## Study plan

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

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: 120 Elective courses credits: 0 Sum of credits in the plan: 120 Note on the plan:

Name of the block: Compulsory courses Minimal number of credits of the block: 93 The role of the block: Z

Code of the group: 1S-NP-DS-20/21 Name of the group: 1st Sem. Master Full-Time DS from 2020/21 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:

Note on the grou	μ.					
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, Vít Malinovský 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, Ján Kopa ka Ond ej Jiroušek Ond ej Jiroušek (Gar.)	Z,ZK	4	2P+1C	z	Z
14GISS	Geographical Information Systems Vít Fábera, František Kekula, Tomáš Janata, Zuzana Purkrábková Tomáš Janata Tomáš Janata (Gar.)	КZ	2	0P+2C+8B	8 Z	Z
22MSV	Modelling and Vehicle Movement Simulation Michal Frydrýn, Drahomír Schmidt Michal Frydrýn Drahomír Schmidt (Gar.)	KZ	2	0P+2C	Z	Z
15J2A1	Language - English 1 Jitka He manová, Dana Boušová, Lenka Monková, Peter Morpuss, Markéta Vojanová, Marie Michlová, Markéta Musilová, Jan Feit, Eva Rezlerová	Z	2	0P+2C+10B	B Z	Z

#### Characteristics of the courses of this group of Study Plan: Code=1S-NP-DS-20/21 Name=1st Sem. Master Full-Time DS from 2020/21

12IKD	Rail Transport Infrastructure	Z,ZK	5			
Non-compensated latera	al acceleration, parameters eduction for transition curve and cant transition, curves without straight, track spacing change. Track o	detailed construct	on. Substructure			
design, slab track. Tram	design, slab track. Tram-train. Interoperability. Noise precautions. Railway line modernization for non-tilting and tilting trains.					
12TKVP	Highway Engineering Materials	Z,ZK	4			
The theory of road cons	truction - Material Aspects. The course emphasizes the development of road construction from the beginning of the 20th cer	tury to the preser	nt, focusing on			
materials, understandin	g the production and placing of asphalt mixtures.					
18GAZ	Geomechanics and Foundation Engineering	Z,ZK	3			
Geology (basics of pert	ographyand stratigraphy), mechanics of soils (classification of fundamental soils, mechanic properties of fundamental soils,	permeability), pla	nar foundations			
(footings, footers, plates	, depth of founding), determination of planar foundations bearing and deformation, depth foundations classification of depth	foundations elem	ents, examples			
of their use, piles (class	ification, technology od performing).					
18TIK	Theory of Engineering Structures	Z,ZK	4			
The course builds upon	the knowledge gained in basic mechanics courses in bachelor study (especially Statics and Elasticity) in the field of mathema	tical theory of ela	sticity. Emphasis			
is placed on plane and a	axisymmetric problems, as well as on the calculation of stress and strain in plates and shells. Students are further acquainted	d with methods of	modeling the			
behavior of subsoil used 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 territorial identification						

22MSV	Modelling and Vehicle Movement Simulation	KZ	2		
Principles and posibilitie	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 - exp	Presentation Skills - expert technical discourse and style; Analysis of expert texts and their production; Preparation for overseas work engagement.				

#### Code of the group: 1S-NP-DS-V1-22/23

Name of the group: 1st Sem. Master Full-Time DS Alternative from 2022/23 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	Z,ZK	4	2P+2C	Z	Z
17TZND	<b>Technology of Railway Transport</b> Daniel Drnec, Michal Drábek, Zden k Michl, Vít Janoš, Rudolf Vávra Vít Janoš (Gar.)	Z,ZK	4	2P+2C	z	Z

# Characteristics of the courses of this group of Study Plan: Code=1S-NP-DS-V1-22/23 Name=1st Sem. Master Full-Time DS Alternative from 2022/23

17DOPD	Transportation Planning and Modeling	Z,ZK	4			
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	transportation planning and modelling.					
17TZND	Technology of Railway Transport	Z,ZK	4			
Track line capacity asse	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: 2S-NP-DS-20/21

Name of the group: 2nd Sem. Bachelor Full-Time DS from 2020/21 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, Gabriela Sidorinová	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, Jan Leistner, Filip Kotas, 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 Luboš Nouzovský Tomáš Mi unek (Gar.)	KZ	4	1P+3C	L	Z
15JBA2	Language - English 2 Jitka He manová, Dana Boušová, Lenka Monková, Peter Morpuss, Markéta Vojanová, Marie Michlová, Markéta Musilová, Jan Feit, Eva Rezlerová,	Z	2	0P+2C+10B	L	Z

#### Characteristics of the courses of this group of Study Plan: Code=2S-NP-DS-20/21 Name=2nd Sem. Bachelor Full-Time DS from 2020/21

12NAPI	Design and Maintenance of Transportation Structures	Z,ZK	4				
Design and constructior	Design and construction of cement-concrete pavements and their maintenance. Construction of bridge objects, examples and choice of bridge construction materials. Construction						
and operation of tunnels.							
12UMUP	Sustainable Mobility and Land - Use Planning	Z,ZK	5				
Spatial planning - objec	tives and tasks, development over time. Land-use planning tools. SUMP. Territorial and transport planning context. Ways of ur	ban growth in cor	nnection with				
transport. Basic principl	es of the transport solution. The impact of transport on the size and shape of the city, on the development of the street and th	e square and the	roads. Solutions				
for pedestrian and bicyc	le transport. Suburbanization and transport. City economics.						
12ZSUZ	Railway Stations and Centres	Z,ZK	3				
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.							

16PDP	Principles of Vehicle Design					
Design of transportation vehicle according to its usage and function. Marketing and user demands. Vehicle dynamics. Propulsion systems. Design process, funct						
vehicle structure. Evalu	vehicle structure. Evaluation of variant concepts. Design phases. Realiability, technological aspects etc.					
22AMMD	KZ	4				
Geodetic location and t	echnical processing of traffic route with geodetic total station, GPS and photogrammetry, 3D scanning. Transport corridor set	ting out using geo	detic methods.			
Detection and technical	I processing of several vehicle dynamic characteristics using high-speed cameras and accelerometers. It is a week course and	d the terms are us	sually set in June			
and September - usual	and September - usually in examination period.					
15JBA2	Language - English 2	Z	2			
Presentation Skills - ex						

Code of the group: 2S-NP-DS-V-20/21 Name of the group: 2nd Sem. Master Full-Time DS Alternative from 2020/21 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, Zuzana arská Josef Kocourek (Gar.)	Z,ZK	4	2P+1C	L	Z	
18TEAM	Theoretical and Applied Mechanics Jitka ezní ková, Ond ej Jiroušek, Radim Dvo ák	Z,ZK	4	2P+1C	L	Z	

# Characteristics of the courses of this group of Study Plan: Code=2S-NP-DS-V-20/21 Name=2nd Sem. Master Full-Time DS Alternative from 2020/21

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	network that should minimize traffic accident risks for all those who take part in road traffic. Application of European Directive 2008/96/EC on road safety infrastructure 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.						

### Code of the group: 3S-NP-DS-21/22

Name of the group: 3rd Sem. Bachelor Full-Time DS from 2021/22

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 5 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
11STS	Stochastic Systems Evženie Uglickich, Šárka Vorá ová, Natálie Blahitka, Michal Matowicki, Pavla Pecherková <b>Pavla Pecherková</b> Šárka Vorá ová (Gar.)	Z,ZK	4	2P+2C+14B	Z	Z
12DAZP	Transport and Environment Tomáš Javo ík, Kristýna Neubergová	Z,ZK	4	2P+1C	Z	Z
12TEAP	<b>Theory of Road Traffic Operation</b> Zuzana arská, Vladimír Faltus Vladimír Faltus (Gar.)	Z,ZK	7	3P+2C	Z	Z
12VRZ	High Speed Rail Transport Lukáš Týfa	KZ	3	2P+0C	Z	Z
15JBA3	Language - English 3 Jitka He manová, Dana Boušová, Lenka Monková, Peter Morpuss, Markéta Vojanová, Marie Michlová, Markéta Musilová, Jan Feit, Eva Rezlerová,	Z	2	0P+2C+10B	Z	Z

#### Characteristics of the courses of this group of Study Plan: Code=3S-NP-DS-21/22 Name=3rd Sem. Bachelor Full-Time DS from 2021/22

11STS	Stochastic Systems	Z,ZK	4					
The subject deals with the problems of mathematical modelling of dynamical systems, estimation od these models and their utilization for prediction. The results are illustrated on								
practical transportation tasks. Mathematical theory roots from probability and mathematical statistics and they use the methods of the Bayesian probabilistic approach.								
12DAZP	Transport and Environment	Z,ZK	4					
This course aims the im	pact of transport on environment. The accent is put mainly on noise and vibration, emission, barrier effect and energy deman	ds. The noise me	asury is part and					
parcel of this course.								
12TEAP	Theory of Road Traffic Operation	Z,ZK	7					
Traffic parameters and their measurement, acquisition and processing. Road capacity analysis. Theoretical foundations and applications of mathematical models - macroscopic,								
statistical and microsco	pic traffic models. Theory of traffic management. Traffic light signals, roundabouts, coordination, public transport priority. Urba	an and highway m	anagement.					
Traffic excesses manag	Traffic excesses management. Road assessment and maintenance methods. Health risks assessment.							

12VRZ	High Speed Rail Transport	KZ	3					
High speed railway (HSR) transport characteristics and position in transportation system. Types / models of HSR systems, preparation of high speed railway lines building in the Czecl								
Republic conditions.	lon-adhesion HSR systems. City and region traffic service by HSR. HSR operating points. HSR worldwide network. HSR routir	ng and traffic conc	ception. Specifics					
of HSR track construe	tion and layout track parameteres.							
15JBA3	Language - English 3	Z	2					
Presentation Skills - e	xpert technical discourse and style; Analysis of expert texts and their production; Preparation for overseas work engagement.	Optional courses f	for certificates					
FCE, CAE,								

### Code of the group: 3S-NP-DS-V-21/22 Name of the group: 3rd Sem. Master Full-Time DS Alternative from 2021/22 Requirement credits in the group: In this group you have to gain 3 credits Requirement courses in the group: In this group you have to complete 1 course Credits in the group: 3

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
12IDOS	Integrated Transport Systems Martin Jareš, Petr Chmela	ZK	3	2P+0C	Z	Z
16STK	Simulation and Testing of Vehicle Body and Systems Josef Svoboda, Michal Cenkner, Petr Bouchner	ZK	3	2P+0C	Z	Z

# Characteristics of the courses of this group of Study Plan: Code=3S-NP-DS-V-21/22 Name=3rd Sem. Master Full-Time DS Alternative from 2021/22

12IDOS	Integrated Transport Systems	ZK	3					
Reasons for building of	Reasons for building of integrated transport systems, principle of integration, dividing of integration methods, traffic, infrastructure, technical, organizational methods, integration of							
tariff, sales systems, inf	tariff, sales systems, information systems, marketing of system, examples of non-integration.							
16STK	Simulation and Testing of Vehicle Body and Systems	ZK	3					
Simulation theory. Com	Simulation theory. Computing equipment for simulation. Modeling of mechanical and dynamic systems. Simulation and optimization methods. Hardware in the Loop (HIL). Simulation							
approaches for vehicle design. Simulation of propulsion and electric systems. Strength and material analyses of dynamical phenomena for vehicles of on-land carriage.								

### Code of the group: 4S-NP-DS-21/22

Name of the group: 4th Sem. Bachelor Full-Time DS from 2021/22

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

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

Credits in the group: 2

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
15JBA4	Language - English 4 Jitka He manová, Dana Boušová, Lenka Monková, Peter Morpuss, Markéta Vojanová, Marie Michlová, Markéta Musilová, Jan Feit, Eva Rezlerová,	ZK	2	0P+2C+10B	L	Z

#### Characteristics of the courses of this group of Study Plan: Code=4S-NP-DS-21/22 Name=4th Sem. Bachelor Full-Time DS from 2021/22

 15JBA4
 Language - English 4
 ZK
 2

 Presentation Skills - expert technical discourse and style; Analysis of expert texts and their production; Preparation for overseas work engagement.Optional courses for certificates FCE, CAE.

### Code of the group: XD-NP-DS-21/22

Name of the group: Thesis Master Full-Time DS from 2021/22 Requirement credits in the group: In this group you have to gain 18 credits Requirement courses in the group: In this group you have to complete 1 course Credits in the group: 18 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
11XNDD	Master Thesis for study programme DS	Z	18	0P+20C	L	Z
12XNDD	Master Thesis for study programme DS Lukáš Týfa, Ond ej Trešl, Gabriela Sidorinová, Dagmar Ko árková, Václav Novotný, Martin Jacura, Tomáš Javo ík, Josef Kocourek, Polina Zayats,	Z	18	0P+20C	L	Z

14XNDD	Master Thesis for study programme DS	Z	18	0P+20C	L	Z
15XNDD	Master Thesis for study programme DS	Z	18	0P+20C	L	Z
16XNDD	Master Thesis for study programme DS Josef Svoboda, Michal Cenkner, P emysl Toman, Josef Mík	Z	18	0P+20C	L	Z
17XNDD	Master Thesis for study programme DS	Z	18	0P+20C	L	Z
18XNDD	Master Thesis for study programme DS Petr Koudelka, Tomáš Fíla	Z	18	0P+20C	L	Z
20XNDD	Master Thesis for study programme DS Ji í R ži ka, Patrik Horaž ovský	Z	18	0P+20C	L	Z
21XNDD	Master Thesis for study programme DS	Z	18	0P+20C	L	Z
22XNDD	Master Thesis for study programme DS Michal Frydrýn, Luboš Nouzovský, Zden k Svatý, Karel Kocián, Jakub Nová ek Luboš Nouzovský	Z	18	0P+20C	L	z
23XNDD	Master Thesis for study programme DS Zden k Svatý	Z	18	0P+20C	L	Z

Characteristics of the courses of this group of Study Plan: Code=XD-NP-DS-21/22 Name=Thesis Master Full-Time DS from 2021/22

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

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

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

Name of the group: Research Groups Master Full-Time DS from 2020/21 Requirement credits in the group: In this group you have to gain 13 credits Requirement courses in the group: In this group you have to complete 4 courses Credits in the group: 13 Note on the group:

	Name of the course / Name of the group of courses					
Code	(in case of groups of courses the list of codes of their members)	Completion	Credits	Scope	Semester	Role
	Tutors, authors and guarantors (gar.)					
11XN1	Master Project 1 Pavla Pecherková, Jana Kuklová Jana Kuklová Jana Kuklová (Gar.)	Z	2	0P+2C+4E	Z	ZP
12XN1	Master Project 1 Lukáš Týfa, Ond ej Trešl, Gabriela Sidorinová, Dagmar Ko árková, Václav Novotný, Martin Jacura, Tomáš Javo ík, Josef Kocourek, Polina Zayats,	Z	2	0P+2C+4E	Z	ZP
14XN1	Master Project 1	Z	2	0P+2C+4E	Z	ZP
15XN1	Master Project 1	Z	2	0P+2C+4E	Z	ZP
16XN1	Master Project 1 P emysl Toman, Josef Mík	Z	2	0P+2C+4E	Z	ZP
17XN1	Master Project 1 Milan K íž, Michal Drábek, Zden k Michl, Vít Janoš, Rudolf Vávra, Václav Baroch, Alexandra Dvo á ková, Veronika Faifrová, Eliška Glaserová,	Z	2	0P+2C+4E	Z	ZP
18XN1	Master Project 1 Daniel Kytý, Václav Rada, Nela Kr má ová	Z	2	0P+2C+4E	Z	ZP
20XN1	Master Project 1 Ji í R ži ka, Milan Sliacky	Z	2	0P+2C+4E	Z	ZP
21XN1	Master Project 1 Milan Kameník, Stanislav Pleninger, Stanislav Kušmírek, Jakub Trýb, Iveta Kameníková, Jakub Kraus, Andrej Lališ, Slobodan Stoji, Terézia Pilmannová,	Z	2	0P+2C+4E	Z	ZP
22XN1	Master Project 1 Michal Frydrýn, Luboš Nouzovský, Zden k Svatý, Karel Kocián, Jakub Nová ek	Z	2	0P+2C+4E	Z	ZP
23XN1	Master Project 1	Z	2	0P+2C+4E	Z	ZP

