system, robustness of timetable, sepaths, guidelines for centralised operational traffic control and management.  Master Project 1  Master Project 2  Master Project 3  Master Project 4  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 performancing in Urban Mass Transportation evelopment in Prague and other cities in the world. Building and operation of public tram, bus, and trolleybus networks. Underground levelopment in small towns. Particularities of investment and operation financing of individual UMT types. Historic and present model inspection and blind passengers. Tourism & Dutt. UMT typology & Deptiment in Section 1. Modelling and optimization on transport networks  Modelling and optimization on transport networks  lems on public transport networks, scheduling vehicles, design of control plans for light-controlled intersections including green wave	Z Z Z Z Wallic passenger KZ B building and opels of UMT financi	4 ructure cost f freight trai  2 2 1 8 2 transport. 2 eration. Oth ng. Transpo
17TZND Track line capacity for designing of fle  17XN1 17XN2 17XN3 17XN4 17Y2AM Application of m 17Y2FM JMT history and de UMT types. UMT d  17Y2MD Coordination problem	Technology of Railway Transport  assesment, model operational situation with a system running time between IPT-nodes, calculation of traction energy savings completing crossing station, solving of capacity problem and blocking time in relation to train protection system, robustness of timetable, sepaths, guidelines for centralised operational traffic control and management.  Master Project 1  Master Project 2  Master Project 3  Master Project 4  Application of Marketing Tools in Transportation  marketing principles in transport issues, marketing tools suitable for transport, case studies of the use of marketing in the sphere of principles in transport issues, marketing tools suitable for transportation  evelopment in Prague and other cities in the world. Building and operation of public tram, bus, and trolleybus networks. Underground evelopment in small towns. Particularities of investment and operation financing of individual UMT types. Historic and present mode inspection and blind passengers. Tourism & Eamp; UMT. UMT typology & Entire of optimum financing.  Modelling and optimization on transport networks  lems on public transport networks, scheduling vehicles, design of control plans for light-controlled intersections including green wave modelling of advanced problems in distribution systems - exact, heuristic and metaheuristic principles of solving problems	Z Z Z Z Wiblic passenger KZ d building and opels of UMT financi	4 ructure cost f freight trai  2  2  1  8  2  transport.  2 eration. Oth ng. Transpo
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17TZND  Track line capacity for designing of fle  17XN1  17XN2  17XN3  17XN4  17Y2AM  Application of m  17Y2FM  JMT history and de JMT types. UMT d  17Y2MD  Coordination problem  17Y2MO  International relationstruction to the	Technology of Railway Transport assesment, model operational situation with a system running time between IPT-nodes, calculation of traction energy savings completing crossing station, solving of capacity problem and blocking time in relation to train protection system, robustness of timetable, sepaths, guidelines for centralised operational traffic control and management.  Master Project 1  Master Project 2  Master Project 3  Master Project 3  Master Project 4  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 perinancing in Urban Mass Transportation evelopment in Prague and other cities in the world. Building and operation of public tram, bus, and trolleybus networks. Underground evelopment in small towns. Particularities of investment and operation of public tram, bus, and trolleybus networks. Underground evelopment in small towns. Particularities of investment and operation financing of individual UMT types. Historic and present model inspection and blind passengers. Tourism & Deration financing of individual UMT types. Historic and present model inspection and blind passengers. Tourism & Deration financing of individual UMT types. Historic and present model inspection and blind passengers. Tourism & Deration financing of individual UMT types. Historic and present model inspection and blind passengers. Tourism & Deration financing of individual UMT types. Historic and present model inspection and blind passengers. Tourism & Deration financing of individual UMT types. Historic and present model inspection and blind passengers. Tourism & Deration financing of individual UMT types. Historic and present model inspection and blind passengers. Tourism & Deration financing of individual UMT types. Historic and present model inspection and blind passengers. Tourism & Deration financing of individual UMT types. Historic and present model inspection financing of individual UMT types.	Z Z Z Z KZ Sublic passenger KZ d building and opels of UMT financi KZ e modelling, serv KZ KZ cransport, Internat	4 ructure cost f freight trai  2 2 1 8 2 transport. 2 eration. Oth ng. Transpo  2 ice systems  2 ional mode  2 offrastructure
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17Y2SJ	Network Timetabling on the Pailway	KZ	2
	Network Timetabling on the Railway	1	l l
	es. Capacity allocation, technological intervals in railway operation. Rules and regulations of train paths, running times, time adds and		-
circulation planning	p. Rules of train-diagramm creating. Timetables for more service-levels on the line. Construction slot conflicts between passenger- and	i freight transport. I	Network line
	relations and waiting times, timetables for lines under construction.		