11XN2	Master Project 2 Pavla Pecherková, Jana Kuklová <b>Jana Kuklová</b> Jana Kuklová (Gar.)	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 ík, 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 Mík	Z	2	0P+2C+8B	L	ZP
17XN2	Master Project 2 Milan K (ž, Michal Drábek, Zden k Michl, Vít Janoš, Rudolf Vávra, Václav Baroch, Alexandra Dvo á ková, Veronika Faifrová, Rudolf Franz Heidu, Vít Janoš (Gar.)	Z	2	0P+2C+8B	L	ZP
18XN2	Master Project 2 Petr Koudelka, Tomáš Fíla, Nela Kr má ová Daniel Kytý	Z	2	0P+2C+8B	L	ZP
20XN2	Master Project 2 Ji í R ži ka, Patrik Horaž ovský, Milan Sliacky Vladimír Faltus	Z	2	0P+2C+8B	L	ZP
21XN2	Master Project 2 Stanislav Kušmírek, Jakub Trýb, Jakub Kraus, Andrej Lališ, Slobodan Stoji , Terézia Pilmannová, Jakub Hospodka, Lenka Hanáková, Peter Vittek,	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, Gabriela Sidorinová, Dagmar Ko árková, Václav Novotný, Martin Jacura, Tomáš Javo ík, Josef Kocourek, Polina Zavats,	Z	1	0P+4C	Z	ZP
14XN3	Master Project 3	Z	1	0P+4C	Z	ZP
15XN3	Master Project 3	Z	1	0P+4C	Z	ZP
16XN3	Master Project 3 Josef Svoboda, Michal Cenkner, P emysl Toman, Josef Mík	Z	1	0P+4C	Z	ZP
17XN3	Master Project 3 Milan K (ž, Michal Drábek, Zden k Michl, Vít Janoš, Rudolf Vávra, Václav Baroch, Alexandra Dvo á ková, Veronika Faifrová, Eliška Glaserová,	Z	1	0P+4C	Z	ZP
18XN3	Master Project 3 Tomáš Fíla, Daniel Kytý, Nela Kr má ová	Z	1	0P+4C	Z	ZP
20XN3	Master Project 3 Ji í R ži ka, Patrik Horaž ovský	Z	1	0P+4C	Z	ZP
21XN3	Master Project 3 Terézia Pilmannová, Miloš Strouhal, Ota Hajzler	Z	1	0P+4C	Z	ZP
22XN3	Master Project 3 Michal Frydrýn, 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 Michal Cenkner, Josef Mík	Z	8	0P+4C	L	ZP
17XN4	Micha Cerikitel, Joser Mik Master Project 4 Milan K íž, Michal Drábek, Zden k Michl, Vít Janoš, Rudolf Vávra, Václav Baroch, Alexandra Dvo á ková, Veronika Faifrová, Rudolf Franz Heidu, Václav Baroch (Gar.)	Z	8	0P+4C	L	ZP
18XN4	Master Project 4 Petr Koudelka, Tomáš Fíla	Z	8	0P+4C	L	ZP
20XN4	Master Project 4 Ji í R ži ka, Patrik Horaž ovský Patrik Horaž ovský	Z	8	0P+4C	L	ZP
21XN4	Master Project 4 Stanislav Pleninger, Iveta Kameníková, Slobodan Stoji , Terézia Pilmannová, Vladimír Socha, Peter Vittek, Jakub Steiner, Miloš Strouhal, Ota Hajzler,	Z	8	0P+4C	L	ZP
22XN4	Master Project 4 Michal Frydrýn, 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=X2-NP-DS-20/21 Name=Research Groups Master Full-Time DS from 2020/21

11XN1	Master Project 1	Z	2
12XN1	Master Project 1	Z	2
14XN1	Master Project 1	Z	2
15XN1	Master Project 1	Z	2
16XN1	Master Project 1	Z	2

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

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

Code of the group: Y2-NP-DS-24/25 Name of the group: Comp. Sel. Courses Master Full-Time DS from 2024/25 Requirement credits in the group: In this group you have to gain 6 credits Requirement courses in the group: In this group you have to complete 3 courses Credits in the group: 6 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
00Y2XN	Active participation in a scientific project, workshop, short-term trip abroad Patrik Horaž ovský Patrik Horaž ovský (Gar.)	КZ	2	2P+0C		PV
17Y2AM	Application of Marketing Tools in Transportation	KZ	2	2P+0C	L	PV
12Y2BM	Safety on The Local Roads	KZ	2	2P+0C	Z	PV
14Y2C1	CATIA I	KZ	2	2P+0C	L	PV
14Y2C2	CATIA II	KZ	2	2P+0C	Z	PV
14Y2CS	Sensitivity of Systems	KZ	2	2P+0C	L	PV

21Y2CR	CRM Ladislav Capoušek	KZ	2	2P+0C+8B	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	Z	PV
18Y2EM	Electron microscopy	KZ	2	2P+0C	L	PV
16Y2EE	Nela Kr má ová Emissions and Ergonomics of Vehicles	KZ	2	2P+0C	L	PV
17Y2FM	Financing in Urban Mass Transportation	KZ	2	2P+0C	Z	PV
21Y2FM	Václav Baroch, Olga Mertlová, Petra Skolilová Petra Skolilová (Gar.) Aviation Company Financial Management	KZ	2	2P+0C+8B	Z	PV
18Y2FZ	Radoslav Zozu ák Radoslav Zozu ák Physical foundation of materials' properties	KZ	2	2P+0C		PV
15Y2HS	Road Transport History	KZ	2	2P+0C	 L	PV
16Y2HP	Zuzana arská Vehicle Hygiene	KZ	2	2P+0C	L	PV
14Y2IS	Intelligent Systems in Postal Services	KZ	2	2P+0C	L	PV
12Y2IS	Urban Networks	KZ	2	2P+0C	Z	PV
14Y2JM	One-Chip Controllers	KZ	2	2P+0C	Z	PV
15Y2JH	Job Hunting in English Lenka Monková	KZ	2	2P+0C	Z	PV
14Y2KI	Capital Investment in Transportation and Telecommunications	KZ	2	2P+0C	L	PV
16Y2KV	Car Body Design	KZ	2	2P+0C	L	PV
12Y2KS	Rail Transport in Settlements and Regions	KZ	2	2P+0C	Z	PV
12Y2KE	Landscape Ecology	KZ	2	2P+0C	Z	PV
11Y2LG	Dagmar Ko árková, Kristýna Neubergová Logics of Engineer's Judgement Magdalena Hykšová Magdalena Hykšová Magdalena Hykšová (Gar.)	KZ	2	2P+0C	L	PV
21Y2MQ	Quality Management Luboš Socha	KZ	2	2P+0C+8B	L	PV
15Y2MS	Sociology for Managers	KZ	2	2P+0C	Z	PV
21Y2MK	Martina Smidochová Marketing of Air Transport	KZ	2	2P+0C+8B	Z	PV
12Y2MH	Peter Vittek Peter Vittek	KZ	2	2P+0C		PV
12Y2MI	Measurement and Modeling of Traffic Noise	KZ	2	2P+0C	 L	PV
18Y2MP	Urban Engineering Finite Element Method And Its Application	KZ	2	2P+0C		PV
	Ján Kopa ka, Radek Kolman					
16Y2MK	Quality Methods for Vehicles	KZ	2	2P+0C	L	PV
12Y2MD	Methods of Traffic Regulation and Prediction Zuzana arská	KZ	2	2P+0C	L	PV
17Y2MO	International Organisations in Transportation	KZ	2	2P+0C	L	PV
17Y2MS	Microsimulation of Railway Operation Zden k Michl Zden k Michl (Gar.)	KZ	2	2P+0C	Z	PV
17Y2MD	Modelling and optimization on transport networks	KZ	2	2P+0C	Z	PV
21Y2MC	CNS Systems Modelling Stanislav Pleninger Stanislav Pleninger	KZ	2	2P+0C+8B	Z	PV
17Y2MT	Modern History for Engineering Students Petra Skolilová Petra Skolilová (Gar.)	KZ	2	2P+0C	Z	PV
21Y2MG	Military Aerospace Technologies: Applications and Global Dynamics	KZ	2	2P+0C	Z	PV
12Y2MZ	Modernization of Railway Lines and Stations Dagmar Ko árková, Miroslav Veliš	KZ	2	2P+0C	L	PV
12Y2NS	Shared Space Design Voit ch Novotný, Karel Hájek	KZ	2	2P+0C	Z	PV
14Y2OP	Object Oriented Programming in Transport	KZ	2	2P+0C	L	PV
15Y2OZ	Health Protection in Transportation and EU	KZ	2	2P+0C	Z	PV
15Y2OF	Specialised French for Transportation and Telecommunications	KZ	2	2P+0C	Z	PV
18Y2OB	Optical Contactless Strain Measurements	KZ	2	2P+0C	L	PV
16Y2PG	Computer Graphics and Virtual Reality Petr Bouchner, Stanislav Novotný	KZ	2	2P+0C	Z	PV
22Y2PS	Traffic Accidents Computer Simulation and Analysis	KZ	2	2P+0C	L	PV
15Y2PT	Food in Transportation Petr Musil	KZ	2	2P+0C	L	PV

15Y2PD	Practical Spanish for Transportation	KZ	2	2P+0C	Z	PV
21Y2PP	Law and Operation in Air Transport Radoslav Zozu ák	KZ	2	2P+0C+8B	L	PV
20Y2PR	Prediction of time series	KZ	2	2P+0C	L	PV
12Y2PV	Public transport priority Vojt ch Novotný Vojt ch Novotný (Gar.)	KZ	2	2P+0C	L	PV
14Y2PI	Process Information Systems in Transportation	KZ	2	2P+0C	Z	PV
14Y2PJ	C++ Programming Language	KZ	2	2P+0C	L	PV
14Y2PH	CAD Interface Programming	ΚZ	2	2P+0C	L	PV
11Y2PM	Programming in MATLAB Šárka Vorá ová	KZ	2	2P+0C	L	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
15Y2SP	Seminar on Political Philosophy Marek Tome ek	KZ	2	2P+0C	Z	PV
17Y2SJ	Network Timetabling on the Railway Zden k Michl, Vít Janoš, Rudolf Vávra Vít Janoš (Gar.)	KZ	2	2P+0C	L	PV
16Y2ST	Special Technologies in Transport and Telecommunications	KZ	2	2P+0C	L	PV
16Y2SV	Special technologies in vehicle manufacturing	KZ	2	2P+0C	L	PV
18Y2SD	Reliability and Diagnostics, Experimental Methods Daniel Kytý Daniel Kytý Daniel Kytý (Gar.)	KZ	2	2P+0C	Z	PV
15Y2SR	Stylistics and Rhetorics	KZ	2	2P+0C	Z	PV
15Y2TS	Technician and Contemporary Society Jan Feit	KZ	2	2P+0C	L	PV
20Y2TE	Technology of Electronic Systems	KZ	2	2P+0C	Z	PV
14Y2TU	<b>Telecommunications Systems and Multimedia</b>	KZ	2	2P+0C	Z	PV
16Y2TT	Transportation and Building Technology and Equipment	KZ	2	2P+0C	Z	PV
21Y2UL	Aircraft Maintenance Kate ina Stuchlíková	KZ	2	2P+0C+8B	L	PV
14Y2UI	Artificial Intelligence	KZ	2	2P+0C+8B	Z,L	PV
18Y2UB	Accident Biomechanics and Safety	KZ	2	2P+0C	L	PV
18Y2VC	Computational Mechanics in Transportation	KZ	2	2P+0C	L	PV
15Y2ZA	Basic Principles of English Academic Writing and Abstract in English Dana Boušová	ΚZ	2	2P+0C	Z	PV
12Y2ZK	Traffic Calming Zuzana arská	KZ	2	2P+0C	Z	PV

# Characteristics of the courses of this group of Study Plan: Code=Y2-NP-DS-24/25 Name=Comp. Sel. Courses Master Full-Time DS from 2024/25

00Y2XN	Active participation in a scientific project, workshop, short-term trip abroad	KZ	2
17Y2AM	Application of Marketing Tools in Transportation	KZ	2
Application of marketi	ng principles in transport issues, marketing tools suitable for transport, case studies of the use of marketing in the sphere of	i public passenger tra	nsport.
12Y2BM	Safety on The Local Roads	KZ	2
	accidents rates, social looses. Collision points, diagrams. Tools and methods for safer road transportation. Crossroads from the buts. Pedestrian transport, cyclists. Traffic lights coordination. Transport control and regulation.	point of view of safety	y. Psychologica
14Y2C1	CATIA I	KZ	2
	g with CATIA, making basic parts and bodies. Making 2D sketches, geometric stucture, parametric linking, making adaptive arts and bodies. Making assemble and visualization.	models from 2D ske	tches. Import
14Y2C2	CATIA II	KZ	2
Extension of basic co	urse. Modeling compound bodies. Possibility of enumeration, comunications with other systems. Surface x solid bodies. Kine	ematic mechanism. Pr	roject making
and project cooperation	n. Outputs of projects.		
14Y2CS	Sensitivity of Systems	KZ	2
Design of systems wit	h defined reliability. The impact of changing parameters and subsystems within a system. System sensitivity computing, def	inition of sensitivity fu	inctions and
matrices and their usa	bility in system design.		
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	e human body. Fatigu	e Sleep &:
Vigilance. Information	Processing. Situational Awareness. Workload Management. Decision Making. Communication. Leadership & amp; Team Be	haviour. Automation.	
12Y2DU	Transport in the Context of Sustainability	KZ	2
Definitions of sustaina	ble transport, historical context, development in our country and in the world. Sustainable development and sustainable trans	port. Demand for tran	sport. Inductio
of transport. Example	of sustainable transport. Biofuels. Electromobility. New trends in transport. Practical examples.		
15Y2DN	Transportation Psychology in German Speaking Countries	KZ	2
Introduction into broad	ler view of traffic problems with regard to the work with texts (Physics for drivers, abusing alcohol during driving, exhaustion	, getting of driving lice	ence, children
in traffic, traffic accide	nt, traffic psychology in the internet etc.)		

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 mo	dels of vehicles and	transport routes.
Vibration of systems with a finite number of degrees of freedom. Methods of stiffness constants and pliability constants. Fundamentals of vibration o		
of oscillation. Experimental methods in dynamics.	0	,
18Y2EM Electron microscopy	KZ	2
Basic principles of electron microscopy, construction, control and maintenance of SEM, sample preparation, signal detection, types of detectors a		
analysis, quantification of results and automation of data processing, energy dispersive X-ray microanalysis and other analytical methods in electronic analysis and other analytical methods in electronic and the second se	on microscopy. Eval	luation 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 vibrational and international law related to the hygiene.	ons - sources, creati	on, propagation,
physical values, ways of measuring, prevention, elimination. Exhausts - creation, measurement, reduction, non-regular fuels and drives. Ergonomy -	sitting, standing, co	ntrol, operational
reach. Condition - heating, ventilation, air-conditioning, filtration, tiredom.		
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. Undergi		1 1
	-	
UMT types. UMT development in small towns. Particularities of investment and operation financing of individual UMT types. Historic and present n	nodels of UIVI I finan	cing. Transport
inspection and blind passengers. Tourism & amp; UMT. 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 re	sources, depreciation	on, retained
earnings, shares, bonds, loans, leasing, capital. Financial and economic analysis of the company - structure and content.		
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 environmentation of materials and the statement of the st	1	I – I
behavior are the main discussed topics.		y on materials
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		
1st part of 20th century. Development of road layout, geometric and construction layers. Beginning of modern road civil engineering. Development	of road travelling in	modern period.
History of road intercections, bridges and traffic control, development of road signs.		
16Y2HP Vehicle Hygiene	KZ	2
Emissions and ergonomy of vehicles and the influence on man and nature. National and international law related to the hygiene. Noise and vibrational terms are an and nature.		I – I
physical values, ways of measuring, prevention, elimination. Exhausts - creation, measurement, reduction, non-regular fuels and drives. Ergonomy -		
	sitting, standing, coi	nitol, operational
reach. Condition - heating, ventilation, air-conditioning, filtration, tiredom.		
14Y2IS Intelligent Systems in Postal Services	KZ	2
The use of information systems in the postal services (ITIS, and POST, T + T, PS, KMP, DS), application of information technology in the processi	ng of mail processin	g nodes in the
postal network, optimizing logistics processes in the post. The appreciation of the real implementation of the Czech post in operation both in lectures	and in the framewor	rk of the practical
desk.		
12Y2IS Urban Networks	KZ	2
The importance and the position of UN as public and technical infrastructure / utillities, metodology of the UN master planning, of UN design, UN		_
operation (basic technical standards of UN, trenchless technologies for UN).		
14Y2JM One-Chip Controllers	KZ	2
One-chip controllers architecture, embedded peripherals (counters, timers, converters, ports) and their utilisation. Practical tasks are programmed	with the aid of AVR	chips.
15Y2JH Job Hunting in English	KZ	2
The course provides a practical guide to applying for a job in English. The interview process is mapped out, with the course including skills practis	e for all the stages of	of this process,
including specifics for job-hunting in English. Students will also be introduced to the English vocabulary and phraseology necessary for a success	-	•
	KZ	2
Financial market, investment desicion making - long term goals and investment strategies, long term financing		
16Y2KV Car Body Design	KZ	2
Personal cars body, high-load car body, bus car body, and motorcycle as a construction set. Principles of design, production, testing and operation	<ol> <li>Materials used for</li> </ol>	car body
construction. Active and passive safety parts. Ergonomics, HMI, view out of the vehicle, operational extent, view behind the car. Conditioning tools	, signaling function.	Aerodynamics
of the car body. Design and artistic design principles. Practical training.		
12Y2KS Rail Transport in Settlements and Regions	KZ	2
Modernization and development of railway infrastructure in Czech Republic. Arrangement of railway networks and junctions. Suburban railway ser	1	I I
operation of metro systems. Network configuration and operation of tram systems. Special thematic lectures (rail transport in selected countries /		guiation and
12Y2KE Landscape Ecology	KZ	2
Landscape ecology. Landscape - definition, types, evolution. Landscape systems. Anthropogenic impacts on landscape. Methods using for evalua	ing landscape. Frac	tal geometry
and its potential applications in landscape ecology. Landscape planning.		
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 truthfulr	1 1	nalysis charts.
Venn's diagram method. Logical basis for network design for the solution of technical tasks.		,
	KZ	2
	1	I I
History, basic definition. Pioneers in the field of quality. International quality organisations and quality promotion in the Czech Republic. Quality management is the control of the requirements of the req		
management systems. Integrated management systems. Risk management in the context of the requirements of ISO standards. Sectoral quality management systems are in a sector and a sector an	magement systems.	Comprenensive
quality management, excellence models and corporate social responsibility. Quality audits.		
15Y2MS Sociology for Managers	KZ	2
Sociological approach to a corporation. Corporation and its organization. Corporation and its running - human role and communication. Corporation	on, its culture and sc	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	1 1	I I
and implementation of sales of goods and services in the aviation industry. In addition to the theoretical foundations of marketing, the lectures pre		
	Sont Systems Of Indi	
and product analysis, creation of marketing strategies and planning.		
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 traffi	c. Measurement and	d calculation of
noise from road traffic. Modelling of traffic noise in the CADNA A.		