18GAZ	Geomechanics and Foundation Engineering	Z,ZK	3
Geology (basics of	pertrographyand stratigraphy), mechanics of soils (classification of fundamental soils, mechanic properties of fundamental soils, per	meability), planar f	foundations
(footings, footers, p	lates, depth of founding), determination of planar foundations bearing and deformation, depth foundations - classification of depth fo	undations element	s, examples
31, 1111 1,	of their use, piles (classification, technology od performing).		,
4 OTF A M		7.71/	4
18TEAM	Theoretical and Applied Mechanics	Z,ZK	
Fundamentals of	theory of plasticity. Plasticity conditions. Elastoplastic and plastic states of cross-sections and beams. Reliability and durability of stru		and strain
	state around a notch. Stress intensity factor. Fracture toughness. Energy methods of linear fracture mechanics. Crack driving for		
18TIK	Theory of Engineering Structures	Z,ZK	4
The course builds t	pon the knowledge gained in basic mechanics courses in bachelor study (especially Statics and Elasticity) in the field of mathematica	al theory of elasticit	y. Emphasis
is placed on plane	e and axisymmetric problems, as well as on the calculation of stress and strain in plates and shells. Students are further acquainted v	with methods of mo	odeling the
	behavior of subsoil used in the design of line structures.		
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
			l I
	alculations of more mass systems. Analysis of the forces acting between the vehicle and transport route. Creation of dynamic models of		
Vibration of system	s with a finite number of degrees of freedom. Methods of stiffness constants and pliability constants. Fundamentals of vibration of bridg	es. Criteria for the a	admissibility
	of oscillation. Experimental methods in dynamics.		
18Y2EM	Electron microscopy	KZ	2
Basic principles	of electron microscopy, construction, control and maintenance of SEM, sample preparation, signal detection, types of detectors and	data evaluation usi	ng image
analysis, quantific	ation of results and automation of data processing, energy dispersive X-ray microanalysis and other analytical methods in electron m	nicroscopy. Evaluat	ion of data
	obtained from ED detector, practical examples of ED microanalysis on samples.		
18Y2FZ	Physical foundation of materials' properties	KZ	2
	lattice defects influence on properties of materials, stiffness, plasticity, strength, fracture, fatigue, creep, corrosion, effects of environn	1	l l
7 Komiotio modolo,	behavior are the main discussed topics.	ioni and loading of	materiale
18Y2MP		KZ	2
	Finite Element Method And Its Application	1	l l
	ical formulation of the Finite Element Method. Direct Stiffness Method used in structural mechanics. Evaluation of stiffness matrices f		•
variational prini	ciples. Element formulation (bar and beam elements, CST, LST, quadrilateral, tetrahedral and brick elements). Natural coordinates, no	aturai shape functio	ons and
10)/000	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		ı
18Y2SD	Reliability and Diagnostics, Experimental Methods	KZ	2
The course is focus	sed on theoretical background and practical experience in the field of reliability of constructions, implementation of diagnostic procedur	es for the detection	n of material
defects and determ	ination of residual life of structures. For this purpose, non-destructive methods of experimental mechanics (e. g. strain-gauge measure	ement, photoelastic	cimetry) and
	optical methods, including electron microscopy, will be used.		
18Y2UB	Accident Biomechanics and Safety	KZ	2
	lethods of Medical Diagnostics - RTG, CT, MRI, US. Dynamics of traumatic events. Factors influencing the severity of an accident and		
1	raffic. Pedestrian injuries. Injury in railway and air traffic accidents. Analysis of biomechanical events in accidents and their computation		
injunes in rodu i	treatment and rehabilitation. Protective elements and safety measures in transport.	ona. modomigi i m	
40\/0\/0		1/7	2
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	ISYS on instances.	
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
Introduction to time	series prediction, meaning of prediction, basics of quantitative prediction. Methods for predictive quality evaluation, descriptive statisti	ics, MAE, MAPE, R	MSE, naive
prediction, predic	tion for general formula of loss function. Calculation and programming environment R. Regression models, basics of linear regressior	n, simple regressio	n. Multiple
	regression, statistical tests of linear dependence, selection of input variables.		
20Y2TE	Technology of Electronic Systems	KZ	2
	ies 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.	, ,	
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	1	!