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valacional provigene. Ensement formation (but and team elements. CET, LET, quadratitude), uterated and back elements). Natural coordinates, reduct at should conditions and analysis of customer requirements. CP2, DPA, DPA, DPA, PES PMAA (Failure mode affect analysis). Elements of parallel team of analysis of customer requirements. CP2, DPA, DPA, DPA, DPS, PMAA (Failure mode affect analysis). Elements of parallel team of analysis of customer requirements, CP2, DPA, DPA, DPS, PMAA (Failure mode affect analysis). Elements of parallel team of analysis of customer requirements, CP2, DPA, DPA, DPS, PMAA (Failure mode affect analysis). Elements of parallel team of analysis of customer requirements, CP2, DPA, DPA, DPS, PMAA (Failure mode affect analysis). Elements of parallel team of analysis of transport, failure in analysis, Costenation of the affect analysis). Elements are analysis, Cesseration and analysis of customer requirements, Costenation of the affect analysis. Cesseration of the affect analysis, Cesseration and analysis of transport failure influences. Acceleration of the affect analysis, Cesseration and analysis of transport failure influences. Acceleration of the affect analysis, Cesseration and analysis of transport failure influences. Acceleration of the affect analysis of transport failure influences. Acceleration of the affect analysis. Cesseration of the affect analysis of transport failure influences and transport fail			1 1	_
teoparametric species ratios. Numerates in teoplical for Vehicles Velice Velicity Methods for Vehicles Velice Velicity Methods of Traffic Regulation and Pradication Velice Veli				•
16YZMK       Quality Methods for VehicleS       KZ       2         Quality mengement methods fut cutomer date sequelition and analysis of cutomer requirements, QFD, DFM, DFA, DFS, FMEA (Failure mode affect analysis). Elements of parallel team dates of traffic Organisation on analysis of cutomer requirements, QFD, DFM, DFA, DFS, FMEA (Failure mode affect analysis). Elements of parallel team dates of traffic Organisation on analysis of cutomer requirements. QFD, DFM, DFA, DFS, FMEA (Failure mode affect analysis). Elements of parallel team dates of traffic Organisation on analysis of cutomer requirements. QFD, DFM, DFA, DFS, FMEA (Failure mode affect analysis). Elements of parallel team dates of traffic Organisation on the analysis. Shock wes in transport. NAE (SC )         17YZMD       International elexacity of the dates of traffic Organisation on transport of the dates of trade of the dates of traffic Organisation on transport. NAE (SC )       2         17YZMD       Minocation of the infrastructure of animative objects and Approtes.       KZ )       2         17YZMD       Modelling and ophinization on transport networks.       KZ )       2         17YZMD       Modelling and ophinization on transport networks.       KZ )       2         17YZMD       Modelling and ophinization on transport networks.       KZ )       2         17YZMD       Modelling and ophinization on transport networks.       KZ )       2         17YZMD       Modelling and ophinization on transport networks.       KZ )       2         17YZMD       Modeminiting methoding met				
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12Y2MO         Methods of Traffic Regulation and Prediction         KZ         2           ascies way of inflepropuss, traffe groupsits for the parts of characterization of huur natific volumes. Accidention of huur natific volumes between areas (analogical and synthetic methods, model agit, traffic delibuitor to road network), Shock way in traffic low. Savice levels and their traffic volumes. Accidention of European Ministries of transport, International Cargonisations in Transport tabin responses.         KZ         2           17Y2MO         Microsofinulation of Railway, Toeks, at: way ways, roads, at: ways, roads, at: way ways, roads, at: ways,				ments of paraller
Baic seq famile proposes after programs for single seq (actuation of future ratific volumes, actuation of future ratific volumes, actuation of future ratific volumes, Actuations inc.           TY2MO         International forganisations in Transportation         KZ         2           International forganisations to reasons of the set of volumes, Actuations of the set		Mathematical Traffic Description and Description	1/7	0
media tagin, tuffic distribution to read relevandy. Brock waves in traffe ToxA Service tirrels and their taffic volumes. Acceleration rocke.           1/YZMO         International of Organisations of policy and toxins in transport tabing.         KZ         2           1/YZMO         Microsoftand I analyse, roads, arg., valewaves, forwarding and policy and service.         KZ         2           1/YZMO         Microsoftand I analyse, roads, arg., valewaves, forwarding and policy and service.         KZ         2           1/YZMO         Microsoftand I and modification to the infrastructure to allow the implementation of the preving service systems.         KZ         2           1/YZMO         Microsoftand I and modification to the infrastructure to allow the implementation of the previngence operational concept to the great metal to a service interaction including green wave node large systems.         KZ         2           1/YZMO         Modelling and optimization on transport networks.         Schedular service systems.         KZ         2           1/YZMO         CNS Systems Modelling         KZ         2         2         2           1/YZMO         CNS Systems Modelling         KZ         2			1	
17/2MO         International Organisations in Transportation         KZ         2           International relations in transport. Net Cell N. Intergovernment dogmissions, EU Offices and Agencies, Conference of European Ministrie of transport. International mode urganisations of the Transport Learning on the Alexan International Concept on the given International mode urganisation to the characteristics of an aduation to the advantation of the advantation advantation of the advantation advantation of the advantadvantation of the advantation			analogical and sy	nthetic methods,
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organizations of public transport, Air-Rail, nailway, creads, air, vaterways, towarding and postal services.         KZ         2           Introduction to the characteristics of airmutation totic, creation of a simulation model of ailway infrastructure, vertication of a service operational concept. Stability tests and welluations. Evaluation of a simulation totic infrastructure, vertication of a proposed operational concept. Stability tests and welluations. Evaluation of asimulation problems in distribution systems - reacted, begins for control plans for light-control of intersections including green wave modelling. Service systems, modeling of adminustration systems - reacted, begins of control plans for light-control of intersections including green wave modelling. Service systems, modeling of adminustration problems in distribution systems - reacted, begins and services in adving problems.         KZ         2           21Y2MC         CNS Systems Modelling         KZ         2         2         2           21Y2MC         CNS Systems Modelling         KZ         2				
17/2MS       Microsimulation of a laiway Operation       KZ       2         introduction to the intrastructure model and modification to the infrastructure to allow the implementation of the proposed operational concept. Stability tests and evaluation of a sensitivity of the evantagement of the proposed operational concept. Stability tests and evaluation of a sensitivity of the equation to the infrastructure to allow the implementation of the proposed operational concept. Stability tests and evaluation of control plans for light controlled intersections including grame wave modelling, service system, modelling of advanced problems in daribution systems - exact, heuristic and metaheuratic principles of solving problems.       KZ       2         21Y2MC       Const Systems In distribution systems - exact, heuristic and metaheuration principles of solving problems.       KZ       2         21Y2MC       Modern History for Engineering Students       KZ       2         21Y2MG       Modernization of Naive Supportation development. Integration Sing Students       KZ       2         21Y2MG			transport, Internat	tional mode
Introduction to the characteristics of simulation, creation of a simulation model of railway infrastructure, withication of a specific operational concept of the given infrastructure of a dark material infrastructure of and model and to the infrastructure of the proposed operational concept. Stability tests and evaluations of a sensitive of the infrastructure of and operational concept. Stability tests and evaluations of a sensitive of the infrastructure of and operational concept. Stability tests and evaluations of a sensitive operational concept. Stability tests and evaluations of the infrastructure of and operational concept. Stability tests and evaluations of a sensitive operational concept. Stability tests and evaluations of a sensitive operational concept. Stability tests and evaluations of a sensitive operation of a sensitive operational concept. Stability tests and sensitive of the infrastructure of a sensitive operational concept. Stability tests and sensitive of the concept. Infrastructure operational concept. Stability tests and sensitive of the infrastructure operational concept. Stability tests and sensitive of the infrastructure of the infrastructure of the infrastructure operation of a sensitive operational concept. Stability tests and sensitive operational concept. Stability tests and sensitive operations of the infrastructure of the infrastructure of the infrastructure of the infrastructure operation of a sensitive operation. Stability is the sensitive of the infrastructure of a sensitive operation of a sensitive operation. Stability is the sensitive of the infrastructure of a sensitive operation. Stability is the sensitive of the infrastructure operation of the infrastructure ope				
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of sensitivity of the operational concept to delays.           172MD         Modelling and optimization on transport networks         KZ         2           Coordination problems on public transport networks, scheduling vehicles, design of cortral plans for light-contolled intersections including green wave modelling, service systems.         KZ         2           21YZMC         [CNS Systems Modelling         KZ         2           21YZMC         [CNS Systems Modelling         KZ         2           21YZMC         [CNS Systems Modelling         KZ         2           Selected chapters from the 10 sentery bisery. Genopolitical sharetorin in burgen explained on the wamples of Great Brain, Germary and waterian Empire. Bise of the United States, anarraan CVI War.         KZ         2           21YZMC         [Modern Initiation y Accesspace Technologies: Applications and Global Dynamics         KZ         2           21YZMZ         [Modernization of Railway Lines and Stations         KZ         2           21YZMZ         [Modernization of realives provide stations         KZ         2           21YZMZ         [Modernizatio	Introduction to the char	acteristics of simulation tools, creation of a simulation model of railway infrastructure, verification of a specific operational con	cept on the given	infrastructure,
17Y2MD       Modelling and optimization on transport networks. Schuling whiteles, design of control plants for light-controlled intersections including green wave modelling, service systems, modelling of advanced problems in distribution systems.       KZ       2         Construints problem in problem in the structure in the str			/ tests and evalua	tions. Evaluation
Coordination problems on public transport networks, scheduling vehicles, design of control plans for light-controlled intersections including green wave modelling, service systems, modelling a dataware problems in desitation systems areas, heuride and meahaurustic principles of solving problems. 21Y2MC [NS Systems Modelling] KZ 2 20Y2MT [Modern History for Engineering Students Subject to all trappes optimized and multisensor tracking. 17Y2MT [Modern History for Engineering Students Subject to all trappes optimized and multisensor tracking. 17Y2MG [Mittary Aerospace Technologies: Applications and Global Dynamics [KZ 2] 21Y2MG [Mittary Aerospace Technologies: Applications and Global Dynamics [KZ 2] 21Y2MG [Mittary Aerospace Technologies: Applications and Global Dynamics [KZ 2] 21Y2MG [Mittary Aerospace Technologies: Applications and Global Dynamics [KZ 2] 21Y2MG [Mittary Aerospace Technologies: Applications and Global Dynamics [KZ 2] 21Y2MG [Mittary Aerospace Technologies: Applications and Global Dynamics [KZ 2] Line speed increasing AGC and AGTC Agreement. AGC and AGT milway network: Principles of moderization (conceptual paper, affinitions of basic conceptus, individual principles). Tack geometrical characteristics on moderized araking increas. Superiturcuture on upgraded lines. Designing of raikwy stations. Bridges and trunds. Development and raization of projects. Technical description of the tranzit corritors. 12Y2NN [Noter Carter Design Quality public spaces. 14Y2OP [Object Oriented Programming in Transport 14Y2OP [Object Oriented Programming in Transport 15Y2OF [Specialised French for Heng paramic public spaces. 15Y2OF [Specialised French for Heng paramic public spaces. 15Y2OF [Specialised French for Heng paramic public spaces. 15Y2OF [Specialised French for Transportation and Tele Communications 15Y2OF [Specialised French for Transportation and Tele Communications 15Y2OF [Specialised French for Transportation and Heatheromatic systems windive global and virtual me	of sensitivity of the ope	rational concept to delays.		
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21Y2MC       [CNS Systems Modelling       KZ       2         The course is degregated as as of model basis in the field of communication navigation and surveillance systems in aviation, addressed using mathematical approaches and software tools. A large part is deworld to air targets tracking, measurement-track association, track filtering and multisensor tracking.       KZ       2         17Y2MT       Modern History for Engineering Students       Stateat chapters from the 19. century history: Geopolitical situation in Europe explained on the examples of Great Britain, Germany and Austina Empire Rise of the United States, American Crill Wir, transaturiant transportation development. Imperial China: Late Org dynasy, Selected chapters from the 20. century history: From Bulk Eporge to Cold Wire. Cacdealwark historian Transportation development. Thereful China: Late Org dynasy, Selected chapters from the 20. century history: From Bulk Eporge to Cold Wire. Cacdealwark historian of Transportation development. Acc and AGT Callway, retwork. Principles of moderization (conceptual papers, definitione of basic concepts, individual principles). Track generical characteristics on modernized raiking undernization or projects. Technical description of the transit cardios.       KZ       2         12Y2MS       Shared Space Design       KZ       2       Introducing students to the concept of integrated use of public spaces.       KZ       2         14Y2QP       Object Concept of Integrated use of public spaces.       North and technical requirements. Linking raffic engineering, Unava planning and archives and elass. Active promotion of settlements and sustainable mobility in the public spaces.         14Y2QP	Coordination problems	on public transport networks, scheduling vehicles, design of control plans for light-controlled intersections including green wa	ve modelling, ser	vice systems,
The course is designed as a set of model tasks in the field of communication nar/uperior and surveiliance systems in aviation, addressed using mathématical approaches and software tools. A large part is dovected or at trades trades in masses association, trades filtering and multisensor tracking.          17Y2MT       Modern History for Engineering Students       KZ       2         Selected chapters from the 19, centry bistory Coopolitical situation in Europe explained on the examples of Great Britain, Germany and Justries Emptie. Res of the United States, American Chil War, transatianic transportation development. Imperial China. Late Ong dynasty. Selected chapters from the 20. century history: From Bellé Epoque to Cold War. Carchologies: Applications and Global Dynamics       KZ       2         21Y2MG       Military Aerospace Technologies: Applications and Global Dynamics       KZ       2         12Y2NS       Materiation of Railway Lines and Stations       KZ       2         12Y2NS       Shared Space Design       KZ       2         12Y2OF       Object Oriented Programming in	modelling of advanced	problems in distribution systems - exact, heuristic and metaheuristic principles of solving problems.		
The course is designed as a set of model tasks in the field of communication nar/squeed non-systems in aviation, addressed using mathématical approaches and software tooks. A large part is devoted to an itarges tracking, measurement-to-track filtering and multisensor tracking.          17Y2MT       Modern History for Engineering Students       KZ       2         Selected chapters from the 19, centruly biatory. Genotitical situation in Europe explained on the examples of Great Britnin, Germany advantia Emptre, Rise of the United States, American Ovil War, transattamic transportation development. Imperial China: Late Qing dynasty. Selected chapters from the 20, century history: From Belé Epoque to Cold War. Caceboolwark historical myths.         Careboolwark historical myths.       KZ       2         1Y2MS       Multary Aerospace Technologies: Applications and Global Dynamics       KZ       2         Line spead increasing. AGC and AGT railway tensors. Network: Phritoples of modernization (conceptual papers, definitions of baaic concepts, individual principles).       Tox demoderation advantaria advantaria advantaria advantaria advantaria advantaria advantaria advantaria advantaria in the process of designing quality public bispaces.         12Y2NS       Shared Space Design       KZ       2         1enducing students to the concept of integrated us of public spaces by sharing space with all users. Active promotion of settlements and sustainable mobility in the public space of tooms and cities. Analysis of implemented foreign examples, principles of and atter, current legislature, vitual methods and classes. Problem cases will be chosen minotocip, simulation, systam, descrete event simulation, coldar automata simulation and witual lif	21Y2MC	CNS Systems Modelling	KZ	2
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Track geometrical characteristics on modernized railway lines. Superstructure and substructure on upgraded lines. Designing of railway stations. Bridges and tunnels. Development and realization of projects. Technical description of the tranzit corridors.         12Y2NS       Shared Space Design       KZ       2         Introducing students to the concept of Integrated use of public spaces by sharing space with all users. Active promotion of settlements and sustainable mobility in the public space of towns and cites. Analysis of implemented foreign examples, principies of zone design in the context of legal and technical requirements. Linking traffic engineering, urban planning and architecture in the process of designing quality public spaces.         14Y2OP       Dipject Oriented Programming in Transport       KZ       2         Case, object, encapsulation, internitates, retyping, stream, exceptions, repository, collections, virtual methods and classes. Problem cases will be chosen from microscopic simulation system, discrete event simulation and Tele and after, current legislature, future prospects. Harmonisation of legislation with other EU members. Fundamental principles of thealth protection in selected EU countries.         15Y2OF       Specialised French for Transportation and Telecommunications       KZ       2         18Y2OB       Optical Contractices Strain Measurements       KZ       2         18Y2OF       Specialised French for Transportation and Telecommunications       KZ       2         18Y2OF       Computer Graphics and Virtual Reality       KZ       2         18Y2OE			1	_
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12Y2NS       Shared Space Design       KZ       2         Introducing students to the concept of integrated use of public spaces by sharing space with all users. Active promotion of settlements and sustainable mobility in the public space of towns and ciles. Analysis of implemented foreign examples, principles of zone design in the context of legal and technical requirements. Linking traffic engineering, urban planning and architecture in the process of designing quality public spaces.         14Y2OP       Object Oriented Programming in Transport       KZ       2         Class, object, encapsulation, inheritance, polymorphism, templates, retyping, steam, exceptions, repository, collections, virtual methods and classes. Problem cases will be chosen from microscopic simulation system, discrete event simulation and Virtual iffe area.       15720Z       Health Protection in Transportation and FLU       KZ       2         Health Protection in Transportation and Pleeormmunications       KZ       2       2         Basic transportation (public transport, allway, air, road and ship transport) and telecommunications       KZ       2       2         In the course students will get theoretical Knowledge and practical experience in optical strain measurements to displacements measurements and strain fields calculation.       16       2         18Y2OB       Optical Contactless Strain Measurements       Indigital image correlation and processing of bitmap and vector 20 graphics, 3D virtual scenees and algorithms used for their computerized processing. Adopting skills of work with profescional and processing of bitmap and vector 20 graphics,	-		iges and tunnels.	Development
Introducing students to the concept of integrated use of public spaces by sharing space with all users. Active promotion of settlements and sustainable mobility in the public space of towns and cities. Analysis of implemented foreign examples, principles of zone design in the context of legal and technical requirements. Linking traffic engineering, urban planning and architecture in the process of designing guardity public spaces.          14Y2OP       Object Oriented Programming in Transport       KZ       2         Class, object, encapsulation, inheritance, polymorphism, templates, retyping, stream, exceptions, repository, collections, virtual methods and classes. Problem cases wile be chosen from microscopic simulation system, discrete event simulation, celular automata simulation and virtual life area.       KZ       2         Health Protection in Transportation and EU       KZ       2         Health protection and support in selected EU countries.       KZ       2         ISY2OF       Specialised French for Transportation and Telecommunications terminology. Special focus on independent speaking and writing skills.         ISY2OF       Optical Contactless Strain Measurements       KZ       2         In the course students will get theoretical knowledge and practical experience in optical strain measurement methods. Students will get experience with use of laboratory cameras, DSLRs and high speed cameras of 20, 30 and interactive graphics, and basics of programming language VRML and graphic libraries (DenGL).         2Y2VPS       Traffic Accidents Computer Simulation and analysis.       KZ       2         16Y2PD       Computer Graph				
towns and cities. Analysis of implemented foreign examples, principles of zone design in the context of legal and technical requirements. Linking traffic engineering, urban planning and architecture in the process of designing quality public spaces.         14Y2OP       Object Oriented Programming in Transport       KZ       2         Class, object, encapsulation, inheritance, polymorphism, templates, retyping, stream, exceptions, repository, collections, virtual methods and classes. Problem cases will be chosen from microscopic simulation system, discrete event simulation and Virtual life area.       KZ       2         Health Protection in Transportation and EU       KZ       2         Health protection in transportation and Tele Communications       KZ       2         ISY2OF       Specialised French for Transportation and Telecommunications terminology. Special focus on independent speaking and writing skills.       18920B       Optical Contacteless Strain Measurements       KZ       2         In the ourse students will get theoretical knowledge and practical experience in optical strain measurement methods. Students will get experience with use of laboratory cameras, DSLRs and hips beed cameras for acquisition of suitable image data and with digital image correlation algorithms for displacements measurements (key and processing of 20, 30 and interactive graphics, and bright speaks).       KZ       2         Principles of creation and processing of 20, 30 and interactive graphics, and bracture graphic share or virtual model, crash tests evaluation, single-track vehicle, vehicle dynamics simulation, multi body systems and vehicle active saready systems, vehicl			1	_
and architecture in the process of designing quality public spaces.       KZ       2         14Y2OP       Object Oriented Programming in Transport       KZ       2         Class, object, encapsulation, inheritance, oploymerphism, templates, retyping, stream, exceptions, repository, collections, virtual methods and classes. Problem cases will be chosen from microscopic simulation in CR in the past and present. Conditions before 1989 and after, current legislature, future prospects. Harmonisation of legislation with other EU members. Fundamental principles of health protection and support in selected EU countries.       KZ       2         15Y2OF       Specialized French for Transportation and Telecommunications       KZ       2         Basic transportation (public transport, railway, air, read and ship transport) and telecommunications terminology. Special focus on independent speaking and writing skills.       18Y2OB       Optical Contactless Strain Measurements       KZ       2         In the ocurse students will get theoretical knowledge and practical experience in optical strain measurement methods. Students will get experience with use of laboratory cameras, DSRs and high speed cameras for acquisition of suitable image data and with digital image correlation algorithms to displacements measurement and processing of bilmap and vector 20 graphics, and basics of programming language VRML and graphic libraries (OpenGL).         2Y2PS       Traffic Accidents Computer Simulation and Analysis       KZ       2         2Y2PS       Traffic Accidents Computer Simulation and Analysis       KZ       2	-			
14Y2OP       Object Oriented Programming in Transport       KZ       2         Class, object, encapsulation, inheritance, polymorphism, templates, retyping, stream, exceptions, repository, collections, virtual methods and classes. Problem cases wil be chosen from microscopic simulation system, discrete event simulation and EU       KZ       2         15Y2OZ       Health Protection in Transportation and EU       KZ       2         Health protection in transportation and support in selected EU countries.       KZ       2         15Y2OF       Specialised French for Transportation and Telecommunications       KZ       2         Basic transportation (public transport, allway, air, road and ship transport) and telecommunications terminology. Special focus on independent speaking and writing skills.       18         18Y2OB       Optical Contactless Strain Measurements       KZ       2         In the course students will get theoretical knowledge and practical experience in optical strain measurement methods. Students will get experience with use of laboratory cameras, DSLBs and high speed cameras for acquisition of suitable image data and with digital image correlation algorithms for displacements measurements and strain fields calculation.         16Y2PG       Computer Graphics and Virtual Reality       KZ       2         Principles of creation and processing of bitmap and vector 2 graphics, 3D virtual scenes and algorithms used for their computerized processing. Adopting skills of work with professional and freeware tools for creation and processing of bitmap and vector 2 graphic	-		fic engineering, u	rban planning
Class, object, encapsulation, inheritance, polymorphism, templates, retyping, stream, exceptions, repository, collections, virtual methods and classes. Problem cases wil be chosen         from microscopic simulation system, discrete event simulation, celular automata simulation and virtual life area.         1572Q2       Health Protection in Transportation and EU       KZ       2         Health protection in Transportation and Support in selected EU countries.       1572Q7       Specialised French for Transportation and Telecommunications       KZ       2         Basic transportation (public transport, railway, air, road and ship transport) and telecommunications terminology. Special focus on independent speaking and writing skills.       1872Q6       Notical Contactless Strain Measurements       KZ       2         In the cores students will get theoretical knowledge and practical experience in optical strain measurement methods. Students will get experience with use of laboratory comerans, DSLRs and high speed cameras for acquisition of suitable image data and with digital image correlation algorithms for displacements measurements and strain fields calculation.       16/2 2         16/2PG       Computer Graphics and Virtual Reality       KZ       2         Principles of creation and processing of Dimes and vertice graphics, and basics of programming language VRML and graphic libraries (OpenGL).       22/2 2         22/2PS       Traffic Accidents Computer Simulation, and analysis       KZ       2         15/2QPT       Food in Transportation       MZZ <td< td=""><td></td><td></td><td></td><td></td></td<>				
from microscopic simulation system, discrete event simulation, celular automata simulation and virtual life area.       KZ       2         15Y2DZ       Health Protection in Transportation and EU       KZ       2         Health protection in transportation in CR in whe past and present. Conditions before 1989 and after, current legislature, future prospects. Harmonisation of legislation with other EU members. Fundamental principles of health protection and support in selected EU countries.       KZ       2         ISY2OF       Specialised French for Transportation and Telecommunications terminology. Special focus on independent speaking and writing skills.       ISX       2         Istrasportation (public transport, railway, air, road and ship transport) and telecommunication sterminology. Special focus on independent speaking and writing skills.       ISX       2         In the course students will get theoretical knowledge and practical experience in optical strain measurement methods. Students will get experience with use of laboratory cameras, DSLRs and high speed cameras for acquisition of suitable image data and with digital image correlation algorithms for displacements measurements and strain fields calculation.       ISX 2       2         Principles of creation and processing of bitmap and vector 2D graphics, 3D virtual scenes and algorithms used for their computerized processing. Adopting skills of work with professional and freeware tools for creation and processing of 2D, 3D and interactive graphics, and basics of programming language VRML and graphic libraries (OpenCL).       Z         2Y2Y2PS       Traffic Accidents Computer Simulation and analysis	-			
15Y20Z       Health Protection in Transportation and EU       KZ       2         Health protection in transportation in CR in the past and present. Conditions before 1989 and after, current legislature, future prospects. Harmonisation of legislation with other EU members. Fundamental principles of health protection and support in selected EU countries.         15Y20F       Specialised French for Transportation and Telecommunications       KZ       2         Basic transportation (public transport, railway, air, road and ship transport) and telecommunications terminology. Special focus on independent speaking and writing skills.       18/20F         18Y20B       Optical Contactless Strain Measurements       KZ       2         In the course students will get theoretical knowledge and practical experience in optical strain measurement methods. Students will get experience with use of laboratory cameras, DSLRs and high speed cameras for acquisition of suitable image data and with digital image correlation algorithms for displacements measurements and strain fields calculation.       KZ       2         16Y2PG       Computer Graphics and Virtual Reality       KZ       2         Principles of creation and processing of 2D, 3D and interactive graphics, and basics of programming language VRML and graphic libraries (OpenL).       2         22Y2PS       Traffic Accidents Computer Simulation and Analysis.       KZ       2         15V2PT       Food in Transportation       KZ       2         Vehicle dynamics simulation, multi body systems and veh			s. Problem cases	wil be chosen
Health protection in transportation in CR in the past and present. Conditions before 1989 and after, current legislature, future prospects. Harmonisation of legislation with other EU members. Fundamental principles of health protection and support in selected EU countries.         15Y2OF       Specialised French for Transportation and Telecommunications       KZ       2         18Y2OB       Optical Contactless Strain Measurements       KZ       2         In the course students will get theoretical knowledge and practical experience in optical strain measurement methods. Students will get experience with use of laboratory cameras, DSLRs and high speed cameras for acquisition of suitable image data and with digital image correlation algorithms for displacements measurements and strain fields calculation.         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. Adopting skills of work with professional and free evaluation, 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.       KZ       2         15Y2PT       Food in Transportation       KZ       2         16Y2PD       Practical Spanish for Transportation       KZ       2         15Y2PT       Food in Transportation       KZ       2         15Y2PT       Food in Transportation				
members. Fundamental principles of health protection and support in selected EU countries.       KZ       2         15Y2OF       Specialised French for Transportation and Telecommunications       KZ       2         Basic transportation (public transport, railway, air, road and ship transport) and telecommunications terminology. Special focus on independent speaking and writing skills.       2         In the course students will get theoretical knowledge and practical experience in optical strain measurement methods. Students will get experience with use of laboratory cameras, DSLRs and high speed cameras for acquisition of suitable image data and with digital image correlation algorithms for displacements measurements and strain fields calculation.         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. Adopting skills of work 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).       22         22Y2PS       Traffic Accidents Computer Simulation and Analysis       KZ       2         15Y2PT       Food in Transportation       KZ       2         15Y2PT       Food in Transportation       KZ       2         15Y2PD       Practical Spanish for Transportation       KZ       2         15Y2PD       Practical Spanish for Transportation	15Y2OZ	Health Protection in Transportation and EU	KZ	2
15Y2OF       Specialised French for Transportation and Telecommunications       KZ       2         Basic transportation (public transport, railway, air, road and ship transport) and telecommunications terminology. Special focus on independent speaking and writing skills.       18Y2OB       Optical Contactless Strain Measurements       KZ       2         In the course students will get theoretical knowledge and practical experience in optical strain measurement methods. Students will get experience with use of laboratory cameras, DSLRs and high speed cameras for acquisition of suitable image data and with digital image correlation algorithms for displacements measurements and strain fields calculation.         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. Adopting skills of work 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         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.       KZ       2         15Y2PT       Food in Transportation       KZ       2         15Y2PD       Practical Spanish for T	Health protection in trai	nsportation in CR in the past and present. Conditions before 1989 and after, current legislature, future prospects. Harmonisat	ion of legislation v	vith other EU
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18Y2OB       Optical Contactless Strain Measurements       KZ       2         In the course students will get theoretical knowledge and practical experience in optical strain measurement methods. Students will get experience with use of laboratory cameras, DSLRs and high speed cameras for acquisition of suitable image data and with digital image correlation algorithms for displacements measurements and strain fields calculation.         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. Adopting skills of work 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).       2         2Y2PS       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         15Y2PD       Practical Spanish for Transportation       KZ       2       2         21Y2PP       Law and Operation in Air Transport       KZ       2         21Y2PP       Law and Operation in Air Transport       KZ       2         21Y2PP       Law and Operation in Air T	15Y2OF	Specialised French for Transportation and Telecommunications	KZ	2
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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. Adopting skills of work 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.       ISY2PT       Food in Transportation       KZ       2         15Y2PD       Practical Spanish for Transportation       KZ       2         12Y2PP       Law and Operation in Air Transport       KZ       2         21Y2PP       Law and Operation in Air Transport       KZ       2         Development of aviation law. International conventions on civil aviation. International organisations and including of the Czech Republic in these organisations. EU legislation and civil aviation. Execution of state a				-
Principles of creation and processing of bitmap and vector 2D graphics, 3D virtual scenes and algorithms used for their computerized processing. Adopting skills of work 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.       Food in Transportation       KZ       2         15Y2PT       Food in Transportation       KZ       2         Development of communication skills, training of correct written expression of formal character, basic technical vocabulary, cultural specifics of the Spanish speaking countries.       Terminology of transport and commerce.         21Y2PP       Law and Operation in Air Transport       KZ       2         Development of aviation law. International conventions on civil aviation. International organisations and including of the Czech Republic in these organisations. EU legislation and vicil aviation. Execution of state administration and state supervision in matters of civil aviation, in accordance with Act No. 49/1997 Col. Facilitation. Responsibilities of air carriers for passengers, luggage and cargo. The safe transport of dangerous goods.       Z       2         20Y2PR       Prediction of time series       Prediction of time series       Z				
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.       KZ       2         15Y2PT       Food in Transportation       KZ       2         The nutrition policy. Interaction transportation and foodstuffs. The health risks. Hygienic safeguard. The practical examples from the Czech Republic and from the world. The issues of dining cars, work trains and other railroad equipment. Legislation.       KZ       2         15Y2PD       Practical Spanish for Transportation       KZ       2         Development of communication skills, training of correct written expression of formal character, basic technical vocabulary, cultural specifics of the Spanish speaking countries.       2         21Y2PP       Law and Operation in Air Transport       KZ       2         Development of aviation law. International conventions on civil aviation. International organisations and including of the Czech Republic in these organisations. EU legislation and civil aviation. Responsibilities of air carriers for passengers, luggage and cargo. The safe transport of dangerous goods.       Z       2         20Y2PR       Prediction of time series       KZ<			I	
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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 and from the world. The issues of dining cars, work trains and other railroad equipment. Legislation.         15Y2PD       Practical Spanish for Transportation       KZ       2         Development of communication skills, training of correct written expression of formal character, basic technical vocabulary, cultural specifics of the Spanish speaking countries.       Terminology of transport and commerce.         21Y2PP       Law and Operation in Air Transport       KZ       2         Development of aviation. Levention and state supervision in matters of civil aviation, in accordance with Act No. 49/1997 Col. Facilitation. Responsibilities 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 statistics, MAE, MAPE, RMSE, naive			1 1	
15Y2PT       Food in Transportation       KZ       2         The nutrition policy. Interaction transportation and foodstuffs. The health risks. Hygienic safeguard. The practical examples from the Czech Republic and from the world. The issues of dining cars, work trains and other railroad equipment. Legislation.         15Y2PD       Practical Spanish for Transportation       KZ       2         Development of communication skills, training of correct written expression of formal character, basic technical vocabulary, cultural specifics of the Spanish speaking countries.       Terminology of transport and commerce.         21Y2PP       Law and Operation in Air Transport       KZ       2         Development of aviation law. International conventions on civil aviation. International organisations and including of the Czech Republic in these organisations. EU legislation and civil aviation. Execution of state administration and state supervision in matters of civil aviation, in accordance with Act No. 49/1997 Col. Facilitation. Responsibilities of air carriers for passengers, luggage and cargo. The safe transport of dangerous goods.       KZ       2         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 statistics, MAE, MAPE, RMSE, naive			evaluation, single	-track venicle,
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dining cars, work trains and other railroad equipment. Legislation.       KZ       2         15Y2PD       Practical Spanish for Transportation       KZ       2         Development of communication skills, training of correct written expression of formal character, basic technical vocabulary, cultural specifics of the Spanish speaking countries.         Terminology of transport and commerce.       21Y2PP       Law and Operation in Air Transport       KZ       2         Development of aviation law. International conventions on civil aviation. International organisations and including of the Czech Republic in these organisations. EU legislation and civil aviation. Execution of state administration and state supervision in matters of civil aviation, in accordance with Act No. 49/1997 Col. Facilitation. Responsibilities of air carriers for passengers, luggage and cargo. The safe transport of dangerous goods.       XZ       2         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 statistics, MAE, MAPE, RMSE, naive       2			1 1	
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Development of communication skills, training of correct written expression of formal character, basic technical vocabulary, cultural specifics of the Spanish speaking countries.         Terminology of transport and commerce.         21Y2PP       Law and Operation in Air Transport       KZ       2         Development of aviation law. International conventions on civil aviation. International organisations and including of the Czech Republic in these organisations. EU legislation and civil aviation. Execution of state administration and state supervision in matters of civil aviation, in accordance with Act No. 49/1997 Col. Facilitation. Responsibilities 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 statistics, MAE, MAPE, RMSE, naive	dining cars, work trains	and other railroad equipment. Legislation.		
Terminology of transport and commerce.         21Y2PP       Law and Operation in Air Transport       KZ       2         Development of aviation law. International conventions on civil aviation. International organisations and including of the Czech Republic in these organisations. EU legislation and civil aviation. Execution of state administration and state supervision in matters of civil aviation, in accordance with Act No. 49/1997 Col. Facilitation. Responsibilities 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 statistics, MAE, MAPE, RMSE, naive	15Y2PD	Practical Spanish for Transportation	KZ	2
21Y2PP       Law and Operation in Air Transport       KZ       2         Development of aviation law. International conventions on civil aviation. International organisations and including of the Czech Republic in these organisations. EU legislation and civil aviation. Execution of state administration and state supervision in matters of civil aviation, in accordance with Act No. 49/1997 Col. Facilitation. Responsibilities 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 statistics, MAE, MAPE, RMSE, naive	Development of commu	nication skills, training of correct written expression of formal character, basic technical vocabulary, cultural specifics of the S	panish speaking	countries.
Development of aviation law. International conventions on civil aviation. International organisations and including of the Czech Republic in these organisations. EU legislation and civil aviation. Execution of state administration and state supervision in matters of civil aviation, in accordance with Act No. 49/1997 Col. Facilitation. Responsibilities of air carriers for passengers, luggage and cargo. The safe transport of dangerous goods.         20Y2PR       Prediction of time series         Introduction to time series prediction, meaning of prediction, basics of quantitative prediction. Methods for predictive quality evaluation, descriptive statistics, MAE, MAPE, RMSE, naive	Terminology of transpo	rt and commerce.		
Development of aviation law. International conventions on civil aviation. International organisations and including of the Czech Republic in these organisations. EU legislation and civil aviation. Execution of state administration and state supervision in matters of civil aviation, in accordance with Act No. 49/1997 Col. Facilitation. Responsibilities of air carriers for passengers, luggage and cargo. The safe transport of dangerous goods.         20Y2PR       Prediction of time series         Introduction to time series prediction, meaning of prediction, basics of quantitative prediction. Methods for predictive quality evaluation, descriptive statistics, MAE, MAPE, RMSE, naive	21Y2PP	Law and Operation in Air Transport	KZ	2
aviation. Execution of state administration and state supervision in matters of civil aviation, in accordance with Act No. 49/1997 Col. Facilitation. Responsibilities 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 statistics, MAE, MAPE, RMSE, naive				
passengers, luggage and cargo. The safe transport of dangerous goods.         20Y2PR       Prediction of time series         Introduction to time series prediction, meaning of prediction, basics of quantitative prediction. Methods for predictive quality evaluation, descriptive statistics, MAE, MAPE, RMSE, naive				
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 statistics, MAE, MAPE, RMSE, naive				
Introduction to time series prediction, meaning of prediction, basics of quantitative prediction. Methods for predictive quality evaluation, descriptive statistics, MAE, MAPE, RMSE, naive			K7	2
			1 1	
MOMONION MOMONION OF MONORAL DURING A CONTRACT AND A CO				
		ests of linear dependence, selection of input variables.	,	
	, g. coc.on, oranonodi te			

10/00//	Dublic transport priority	1/7	2
12Y2PV	Public transport priority	KZ	2
	backbone of sustainable mobility. Public transport priority (PTP) in strategic documents. PTP in the Czech Republic and abroa		
of PTP measures. Rela	tionship between Basics of public transport stops and stations design. PTP measures and evaluation of their operation. Econ	omic and environ	nental effects of
PTP. The process of pr	aparing PTP measures.		
14Y2PI	Process Information Systems in Transportation	KZ	2
	d usage of transport information systems, e.g. EFC, ePurse and transport check-in systems for public transport with focus or		1
	Architecture). Inforamtion systems implementation and operations description in the Czech Republic (technical and process)		
14Y2PJ	C++ Programming Language	KZ	2
OOP philosophy and ba	sics of C++ programming language. Class, object, constructor, destructor, inheritance, abstract class, virtual methods, exceptio	ons, streams, meth	nod and operator
overloading, abstract d	ata type implementation in C++.		
14Y2PH	CAD Interface Programming	KZ	2
	erface programming techniques with the help of LIST and VBA programming languages. Possibilities of proper objects (comm		
		ialius), ulalogues	, internaces, and
	CAD systems. Programming of cooperation with other applications (databases, spread-sheets).		
11Y2PM	Programming in MATLAB	KZ	2
To explain the principle	of modelling and simulation, description of Matlab environment and its settings, optimization and program code debugging, of	lata fitting and de	signing GUI in
Matlab.			
15Y2PU	Publications and Their Creation	KZ	2
	potnotes and references. Exploration of facts. Quotations. Formal document layout. Working with information databases. Typo		1
		graphic principles	. Typographic
,	LaTeX. Practical creation of simple scientific documents.		
12Y2RD	Realization of Transport Buildings	KZ	2
Transport Buildings Typ	es. Project Documentation Types. Building Code. Land Permission and Building Permission Process. Building Process. Project	Economics. Proje	ct Management.
15Y2SP	Seminar on Political Philosophy	KZ	2
		112	<u> </u>
	hical texts, view of society, state and their system of government.		r
17Y2SJ	Network Timetabling on the Railway	KZ	2
Timetable samples. Ca	oacity allocation, technological intervals in railway operation. Rules and regulations of train paths, running times, time adds a	nd supplements.	Rolling stock
circulation planning. Ru	les of train-diagramm creating. Timetables for more service-levels on the line. Construction slot conflicts between passenger-	and freight transp	ort. Network line
	nes, timetables for lines under construction.		
- · · · ·		1/7	0
16Y2ST	Special Technologies in Transport and Telecommunications	KZ	2
Micro, nano and specia	I technologies, electric arc and its applications, plasma technologies, dipping, beam technologies, electron beams technolog	y in roduction and	mending of
vehicles, laser and lase	r technologies, soldering, gluing, ultrasound, diffusion, friction and explosion technologies, micro stoves, gas.		
16Y2SV	Special technologies in vehicle manufacturing	KZ	2
	I technologies, electric arc and its applications, plasma technologies, dipping, beam technologies, electron beams technolog		-
			menaling of
	r technologies, soldering, gluing, ultrasound, diffusion, friction and explosion technologies, micro stoves, gas.		
18Y2SD	Reliability and Diagnostics, Experimental Methods	KZ	2
The course is focused	on theoretical background and practical experience in the field of reliability of constructions, implementation of diagnostic proce	edures for the dete	ection of material
defects and determinat	on of residual life of structures. For this purpose, non-destructive methods of experimental mechanics (e.g. strain-gauge mea	surement, photoe	lasticimetry) and
optical methods, includ	ing electron microscopy, will be used.		
15Y2SR		KZ	2
	Stylistics and Rhetorics		-
	written expression as a means of human communication. Basic information about speech, articulation, oral and written langu	° °	
organs, voice training. I	anguage semantics, language syntactic and the pragmatic aspect. Creative thought and its oral and written expression. Practive	ce - cultivating the	skills of speech.
15Y2TS	Technician and Contemporary Society	KZ	2
	a room and open a door for a lady, are there simple solutions, science vs belief, do we need to know or is it enough to turn or		true - it's on the
	pers, what are the sights for, interest in public affairs - a hangover from the past?		
20Y2TE	Technology of Electronic Systems	KZ	2
Principle technologies	or an effective operation of electronically controlled systems. Maintaining, meassuring, optimization of safety and reliability of	complex systems	. Semiconductor
technologies, printed c	rcuits, assembly operations, interconnection and repairs technologiesusers and operators.		
14Y2TU	Telecommunications Systems and Multimedia	KZ	2
-	punications namely applied in transport solutions, identification and quantification of telecommunications networks and services		1
		periornance bas	
	ing of guaranteed service quality, two generations of the handover principles.		
16Y2TT	Transportation and Building Technology and Equipment	KZ	2
Transportation and buil	ding technology and equipment. Transport of solid and mass material, soil and rock above all. Highway and underground cons	structions. Transpo	ort surface
vehicles, description ar	d construction features, delivered mass calculation, economy of operation. Technics and technology of underground construct	ions. Terrestrial ve	ehicles operation
	ogy (ultrasound, laser, GPS, total stations).		•
-		1/7	
21Y2UL	Aircraft Maintenance	KZ	2
Approved Maintenance	Organisations (AMOs), Continuing Airworthiness Management Organisations (CAMOs), Maintenance Training Organisations	(MTOs), technica	al documentation
and additional ICA (Ins	tructions for Continued Airworthiness) instructions, aircraft release to service procedure, maintenance programmes and sche	duling, modification	ons and general
repair methods, aircraf			
14Y2UI	centre of gravity and weights, human factors in aircraft maintenance.		
		K7	2
	Artificial Intelligence	KZ	2
	Artificial Intelligence igence, knowledge, its representation including frames, state space search, constraints, genetic algorithms, machine learning	g.	
18Y2UB	Artificial Intelligence		2
18Y2UB	Artificial Intelligence igence, knowledge, its representation including frames, state space search, constraints, genetic algorithms, machine learning	g. KZ	2
18Y2UB Anatomy of man. Metho	Artificial Intelligence igence, knowledge, its representation including frames, state space search, constraints, genetic algorithms, machine learning Accident Biomechanics and Safety ds of Medical Diagnostics - RTG, CT, MRI, US. Dynamics of traumatic events. Factors influencing the severity of an accident	g. KZ and the extent of a	2 a traffic accident.
18Y2UB Anatomy of man. Methor Injuries in road traffic. F	Artificial Intelligence igence, knowledge, its representation including frames, state space search, constraints, genetic algorithms, machine learning Accident Biomechanics and Safety ods of Medical Diagnostics - RTG, CT, MRI, US. Dynamics of traumatic events. Factors influencing the severity of an accident a vedestrian injuries. Injury in railway and air traffic accidents. Analysis of biomechanical events in accidents and their computat	g. KZ and the extent of a	2 a traffic accident.
18Y2UB Anatomy of man. Metho Injuries in road traffic. F treatment and rehabilit	Artificial Intelligence igence, knowledge, its representation including frames, state space search, constraints, genetic algorithms, machine learning Accident Biomechanics and Safety ods of Medical Diagnostics - RTG, CT, MRI, US. Dynamics of traumatic events. Factors influencing the severity of an accident a redestrian injuries. Injury in railway and air traffic accidents. Analysis of biomechanical events in accidents and their computat ation. Protective elements and safety measures in transport.	g. KZ and the extent of a ional modeling. P	2 a traffic accident. rinciples of
18Y2UB Anatomy of man. Methor Injuries in road traffic. F treatment and rehabilit 18Y2VC	Artificial Intelligence igence, knowledge, its representation including frames, state space search, constraints, genetic algorithms, machine learning Accident Biomechanics and Safety ods of Medical Diagnostics - RTG, CT, MRI, US. Dynamics of traumatic events. Factors influencing the severity of an accident a redestrian injuries. Injury in railway and air traffic accidents. Analysis of biomechanical events in accidents and their computat ation. Protective elements and safety measures in transport. Computational Mechanics in Transportation	g. KZ and the extent of a ional modeling. P KZ	2 a traffic accident. rinciples of 2
18Y2UB Anatomy of man. Methe Injuries in road traffic. F treatment and rehabilit 18Y2VC Principle of virtual work	Artificial Intelligence         igence, knowledge, its representation including frames, state space search, constraints, genetic algorithms, machine learning         Accident Biomechanics and Safety         ods of Medical Diagnostics - RTG, CT, MRI, US. Dynamics of traumatic events. Factors influencing the severity of an accident accident redestrian injuries. Injury in railway and air traffic accidents. Analysis of biomechanical events in accidents and their computation. Protective elements and safety measures in transport.         Computational Mechanics in Transportation         and variational principles in FEM. Bar shaped, planar and three - dimensional structures in FEM. FEM in statics and in dyna	g. KZ and the extent of a ional modeling. P KZ mics of transporta	2 a traffic accident. rinciples of 2
18Y2UB Anatomy of man. Methe Injuries in road traffic. F treatment and rehabilit 18Y2VC Principle of virtual work	Artificial Intelligence igence, knowledge, its representation including frames, state space search, constraints, genetic algorithms, machine learning Accident Biomechanics and Safety ods of Medical Diagnostics - RTG, CT, MRI, US. Dynamics of traumatic events. Factors influencing the severity of an accident a redestrian injuries. Injury in railway and air traffic accidents. Analysis of biomechanical events in accidents and their computat ation. Protective elements and safety measures in transport. Computational Mechanics in Transportation	g. KZ and the extent of a ional modeling. P KZ mics of transporta	2 a traffic accident. rinciples of 2
18Y2UB Anatomy of man. Methe Injuries in road traffic. F treatment and rehabilit 18Y2VC Principle of virtual work	Artificial Intelligence         igence, knowledge, its representation including frames, state space search, constraints, genetic algorithms, machine learning         Accident Biomechanics and Safety         ods of Medical Diagnostics - RTG, CT, MRI, US. Dynamics of traumatic events. Factors influencing the severity of an accident a cedestrian injuries. Injury in railway and air traffic accidents. Analysis of biomechanical events in accidents and their computation. Protective elements and safety measures in transport.         Computational Mechanics in Transportation         and variational principles in FEM. Bar shaped, planar and three - dimensional structures in FEM. FEM in statics and in dyna diviscoelastic material. FEM in problems of biomechanics. Numerical analysis of structural parts with programme ANSYS on	g. KZ and the extent of a ional modeling. P KZ mics of transporta	2 a traffic accident. rinciples of 2 ational systems.
18Y2UB Anatomy of man. Methe Injuries in road traffic. F treatment and rehabilit 18Y2VC Principle of virtual work Elastic, elastoplastic an 15Y2ZA	Artificial Intelligence igence, knowledge, its representation including frames, state space search, constraints, genetic algorithms, machine learning Accident Biomechanics and Safety ods of Medical Diagnostics - RTG, CT, MRI, US. Dynamics of traumatic events. Factors influencing the severity of an accident a bedestrian injuries. Injury in railway and air traffic accidents. Analysis of biomechanical events in accidents and their computat ation. Protective elements and safety measures in transport. Computational Mechanics in Transportation and variational principles in FEM. Bar shaped, planar and three - dimensional structures in FEM. FEM in statics and in dyna id viscoelastic material. FEM in problems of biomechanics. Numerical analysis of structural parts with programme ANSYS on Basic Principles of English Academic Writing and Abstract in English	g. KZ and the extent of a ional modeling. P KZ mics of transporta instances. KZ	2 a traffic accident. rinciples of 2
18Y2UB Anatomy of man. Methe Injuries in road traffic. If treatment and rehabilit 18Y2VC Principle of virtual work Elastic, elastoplastic ar 15Y2ZA Theory, creating a phra	Artificial Intelligence igence, knowledge, its representation including frames, state space search, constraints, genetic algorithms, machine learning Accident Biomechanics and Safety ods of Medical Diagnostics - RTG, CT, MRI, US. Dynamics of traumatic events. Factors influencing the severity of an accident a redestrian injuries. Injury in railway and air traffic accidents. Analysis of biomechanical events in accidents and their computation. Protective elements and safety measures in transport. Computational Mechanics in Transportation and variational principles in FEM. Bar shaped, planar and three - dimensional structures in FEM. FEM in statics and in dyna id viscoelastic material. FEM in problems of biomechanics. Numerical analysis of structural parts with programme ANSYS on Basic Principles of English Academic Writing and Abstract in English sal bank according to students' specialisations, rhetorical analysis or texts/abstracts, drafting an abstract, providing effective	g. KZ and the extent of a ional modeling. P KZ mics of transporta instances. KZ feedback.	2 a traffic accident. rinciples of 2 ational systems. 2
18Y2UB Anatomy of man. Methe Injuries in road traffic. If treatment and rehabilit 18Y2VC Principle of virtual work Elastic, elastoplastic ar 15Y2ZA Theory, creating a phra 12Y2ZK	Artificial Intelligence igence, knowledge, its representation including frames, state space search, constraints, genetic algorithms, machine learning Accident Biomechanics and Safety ods of Medical Diagnostics - RTG, CT, MRI, US. Dynamics of traumatic events. Factors influencing the severity of an accident a redestrian injuries. Injury in railway and air traffic accidents. Analysis of biomechanical events in accidents and their computation. Protective elements and safety measures in transport. Computational Mechanics in Transportation and variational principles in FEM. Bar shaped, planar and three - dimensional structures in FEM. FEM in statics and in dyna d viscoelastic material. FEM in problems of biomechanics. Numerical analysis of structural parts with programme ANSYS on Basic Principles of English Academic Writing and Abstract in English sal bank according to students' specialisations, rhetorical analysis or texts/abstracts, drafting an abstract, providing effective Traffic Calming	g. KZ and the extent of a ional modeling. P KZ mics of transporta instances. KZ feedback. KZ	2 a traffic accident. rinciples of 2 ational systems. 2 2
18Y2UB Anatomy of man. Methe Injuries in road traffic. If treatment and rehabilit 18Y2VC Principle of virtual work Elastic, elastoplastic ar 15Y2ZA Theory, creating a phra 12Y2ZK Principles of traffic calr	Artificial Intelligence igence, knowledge, its representation including frames, state space search, constraints, genetic algorithms, machine learning Accident Biomechanics and Safety ods of Medical Diagnostics - RTG, CT, MRI, US. Dynamics of traumatic events. Factors influencing the severity of an accident a redestrian injuries. Injury in railway and air traffic accidents. Analysis of biomechanical events in accidents and their computation. Protective elements and safety measures in transport. Computational Mechanics in Transportation and variational principles in FEM. Bar shaped, planar and three - dimensional structures in FEM. FEM in statics and in dyna id viscoelastic material. FEM in problems of biomechanics. Numerical analysis of structural parts with programme ANSYS on Basic Principles of English Academic Writing and Abstract in English sal bank according to students' specialisations, rhetorical analysis or texts/abstracts, drafting an abstract, providing effective	g. KZ and the extent of a ional modeling. P KZ mics of transporta instances. KZ feedback. KZ	2 a traffic accident. rinciples of 2 ational systems. 2 2