	CRM	KZ	2
Introduction to CRM. Analysis of air accidents. Human factor. Error. Historical development of CRM. Health and fitness. Stress and its effect on the human body. Fatigue Sleep & Decision Making. Communication. Leadership & Decision & Decisi			
g			

21Y2FM	Aviation Company Financial Management orate financial statements, budget, forecast. Financial policy of the company. Financial resources - long-term financial resources.	KZ rces depreciation	2 retained
Theories of corp.	earnings, shares, bonds, loans, leasing, capital. Financial and economic analysis of the company - structure and content.		, retained
21Y2LS	Air Traffic Services	KZ	2
Airspace structure i	n Czech Republic and other countries. Introduction and description of ATS units in Czech Republic. Practical examples of TWR, APP at USA and Czechoslovakia. ATS - Model of financing. Training Systém of Air Traffic Controllers. Future development of ATS		story of ATS
21Y2MC	CNS Systems Modelling	KZ	2
The course is desig	ned as a set of model tasks in the field of communication navigation and surveillance systems in aviation, addressed using mathema		nd software
24.72.04.7	tools. A large part is devoted to air targets tracking, measurement-to-track association, track filtering and multisensor tracking of A in Transport	ng. KZ	2
21Y2MK The content of	Marketing of Air Transport course "Marketing in air transport" is the management of activities and processes using available marketing tools and processes for a		
	n of sales of goods and services in the aviation industry. In addition to the theoretical foundations of marketing, the lectures present s		
21Y2MQ	and product analysis, creation of marketing strategies and planning.  Quality Management	KZ	2
	Quality Management nition. Pioneers in the field of quality. International quality organisations and quality promotion in the Czech Republic. Quality manage	1	
-	ms. Integrated management systems. Risk management in the context of the requirements of ISO standards. Sectoral quality manager quality management, excellence models and corporate social responsibility. Quality audits.	-	
21Y2PL	Operational Aspects of Aerodromes	KZ	2
	ts of aerodromes. Location of aerodrome and orientation of runways. Requirements for apron. Capacity of airports runways and term	1 1	
	conditions. Firefighting units. Protection against unlawful interference. Local transport connection. Environmental protection		
21Y2PP	Law and Operation in Air Transport	KZ	2
•	ation law. International conventions on civil aviation. International organisations and including of the Czech Republic in these organis on of state administration and state supervision in matters of civil aviation, in accordance with Act No. 49/1997 Col. Facilitation. Resp	•	
	passengers, luggage and cargo. The safe transport of dangerous goods.		
22AMMD	Measuring Methods Applied to Transportation	KZ	4
	and technical processing of traffic route with geodetic total station, GPS and photogrammetry, 3D scanning. Transport corridor setting		
Detection and techi	nical processing of several vehicle dynamic characteristics using high-speed cameras and accelerometers. It is a week course and the and September - usually in examination period.	e terms are usually	set in June
22MSV	Modelling and Vehicle Movement Simulation	KZ	2
Principles and posit	oilities of simulation tools with regards to vehicle movement analysis and vehicle crash analysis. Kinematic and dynamic modelling of vel	nicle/set of vehicles	movement.
00)/14	View conditions. Proposed road space passage. Processing of road 3D models.		
22XN1	Master Project 1	Z Z	2
22XN2 22XN3	Master Project 2  Master Project 3	Z	2 1
22XN4	Master Project 4	Z	8
22Y2PS	Traffic Accidents Computer Simulation and Analysis	KZ	2
	simulation, multi body systems and vehicle active safety systems, vehicle slipping, external influence on virtual model, crash tests ev		_
	vehicle passangers, pedestrian, traffic accident simulation and analysis.		
23XN1	Master Project 1	Z	2
23XN2	Master Project 2	Z Z	2 1
23XN3 23XN4	Master Project 3  Master Project 4	Z	8
23Y2BP	Security Class	KZ	2
_	ent topics include data management, data and text mining applications, terrorism informatics, deception and intent detection, terrorist	1	
	analysis, crime analysis, cyber-infrastructure protection, transportation infrastructure security, and information assurance, among		
23Y2FB	Physics for Security Branches	KZ	. 2
Grounds of priy	sics of substances and phenomena at extreme conditions. Grounds of rheology. Physics of Earth's interior. Geophysics. Physics of a dengineering branches directed to safety.	tmosphere. Applica	ations in
23Y2MA	Risk Analysis and Management	KZ	2
	nd terms. Risk sources, definition of hazard, impacts and risks. Methods for identification, analysis, assessment and management of	_	
and good enginee	ring practice. Methods, tools and techniques for risk engineering. System of systems risk. Application of strategic and system approarment. Territorial congruency and crisis planning. Human factor, its rate	ich for benefit of se	ecurity and
23Y2PD	development. Territorial, emergency and crisis planning. Human factor - its role.  Practical vehicle dynamics	KZ	2
	dynamics. Multibody vehicle modeling. Modeling with IPG CarMaker. Standard and development stage experiments with road vehicle	1 1	
	measurements with passenger vehicles. Experiment evaluation.		
23Y2TP	Creation of legal and technical regulations	KZ	2
Creation of legis	lation, structure of the bills of law, legal process, compatibility with the EC law, the creation of technical standards and their publication standards, metrology and testing) in Czech Republic, organizations CEN, CENELEC and ETSI, the notification process.	יוג, UINIVIZ (Czech (	Office for
23Y2VR	Cope with Risks in Engineering Branches	KZ	2
	g branches directed to risks, procedures used in risk engineering, ensuring the secured systems, ensuring the safe systems, ensuring		
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 management, corporate goals, strategies, cultural and ethical aspects. Team management, culture, cross cultural differences. The labor code, latroduction into		n in teams,
23Y2ZM	strategy and planning in human resources, ethics and corporate culture, cross-cultural differences. The labor code. Introduction into Intelligence Means and Methods	protocols.	2
	ent of intelligence services and their role in the modern world. How intelligence services handle with information. Methods and procedu	1	
information. Means of intelligence services. Internal and external intelligence, military intelligence. The means and methods of state security services. Cooperation among Intelligence			
	services within NATO, EU. The organization of the intelligence services.		

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