### Code of the group: VP-NP-DS Name of the group: Master Full-Time DS voluntary Requirement credits in the group: Requirement courses in the group: Credits in the group: 0

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
15JCZ1	Czech Language for Foreign Students 1 Irena Veselková	Z	0	0P+2C	Z	V
15JCZ2	Czech Language for Foreign Students 2 Irena Veselková	Z	0	0P+2C	L	V
15JCZ3	Czech Language for Foreign Students 3 Irena Veselková	Z		0P+2C	Z	V
15JCZ4	Czech Language for Foreign Students 4 Irena Veselková	Z		0P+2C	L	V

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

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

Name of the block: Jazyky Minimal number of credits of the block: 8 The role of the block: J

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

Name of the group: Language Courses Master Full-Time DS from 2020/21 Requirement credits in the group: In this group you have to gain 8 credits Requirement courses in the group: In this group you have to complete 4 courses Credits in the group: 8

Note on the group:

	jioup.					
Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
15J2F1	Language - French 1 Irena Veselková	Z	2	0P+2C+10E	Z	J
15J2l1	Language - Italian 1 Irena Veselková	Z	2	0P+2C+10E	Z	J
15J2N1	Language - German 1 Eva Rezlerová, Martina Navrátilová, Jana Štikarová	Z	2	0P+2C+10E	Z	J
15J2R1	Language - Russian 1 Marie Michlová	Z	2	0P+2C+10E	Z	J
15J2S1	Language - Spanish 1 Nina Hricsina Puškinová	Z	2	0P+2C+10E	Z	J
15JBF2	Language - French 2 Irena Veselková	Z	2	0P+2C+10E	6 L	J
15JBI2	Language - Italian 2	Z	2	0P+2C+10E	L	J
15JBN2	Language - German 2 Eva Rezlerová, Martina Navrátilová, Jana Štikarová	Z	2	0P+2C+10E	L	J
15JBR2	Language - Russian 2 Marie Michlová	Z	2	0P+2C+10E	L	J
15JBS2	Language - Spanish 2 Nina Hricsina Puškinová, Zuzana Krinková	Z	2	0P+2C+10E	L	J

15JBF3	Language - French 3 Irena Veselková	Z	2	0P+2C+10B	Z	J
15JBI3	Language - Italian 3 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	Z	2	0P+2C+10B	Z	J
15JBS3	Language - Spanish 3 Nina Hricsina Puškinová	Z	2	0P+2C+10B	Z	J
15JBF4	Language - French 4 Irena Veselková	ZK	2	0P+2C+10B	L	J
15JBI4	Language - Italian 4	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	ZK	2	0P+2C+10B	L	J
15JBS4	Language - Spanish 4 Eva Rezlerová, Nina Hricsina Puškinová	ZK	2	0P+2C+10B	L	J
2020/21 15J2F1 La Grammatical Structures and	e courses of this group of Study Plan: Code=JZ-NP-DS-20/21 Na nguage - French 1 Style. Selection of conversation topics relating to transportation sciences. Developing uring presentations and meeting minutes, elementary rhetorics of foreign language an	perceptive and co	ommunicati	ve skills, feed	Z dback skills, s	2 summarising
Grammatical Structures and technical text content, struct language of management.	nguage - Italian 1 Style. Selection of conversation topics relating to transportation sciences. Developing uring presentations and meeting minutes, elementary rhetorics of foreign language an				al registers a	ind their use,
Grammatical Structures and	nguage - German 1 Style. Selection of conversation topics relating to transportation sciences. Developing uring presentations and meeting minutes, elementary rhetorics of foreign language an					•
	nguage - Russian 1				Z	2
	Style. Selection of conversation topics relating to transportation sciences. Developing uring presentations and meeting minutes, elementary rhetorics of foreign language an					•
Grammatical Structures and technical text content, struct language of management. 15JBF2 La	nguage - Spanish 1 Style. Selection of conversation topics relating to transportation sciences. Developing uring presentations and meeting minutes, elementary rhetorics of foreign language an nguage - French 2	d practical applica	ation, forma	I and technic	zal registers a	and their use
technical text content, struct	Style. Selection of conversation topics relating to transportation sciences. Developing uring presentations and meeting minutes, elementary rhetorics of foreign language an					
language of management. 15JBI2 La	nguage - Italian 2				Z	2
Grammatical Structures and technical text content, struct language of management.	Style. Selection of conversation topics relating to transportation sciences. Developing uring presentations and meeting minutes, elementary rhetorics of foreign language an				dback skills, s al registers a	ummarising Ind their use
Grammatical Structures and	nguage - German 2 Style. Selection of conversation topics relating to transportation sciences. Developing uring presentations and meeting minutes, elementary rhetorics of foreign language an					
Grammatical Structures and	nguage - Russian 2 Style. Selection of conversation topics relating to transportation sciences. Developing uring presentations and meeting minutes, elementary rhetorics of foreign language an					-
Grammatical Structures and	nguage - Spanish 2 Style. Selection of conversation topics relating to transportation sciences. Developing uring presentations and meeting minutes, elementary rhetorics of foreign language an					-
Grammar and stylistics. Sele	nguage - French 3 ection of conversation and professional topics based on the language level and study for nicative skills, vocabulary development. Basic stylistic forms. Presentation of own know d written presentation.			-	-	-
Grammar and stylistics. Sele and perceptive and commun features. Practice of oral and	•			-	(professional)	text and its
Grammar and stylistics. Sele	nguage - German 3 ection of conversation and professional topics based on the language level and study for hicative skills, vocabulary development. Basic stylistic forms. Presentation of own know d written presentation.			-	-	-

15JBR3	Language - Russian 3	Z	2
Grammar and stylistics.	Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of	of language struct	ure knowledge
and perceptive and corr	municative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Wo	rk with (professior	nal) text and its
features. Practice of ora	I and written presentation.		
15JBS3	Language - Spanish 3	Z	2
Grammar and stylistics.	Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of	of language struct	ure knowledge
and perceptive and corr	imunicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Wo	rk with (professior	nal) text and its
features. Practice of ora	I and written presentation.		
15JBF4	Language - French 4	ZK	2
Grammar and stylistics.	Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement (	of language struct	ure knowledge
and perceptive and com	municative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Wo	rk with (professior	nal) text and its
features. Practice of ora	I and written presentation.		
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	of language struct	ure knowledge
and perceptive and com	municative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Wo	rk with (professior	nal) text and its
features. Practice of ora	I and written presentation.		
15JBN4	Language - German 4	ZK	2
Grammar and stylistics.	Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of	of language struct	ure knowledge
and perceptive and com	municative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Wo	rk with (professior	nal) text and its
features. Practice of ora	I and written presentation.		
15JBR4	Language - Russian 4	ZK	2
Grammar and stylistics.	Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of	of language struct	ure knowledge
and perceptive and com	municative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Wo	rk with (profession	nal) text and its
features. Practice of ora	I and written presentation.		
15JBS4	Language - Spanish 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	of language struct	ure knowledge
and perceptive and com	municative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Wo	rk with (profession	nal) text and its
features. Practice of ora	I and written presentation.		
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## List of courses of this pass:

	Name of the course	Completion	Credits
00Y2XN	Active participation in a scientific project, workshop, short-term trip abroad	KZ	2
11STS	Stochastic Systems	Z,ZK	4
The subject dea	ls with the problems of mathematical modelling of dynamical systems, estimation od these models and their utilization for prediction.	The results are illus	strated on
practical tr	ansportation tasks. Mathematical theory roots from probability and mathematical statistics and they use the methods of the Bayesian	probabilistic appro	ach.
11XN1	Master Project 1	Z	2
11XN2	Master Project 2	Z	2
11XN3	Master Project 3	Z	1
11XN4	Master Project 4	Z	8
11XNDD	Master Thesis for study programme DS	Z	18
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 a	and semantic analy	sis charts.
	Venn's diagram method. Logical basis for network design for the solution of technical tasks.		
11Y2PM	Programming in MATLAB	KZ	2
To explain the pri	nciple of modelling and simulation, description of Matlab environment and its settings, optimization and program code debugging, dat	a fitting and design	ing GUI in
	Matlab.		
12BED	Road Safety Audit	Z,ZK	4
Schedules of appli	cations of safety assessments (especially Road Safety Audit, Road Safety Inspection) during the process of preparations, and of the p	articular realization	of the road
network that shou	ld minimize traffic accident risks for all those who take part in road traffic. Application of European Directive 2008/96/EC on road safe	ty infrastructure ma	anagement.
12DAZP	Transport and Environment	7 71	
	.'	Z,ZK	4
This course aims t	he impact of transport on environment. The accent is put mainly on noise and vibration, emission, barrier effect and energy demands.	1 '	-
This course aims t	he impact of transport on environment. The accent is put mainly on noise and vibration, emission, barrier effect and energy demands. parcel of this course.	1 '	-
This course aims t		1 '	-
12IDOS	parcel of this course.	The noise measury	is part and
12IDOS	parcel of this course. Integrated Transport Systems	The noise measury	is part and
12IDOS	parcel of this course. Integrated Transport Systems ding of integrated transport systems, principle of integration, dividing of integration methods, traffic, infrastructure, technical, organizat	The noise measury	is part and
12IDOS Reasons for built 12IKD	parcel of this course. Integrated Transport Systems ding of integrated transport systems, principle of integration, dividing of integration methods, traffic, infrastructure, technical, organizat tariff, sales systems, information systems, marketing of system, examples of non-integration.	The noise measury	v is part and 3 egration of 5
12IDOS Reasons for built 12IKD	parcel of this course. Integrated Transport Systems ding of integrated transport systems, principle of integration, dividing of integration methods, traffic, infrastructure, technical, organizat tariff, sales systems, information systems, marketing of system, examples of non-integration. Rail Transport Infrastructure	The noise measury ZK ional methods, inte Z,ZK ailed construction. S	v is part and 3 egration of 5
12IDOS Reasons for built 12IKD	parcel of this course. Integrated Transport Systems ding of integrated transport systems, principle of integration, dividing of integration methods, traffic, infrastructure, technical, organizat tariff, sales systems, information systems, marketing of system, examples of non-integration. Rail Transport Infrastructure lateral acceleration, parameters eduction for transition curve and cant transition, curves without straight, track spacing change. Track deta	The noise measury ZK ional methods, inte Z,ZK ailed construction. S	v is part and 3 egration of 5
12IDOS Reasons for built 12IKD Non-compensated 12NAPI	parcel of this course. Integrated Transport Systems ding of integrated transport systems, principle of integration, dividing of integration methods, traffic, infrastructure, technical, organizat tariff, sales systems, information systems, marketing of system, examples of non-integration. 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	The noise measury ZK tional methods, inte Z,ZK ailed construction. S Z,ZK	y is part and 3 egration of 5 Substructure 4
12IDOS Reasons for built 12IKD Non-compensated 12NAPI	parcel of this course. Integrated Transport Systems ding of integrated transport systems, principle of integration, dividing of integration methods, traffic, infrastructure, technical, organizat tariff, sales systems, information systems, marketing of system, examples of non-integration. 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 Design and Maintenance of Transportation Structures	The noise measury ZK tional methods, inte Z,ZK ailed construction. S Z,ZK	v is part and 3 egration of 5 Substructure 4
12IDOS Reasons for built 12IKD Non-compensated 12NAPI	parcel of this course. Integrated Transport Systems ding of integrated transport systems, principle of integration, dividing of integration methods, traffic, infrastructure, technical, organizat tariff, sales systems, information systems, marketing of system, examples of non-integration. 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 Design and Maintenance of Transportation Structures truction of cement-concrete pavements and their maintenance. Construction of bridge objects, examples and choice of bridge construction	The noise measury ZK tional methods, inte Z,ZK ailed construction. S Z,ZK	v is part and 3 egration of 5 Substructure 4
12IDOS Reasons for build 12IKD Non-compensated 12NAPI Design and cons 12TEAP	parcel of this course. Integrated Transport Systems ding of integrated transport systems, principle of integration, dividing of integration methods, traffic, infrastructure, technical, organizat tariff, sales systems, information systems, marketing of system, examples of non-integration. 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 Design and Maintenance of Transportation Structures truction of cement-concrete pavements and their maintenance. Construction of bridge objects, examples and choice of bridge constru- and operation of tunnels.	The noise measury          ZK         ional methods, interview         Z,ZK	y is part and aggration of 5 Substructure 4 onstruction 7
12IDOS Reasons for build 12IKD Non-compensated 12NAPI Design and cons 12TEAP Traffic parameter	parcel of this course. Integrated Transport Systems ding of integrated transport systems, principle of integration, dividing of integration methods, traffic, infrastructure, technical, organizat tariff, sales systems, information systems, marketing of system, examples of non-integration. 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 Design and Maintenance of Transportation Structures truction of cement-concrete pavements and their maintenance. Construction of bridge objects, examples and choice of bridge constru- and operation of tunnels. Theory of Road Traffic Operation	The noise measury          ZK         ional methods, interview         Z,ZK         ailed construction. Social         Z,ZK         uction materials. Coc         Z,ZK         uction materials. Coc         Z,ZK         uction materials. Coc         Z,ZK         uction materials. Coc	y is part and agration of 5 Substructure 4 onstruction 7 roscopic,

12TKVP	Highway Engineering Materials	Z,ZK	4
The theory of road	d construction - Material Aspects. The course emphasizes the development of road construction from the beginning of the 20th centur	y to the present,	focusing or
	materials, understanding the production and placing of asphalt mixtures.		
12UMUP	Sustainable Mobility and Land - Use Planning	Z,ZK	5
	objectives and tasks, development over time. Land-use planning tools. SUMP. Territorial and transport planning context. Ways of urba	-	
ansport. Basic pri	nciples of the transport solution. The impact of transport on the size and shape of the city, on the development of the street and the sq	uare and the roa	ds. Solutio
	for pedestrian and bicycle transport. Suburbanization and transport. City economics.		-
12VRZ	High Speed Rail Transport	KZ	3
• • •	(HSR) transport characteristics and position in transportation system. Types / models of HSR systems, preparation of high speed railw	, ,	
epublic conditions	s. Non-adhesion HSR systems. City and region traffic service by HSR. HSR operating points. HSR worldwide network. HSR routing an	a traffic concepti	on. Specifi
4022014	of HSR track construction and layout track parameteres.	7	
12XN1	Master Project 1	Z	2
12XN2	Master Project 2	Z	2
12XN3	Master Project 3	Z	1
12XN4	Master Project 4	Z	8
12XNDD	Master Thesis for study programme DS	Z	18
12Y2BM	Safety on The Local Roads	KZ	2
lassification of roa	d accidents rates, social looses. Collision points, diagrams. Tools and methods for safer road transportation. Crossroads from the point c	of view of safety. P	sychologi
	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. De	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 coordin	ation, UN installa	ation and L
	operation (basic technical standards of UN, trenchless technologies for UN).		
12Y2KE	Landscape Ecology	KZ	2
Landscape ecolo	gy. Landscape - definition, types, evolution. Landscape systems. Anthropogenic impacts on landscape. Methods using for evaluating la	andscape. Fracta	geometry
	and its potential applications in landscape ecology. Landscape planning.		
12Y2KS	Rail Transport in Settlements and Regions	KZ	2
Modernization ar	d development of railway infrastructure in Czech Republic. Arrangement of railway networks and junctions. Suburban railway services	. Network configu	uration and
	ation of metro systems. Network configuration and operation of tram systems. Special thematic lectures (rail transport in selected cour		
12Y2MD	Methods of Traffic Regulation and Prediction	KZ	2
asic ways of traffic	prognosis, traffic prognosis for large area (calculation of future traffic volumes, calculation of future traffic volumes between areas (anal		tic method
-	modal split, traffic distribution to road network). Shock wave in traffic flow. Service levels and their traffic volumes. Acceleration n	oise.	
asic ways of traffic			etic method
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14Y2C2 Extension of basic	CATIA II c course. Modeling compound bodies. Possibility of enumeration, comunications with other systems. Surface x solid bodies. Kinematic	KZ Rechanism Proje	2 act making
Extension of basic	and project cooperation. Outputs of projects.	e mechanism. Proje	eci making
14Y2CS	Sensitivity of Systems	KZ	2
Design of system	s with defined reliability. The impact of changing parameters and subsystems within a system. System sensitivity computing, definitio matrices and their usability in system design.	n of sensitivity fund	ctions and
14Y2IS	Intelligent Systems in Postal Services	KZ	2 adaa in tha
	ation systems in the postal services (ITIS, and POST, T + T, PS, KMP, DS), application of information technology in the processing of imizing logistics processes in the post. The appreciation of the real implementation of the Czech post in operation both in lectures and in		
14Y2JM	desk. One-Chip Controllers	KZ	2
	rollers architecture, embedded peripherals (counters, timers, converters, ports) and their utilisation. Practical tasks are programmed		
14Y2KI	Capital Investment in Transportation and Telecommunications Financial market, investment desicion making - long term goals and investment strategies, long term financing	KZ	2
14Y2OP Class, object, end	Object Oriented Programming in Transport apsulation, inheritance, polymorphism, templates, retyping, stream, exceptions, repository, collections, virtual methods and classes.	KZ Problem cases wil	2 be chosen
	from microscopic simulation system, discrete event simulation, celular automata simulation and virtual life area.	1/7	0
14Y2PH ntroduction to CAI	CAD Interface Programming D interface programming techniques with the help of LIST and VBA programming languages. Possibilities of proper objects (command applications creation in CAD systems. Programming of cooperation with other applications (databases, spread-sheets).	KZ ds), dialogues, inte	2 erfaces, and
	Process Information Systems in Transportation etailed usage of transport information systems, e.g. EFC, ePurse and transport check-in systems for public transport with focus on an riented Architecture). Inforamtion systems implementation and operations description in the Czech Republic (technical and process)		
14Y2PJ OOP philosophy ar	C++ Programming Language d basics of C++ programming language. Class, object, constructor, destructor, inheritance, abstract class, virtual methods, exceptions, overloading, abstract data type implementation in C++.	KZ streams, method a	2 and operate
14Y2TU	Telecommunications Systems and Multimedia	KZ	2
	ommunications namely applied in transport solutions, identification and quantification of telecommunications networks and services per architecture, provissioning of guaranteed service quality, two generations of the handover principles.	rformance based o	n redundar
14Y2UI His	Artificial Intelligence story of artificial intelligence, knowledge, its representation including frames, state space search, constraints, genetic algorithms, mac	KZ hine learning.	2
15J2A1 P	Language - English 1 resentation Skills - expert technical discourse and style; Analysis of expert texts and their production; Preparation for overseas work of	Z engagement.	2
15J2F1	Language - French 1	Z	2
echnical text conte	tures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills, ent, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and tec language of management.	chnical registers an	id their use
15J2I1 Crommotical Strue	Language - Italian 1 ctures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills,	Z foodbook skills, su	2
	ent, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and tec language of management.		
	Language - German 1 stures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills, ent, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and tec		
15J2R1	language of management. Language - Russian 1	Z	2
Grammatical Struc	ctures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills, ent, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and tec language of management.	feedback skills, su	ummarising
15J2S1	Language - Spanish 1	Z	2
Grammatical Struc	tures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills, ent, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and tec language of management.		
15JBA2	Language - English 2		2
15JBA3	resentation Skills - expert technical discourse and style; Analysis of expert texts and their production; Preparation for overseas work on Language - English 3	engagement. Z	2
	s - expert technical discourse and style; Analysis of expert texts and their production; Preparation for overseas work engagement.Op FCE, CAE.	tional courses for c	certificates
15JBA4 Presentation Skill	Language - English 4 s - expert technical discourse and style; Analysis of expert texts and their production; Preparation for overseas work engagement.Op FCE, CAE.	ZK tional courses for c	2 certificates
15JBF2	Language - French 2	Z	2
	ctures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills, ent, structuring presentations and meeting minutes, elementary rhetorics of foreign language and practical application, formal and tec language of management.		-
15JBF3	Language - French 3	Z	2
	istics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of la d communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work w		-
	features. Practice of oral and written presentation.		

Language - French 4         ZK           onal topics based on the language level and study focus at the Faculty. Improvement of language struction and the language level and study focus at the Faculty. Improvement of language struction         Improvement of language struction           nent. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (profession features. Practice of oral and written presentation.         Z           Language - Italian 2         Z           opics relating to transportation sciences. Developing perceptive and communicative skills, feedback skill inutes, elementary rhetorics of foreign language and practical application, formal and technical register	
nent. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (profession features. Practice of oral and written presentation.       Language - Italian 2       Z         pics relating to transportation sciences. Developing perceptive and communicative skills, feedback skill inutes, elementary rhetorics of foreign language and practical application, formal and technical register       Image: State	
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Language - Russian 2 Z	2
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inutes, elementary rhetorics of foreign language and practical application, formal and technical registe	rs and their
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features. Practice of oral and written presentation.	
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pics relating to transportation sciences. Developing perceptive and communicative skills, feedback skil inutes, elementary rhetorics of foreign language and practical application, formal and technical registe language of management.	lls, summaris
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15Y2HS			1
Doodo and rood to	Road Transport History	KZ	2
	affic in the Ancient Age, corridors of main mediveal pathways. Development of road traffic in the modern period, acceleration of road t		-
1st part of 20th cer	ntury. Development of road layout, geometric and construction layers. Beginning of modern road civil engineering. Development of roa	d travelling in mo	dern period.
	History of road intercections, bridges and traffic control, development of road signs.		
15Y2JH	Job Hunting in English	KZ	2
The course provid	es 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 t	his process,
	ng specifics for job-hunting in English. Students will also be introduced to the English vocabulary and phraseology necessary for a suc	-	-
15Y2MS	Sociology for Managers	KZ	2
	roach to a corporation. Corporation and its organization. Corporation and its running - human role and communication. Corporation, it		1
	luman's work position in free market economy. Corporate directorship, work groups, adaptation, strife, different roles and positions in		ai system.
			2
15Y2OF	Specialised French for Transportation and Telecommunications	KZ	2
	prtation (public transport, railway, air, road and ship transport) and telecommunications terminology. Special focus on independent special		
15Y2OZ	Health Protection in Transportation and EU	KZ	2
Health protection	in transportation in CR in the past and present. Conditions before 1989 and after, current legislature, future prospects. Harmonisation	of legislation wit	h other EU
	members. Fundamental principles of health protection and support in selected EU countries.		
15Y2PD	Practical Spanish for Transportation	KZ	2
Development of	communication skills, training of correct written expression of formal character, basic technical vocabulary, cultural specifics of the Sp	oanish speaking o	countries.
	Terminology of transport and commerce.		
15Y2PT	Food in Transportation	KZ	2
	Interaction transportation and foodstuffs. The health risks. Hygienic safeguard. The practical examples from the Czech Republic and		he issues of
	dining cars, work trains and other railroad equipment. Legislation.		
15Y2PU	Publications and Their Creation	KZ	2
			-
Scientino texts typ	bes. Footnotes and references. Exploration of facts. Quotations. Formal document layout. Working with information databases. Typogra	aprile principles. I	ypographic
	editors - MS Word, Tex/LaTeX. Practical creation of simple scientific documents.		-
15Y2SP	Seminar on Political Philosophy	KZ	2
	Interpreting of philosophical texts, view of society, state and their system of government.		
15Y2SR	Stylistics and Rhetorics	KZ	2
Basic skills of oral	and written expression as a means of human communication. Basic information about speech, articulation, oral and written language	Teaching to spea	ak well-vocal
organs, voice traini	ng. Language semantics, language syntactic and the pragmatic aspect. Creative thought and its oral and written expression. Practice - (	cultivating the skil	Is of speech.
15Y2TS	Technician and Contemporary Society	KZ	2
	at in a room and open a door for a lady, are there simple solutions, science vs belief, do we need to know or is it enough to turn on a F	PC, it must be true	e - it's on the
,	Internet and in newspapers, what are the sights for, interest in public affairs - a hangover from the past?	-,	
			0
157027		<b>K</b> 7	
15Y2ZA	Basic Principles of English Academic Writing and Abstract in English	KZ	2
Theory	, creating a phrasal bank according to students' specialisations, rhetorical analysis or texts/abstracts, drafting an abstract, providing e	ffective feedback	
Theory 16PDP	, creating a phrasal bank according to students' specialisations, rhetorical analysis or texts/abstracts, drafting an abstract, providing e Principles of Vehicle Design	ffective feedback ZK	2
Theory 16PDP	, creating a phrasal bank according to students' specialisations, rhetorical analysis or texts/abstracts, drafting an abstract, providing e Principles of Vehicle Design ortation vehicle according to its usage and function. Marketing and user demands. Vehicle dynamics. Propulsion systems. Design pro	ffective feedback ZK	2
Theory 16PDP Design of transp	, creating a phrasal bank according to students' specialisations, rhetorical analysis or texts/abstracts, drafting an abstract, providing e Principles of Vehicle Design ortation vehicle according to its usage and function. Marketing and user demands. Vehicle dynamics. Propulsion systems. Design pro vehicle structure. Evaluation of variant concepts. Design phases. Realiability, technological aspects etc.	ffective feedback ZK cess, functional c	esign and
Theory 16PDP	, creating a phrasal bank according to students' specialisations, rhetorical analysis or texts/abstracts, drafting an abstract, providing e Principles of Vehicle Design ortation vehicle according to its usage and function. Marketing and user demands. Vehicle dynamics. Propulsion systems. Design pro	ffective feedback ZK	2
Theory 16PDP Design of transp 16STK	, creating a phrasal bank according to students' specialisations, rhetorical analysis or texts/abstracts, drafting an abstract, providing e Principles of Vehicle Design ortation vehicle according to its usage and function. Marketing and user demands. Vehicle dynamics. Propulsion systems. Design pro vehicle structure. Evaluation of variant concepts. Design phases. Realiability, technological aspects etc.	ffective feedback ZK cess, functional c ZK	2 lesign and 3
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16Y2TT	Transportation and Building Technology and Equipment	KZ	2
	uilding technology and equipment. Transport of solid and mass material, soil and rock above all. Highway and underground co		
vehicles, description and	d construction features, delivered mass calculation, economy of operation. Technics and technology of underground construction	ons. Terrestrial vehicle	es operation
470000	management methodology (ultrasound, laser, GPS, total stations).	771/	4
17DOPD	Transportation Planning and Modeling	Z,ZK	4
Basic steps and tools u	sed within four step model (trip generation, trip distribution, mode choice and trip distribution). Mobility and availability in urbar	h areas, land use. Ne	w trends for
	transportation planning and modelling.	771/	4
17TZND	Technology of Railway Transport	Z,ZK	4
	esment, model operational situation with a system running time between IPT-nodes, calculation of traction energy savings cor g crossing station, solving of capacity problem and blocking time in relation to train protection system, robustness of timetable		
ior designing of neering	paths, guidelines for centralised operational traffic control and management.	, system concept of i	reigni tiain
17XN1	Master Project 1	Z	2
17XN2		Z	2
	Master Project 2		
17XN3	Master Project 3	Z	1
17XN4	Master Project 4	Z	8
17XNDD	Master Thesis for study programme DS	Z	18
17Y2AM	Application of Marketing Tools in Transportation	KZ	2
Application of mark	sting principles in transport issues, marketing tools suitable for transport, case studies of the use of marketing in the sphere o	f public passenger tra	ansport.
17Y2FM	Financing in Urban Mass Transportation	KZ	2
	pment in Prague and other cities in the world. Building and operation of public tram, bus, and trolleybus networks. Undergrou		
UMT types. UMT devel	opment in small towns. Particularities of investment and operation financing of individual UMT types. Historic and present mod	dels of UMT financing	g. Transport
	inspection and blind passengers. Tourism & amp; UMT. UMT typology & amp; choice of optimum financing.		
17Y2MD	Modelling and optimization on transport networks	KZ	2
Coordination problems	on public transport networks, scheduling vehicles, design of control plans for light-controlled intersections including green wa	-	e systems,
	modelling of advanced problems in distribution systems - exact, heuristic and metaheuristic principles of solving probler		
17Y2MO	International Organisations in Transportation	KZ	2
International relations	in transport, UN, EEC UN, Intergovernmental organisations, EU Offices and Agencies, Conference of European Ministries of	f transport, Internatio	nal mode
	organisations of public transport, Air-Rail, railways, roads, air, waterways, forwarding and postal services.		1
17Y2MS	Microsimulation of Railway Operation	KZ	2
	acteristics of simulation tools, creation of a simulation model of railway infrastructure, verification of a specific operational con		
adaptation of the infrast	ucture model and modification to the infrastructure to allow the implementation of the proposed operational concept. Stability	tests and evaluations	s. Evaluation
	of sensitivity of the operational concept to delays.		
17Y2MT	Modern History for Engineering Students	KZ	2
	the 19. century history. Geopolitical situation in Europe explained on the examples of Great Britain, Germany and Austrian Er ansatlantic transportation development. Imperial China: Late Qing dynasty. Selected chapters from the 20. century history: Fr	•	
American Civil Wal, t	Czechoslovak historical myths.		
17Y2SJ		KZ	2
	Network Timetabling on the Railway apacity allocation, technological intervals in railway operation. Rules and regulations of train paths, running times, time adds a	1	1
	es of train-diagramm creating. Timetables for more service-levels on the line. Construction slot conflicts between passenger- a		-
onoulation planning. I ta	relations and waiting times, timetables for lines under construction.		
18GAZ	Geomechanics and Foundation Engineering	Z,ZK	3
	rographyand stratigraphy), mechanics of soils (classification of fundamental soils, mechanic properties of fundamental soils, r	1 '	1
	s, depth of founding), determination of planar foundations bearing and deformation, depth foundations classification of depth f		
(111 31)	of their use, piles (classification, technology od performing).		,
18TEAM	Theoretical and Applied Mechanics	Z,ZK	4
	y of plasticity. Plasticity conditions. Elastoplastic and plastic states of cross-sections and beams. Reliability and durability of s	1 1	1
	state around a notch. Stress intensity factor. Fracture toughness. Energy methods of linear fracture mechanics. Crack driving		
18TIK	Theory of Engineering Structures	Z,ZK	4
	the knowledge gained in basic mechanics courses in bachelor study (especially Statics and Elasticity) in the field of mathemat		1
	axisymmetric problems, as well as on the calculation of stress and strain in plates and shells. Students are further acquainte		
	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
	Master Thesis for study programme DS	Z	18
		L 2	
18XNDD		47	
18XNDD 18Y2DC	Dynamics of Transport Routes and Vehicles	KZ	2
18XNDD 18Y2DC Basic theory and calcula	Dynamics of Transport Routes and Vehicles tions of more mass systems. Analysis of the forces acting between the vehicle and transport route. Creation of dynamic models	of vehicles and trans	sport routes
18XNDD 18Y2DC Basic theory and calcula	Dynamics of Transport Routes and Vehicles tions of more mass systems. Analysis of the forces acting between the vehicle and transport route. Creation of dynamic models a finite number of degrees of freedom. Methods of stiffness constants and pliability constants. Fundamentals of vibration of bri	of vehicles and trans	sport routes
18XNDD 18Y2DC Basic theory and calcula Vibration of systems with	Dynamics of Transport Routes and Vehicles tions of more mass systems. Analysis of the forces acting between the vehicle and transport route. Creation of dynamic models a finite number of degrees of freedom. Methods of stiffness constants and pliability constants. Fundamentals of vibration of bri of oscillation. Experimental methods in dynamics.	of vehicles and trans dges. Criteria for the	sport routes admissibility
18XNDD       18Y2DC       Basic theory and calcula       Vibration of systems with       18Y2EM	Dynamics of Transport Routes and Vehicles tions of more mass systems. Analysis of the forces acting between the vehicle and transport route. Creation of dynamic models a finite number of degrees of freedom. Methods of stiffness constants and pliability constants. Fundamentals of vibration of bri of oscillation. Experimental methods in dynamics. Electron microscopy	dges. Criteria for the	sport routes admissibility
18XNDD       18Y2DC       Basic theory and calcula       Vibration of systems with       18Y2EM       Basic principles of electronic	Dynamics of Transport Routes and Vehicles tions of more mass systems. Analysis of the forces acting between the vehicle and transport route. Creation of dynamic models a finite number of degrees of freedom. Methods of stiffness constants and pliability constants. Fundamentals of vibration of bri of oscillation. Experimental methods in dynamics. Electron microscopy actron microscopy, construction, control and maintenance of SEM, sample preparation, signal detection, types of detectors and	s of vehicles and trans dges. Criteria for the KZ d data evaluation usi	sport routes admissibility 2 ing image
18XNDD       18Y2DC       Basic theory and calcula       Vibration of systems with       18Y2EM       Basic principles of electronic	Dynamics of Transport Routes and Vehicles tions of more mass systems. Analysis of the forces acting between the vehicle and transport route. Creation of dynamic models a finite number of degrees of freedom. Methods of stiffness constants and pliability constants. Fundamentals of vibration of bri of oscillation. Experimental methods in dynamics. Electron microscopy actron microscopy, construction, control and maintenance of SEM, sample preparation, signal detection, types of detectors an of results and automation of data processing, energy dispersive X-ray microanalysis and other analytical methods in electror	s of vehicles and trans dges. Criteria for the KZ d data evaluation usi	sport routes admissibility 2 ing image
18XNDD         18Y2DC         Basic theory and calcula         Vibration of systems with         18Y2EM         Basic principles of eleanalysis, quantification	Dynamics of Transport Routes and Vehicles           tions of more mass systems. Analysis of the forces acting between the vehicle and transport route. Creation of dynamic models in a finite number of degrees of freedom. Methods of stiffness constants and pliability constants. Fundamentals of vibration of brior of oscillation. Experimental methods in dynamics.           Electron microscopy           ectron microscopy, construction, control and maintenance of SEM, sample preparation, signal detection, types of detectors and of results and automation of data processing, energy dispersive X-ray microanalysis and other analytical methods in electror obtained from ED detector, practical examples of ED microanalysis on samples.	s of vehicles and trans dges. Criteria for the KZ d data evaluation usi microscopy. Evaluat	sport routes admissibility 2 ing image tion of data
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18Y2MP	Finite Element Method And Its Application	KZ	2
Basic mathemati	ical formulation of the Finite Element Method. Direct Stiffness Method used in structural mechanics. Evaluation of stiffness matrices f	for the basic eleme	nts using
variational princ	ciples. Element formulation (bar and beam elements, CST, LST, quadrilateral, tetrahedral and brick elements). Natural coordinates, na	atural shape functi	ons and
	isoparametric representation. Numerical integration. Introduction to dynamics. FEM programming.		
18Y2OB	Optical Contactless Strain Measurements	KZ	2
	lents will get theoretical knowledge and practical experience in optical strain measurement methods. Students will get experience wit speed cameras for acquisition of suitable image data and with digital image correlation algorithms for displacements measurements		
18Y2SD	Reliability and Diagnostics, Experimental Methods ed on theoretical background and practical experience in the field of reliability of constructions, implementation of diagnostic procedur	KZ	2 of material
	ination of residual life of structures. For this purpose, non-destructive methods of experimental mechanics (e. g. strain-gauge measure		
	optical methods, including electron microscopy, will be used.	<i>.</i>	,
18Y2UB	Accident Biomechanics and Safety	KZ	2
Anatomy of man. M	ethods of Medical Diagnostics - RTG, CT, MRI, US. Dynamics of traumatic events. Factors influencing the severity of an accident and	the extent of a traf	fic accident.
Injuries in road to	raffic. Pedestrian injuries. Injury in railway and air traffic accidents. Analysis of biomechanical events in accidents and their computation	onal modeling. Prir	nciples of
	treatment and rehabilitation. Protective elements and safety measures in transport.		
18Y2VC	Computational Mechanics in Transportation	KZ	2
	work and variational principles in FEM. Bar shaped, planar and three - dimensional structures in FEM. FEM in statics and in dynamic		-
	elastoplastic and viscoelastic material. FEM in problems of biomechanics. Numerical analysis of structural parts with programme AN		
20XN1	Master Project 1	Z	2
20XN2	Master Project 2	Z	2
20XN3	Master Project 3	Z	1
20XN4	Master Project 4	Z	8
20XNDD	Master Thesis for study programme DS	Z	18
20Y2PR	Prediction of time series	KZ	2
	series prediction, meaning of prediction, basics of quantitative prediction. Methods for predictive quality evaluation, descriptive statisti		
prediction, predict	tion for general formula of loss function. Calculation and programming environment R. Regression models, basics of linear regressior regression, statistical tests of linear dependence, selection of input variables.	n, simple regressio	n. wuuupie
20Y2TE	Technology of Electronic Systems	KZ	2
	ies for an effective operation of electronically controlled systems. Maintaining, meassuring, optimization of safety and reliability of con	I	
	technologies, printed circuits, assembly operations, interconnection and repairs technologiesusers and operators.		
21XN1	Master Project 1	Z	2
21XN2	Master Project 2	Z	2
21XN3	Master Project 3	Z	1
21XN4	Master Project 4	Z	8
21XNDD	Master Thesis for study programme DS	Z	18
21Y2CR	CRM	KZ	2
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22XN3	Master Project 3	Z	1
22XN4	Master Project 4	Z	8
22XNDD	Master Thesis for study programme DS	Z	18
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 ev	aluation, single-tra	ack vehicle,
	vehicle passangers, pedestrian, traffic accident simulation and analysis.		
23XN1	Master Project 1	Z	2
23XN2	Master Project 2	Z	2
23XN3	Master Project 3	Z	1
23XN4	Master Project 4	Z	8
23XNDD	Master Thesis for study programme DS	Z	18

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