#### Study plan

#### Name of study plan: Bachelor TET-LOG Full-Time from 2025/26

Faculty/Institute/Others:

Department:

Branch of study guaranteed by the department: Welcome page

Garantor of the study branch:

Program of study: Technology in Transportation and Telecommunications

Type of study: Bachelor full-time

Required credits: 180 Elective courses credits: 0 Sum of credits in the plan: 180

Note on the plan:

Name of the block: Compulsory courses Minimal number of credits of the block: 90

The role of the block: Z

Code of the group: 1S-BP-TET-24/25

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

Requirement credits in the group: In this group you have to gain 30 credits

Requirement courses in the group: In this group you have to complete 9 courses

Credits in the group: 30 Note on the group:

vote on the c	<u> </u>					
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
11CAL1	Calculus 1 Tomáš Tasák, Olga Vraštilová, Magdalena Hykšová, Bohumil Ková, Ond ej Navrátil Bohumil Ková Ond ej Navrátil (Gar.)	Z,ZK	7	2P+4C+22B	Z	Z
11LA	Linear Algebra  Magdalena Hykšová, Lucie Kárná, Pavel Provinský, Martina Be vá ová  Magdalena Hykšová Martina Be vá ová (Gar.)	Z,ZK	3	2P+1C+10B	Z	Z
12ZADY	Introduction to Transportation Engineering Zuzana arská, Dagmar Ko árková, Jana Štikarová Dagmar Ko árková (Gar.)	Z,ZK	4	2P+2C	Z	Z
18MTY	Materials Science and Engineering Tomáš Doktor, Jaromír Kylar, Veronika Drechslerová, Nela Kr má ová, Jitka ezní ková, Jaroslav Valach, Vít Malinovský, Jaromír Kylar Jaroslav Valach Tomáš Doktor (Gar.)	Z,ZK	3	2P+1C+10B	Z	Z
11GIE	Geometry Pavel Provinský, Old ich Hykš, Šárka Vorá ová Old ich Hykš Old ich Hykš (Gar.)	KZ	3	2P+2C+12B	Z	Z
14ASD	Algorithm and Data Structures Tomáš Brandejský, Michal Je ábek, Alena Kubá ová, Jan Procházka, Vít Fábera, Martin Fiala, Lukáš Svoboda, Tereza Panská Vít Fábera Vít Fábera (Gar.)	KZ	3	0P+2C+8B	Z	Z
18TKK	Technical Drawing and Designing Jitka ezní ková, Vít Malinovský, Lukáš Svoboda, Jan Šleichrt, Martin Brumovský, Jan Mejst ík, Drahomír Schmidt, Jan Vogl, Ji í Zeisek, Jan Šleichrt Jan Šleichrt (Gar.)	KZ	4	2P+2C+16B	Z	Z
16UDOP	Introduction into Vehicles Zuzana Radová, Petr Bouchner	Z	2	2P+0C+8B	Z	Z
TV-1	Physical Education	Z	1		Z	Z

Characteristics of the courses of this group of Study Plan: Code=1S-BP-TET-24/25 Name=1st Sem. Bachelor Full-Time TET from 2024/25							
11CAL1	Calculus 1	Z,ZK	7				
Sequence of real numbers and its limit. Basic properties of mappings. Function of one real variable, its limit and derivative. Indefinite integral, Newton integral, Riemann integral, improper							
Riemann integral. First-	order differential equations, linear differential equations.						
11LA	Linear Algebra	Z,ZK	3				
Vector spaces (linear co	Vector spaces (linear combinations, linear independence, dimension, basis, coordinates). Matrices and operations. Systems of linear equations and their solvability. Determinants and						
their applications. Scalar product. Similarity of matrices (eigenvalues and eigenvectors). Quadratic forms and their classification.							
12ZADY	Introduction to Transportation Engineering	Z,ZK	4				

18MTY	Materials Science and Engineering	Z,ZK	3
Basic course of materia	s science and engineering explains mechanical properties of structural materials based on their bonding forces and microstr	ucture. However th	e main attention
is paid to metals as the	most important engineering materials, also other major classes of materials are presented, namely ceramics, polymers and	composites. Atten	tion is also paid
to degradation processe	es in materials, to defectoscopy and to main mechanical tests.		
11GIE	Geometry	KZ	3
Differential geometry of	curves - parameterization, the arc of the curve, torsion and curvature, Frenet's trihedron. Kinematics - a curve as a trajector	y of the motion, th	e velocity, and
acceleration of a particle	e moving on a curved path.		
14ASD	Algorithm and Data Structures	KZ	3
Students will analyze pr	oblems, design a theoretical solution to a given problem and write the resulting algorithm using flowcharts, practice reading a	lgorithms written i	using flowcharts,
and use basic Boolean	algebra to construct constraints in algorithms. Students will be introduced to the basics of the Python programming language	e - variable, branch	ning, loops, they
will learn to work with va	ariables of basic data types (integer, floating point and string) and the list data structure in their programs.		
18TKK	Technical Drawing and Designing	KZ	4
16UDOP	Introduction into Vehicles	Z	2
Vehicles and transporta	tion systems. Functionality and setup. Movement and drive principles. Engines and their characteristics. Rail, road, air and w	ater transport. Alte	ernative means
of transport. Lifting equi	pment and conveyors. Legislation.		
TV-1	Physical Education	Z	1

Code of the group: 2S-BP-TET-20/21

Name of the group: 2nd Sem. Bachelor Full-Time TET from 2020/21

Requirement credits in the group: In this group you have to gain 30 credits

Requirement courses in the group: In this group you have to complete 9 courses

Credits in the group: 30 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
11CAL2	Calculus 2 Magdalena Hykšová	Z,ZK	5	2P+3C+20E	B L	Z
11STAT	Statistics	Z,ZK	4	2P+2C+12E	B L	Z
12ZTS	Railway Lines and Stations	Z,ZK	4	2P+2C+10E	L	Z
18SAT	Structural Analysis	Z,ZK	4	2P+2C+14E	B L	Z
20SYSA	Systems Analysis	Z,ZK	5	2P+2C+14E	B L	Z
14PRG	Programming Jana Kaliková	KZ	2	0P+2C+8E	B L	Z
17TEDL	Transport Technology and Logistics  Zden k Michl	KZ	3	2P+1C	L	Z
21ZALD	Basics of Air Transport	KZ	2	0P+2C+8E	B L	Z
TV-2	Physical Education	Z	1		L	Z

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

11CAL2	Calculus 2	Z,ZK	5
Linear differential	equations and their systems, differential calculus of functions of several real variables. Riemann integral in Rn. Line and	surface integrals.	
11STAT	Statistics	Z,ZK	4
Basics of probabil	lity Descriptive statistics Population and sample, limit theorem Point estimate, construction and properties Interval estimate	ates Parametric tests Nonpara	ametric tests
Regression and co	orrelation analysis		
12ZTS	Railway Lines and Stations	Z,ZK	4
Rail transport. Rai	ilway track geometry parameters. Route layout of railway lines. Railway line construction - railway substructure and super	rstructure. Spatial layout of rai	ilway lines.
Railway control sy	stems in relation to infrastructure. Operating and carriage points. Railway lines net and category. Traction in rail transpor	t.	
18SAT	Structural Analysis	Z,ZK	4
General system of	f forces in plane and space. Calculation of reactions of bodies and structures. Assessment of internal forces on statically	determinate beams and simp	ole girders.
Principle of virtual	work. Kinematic method for calculation of reactions of statically determinate systems. Determination of axial forces in truss of	constructions. Cross-sectional	characteristic
of planar shapes.	Fiber polygons and chains.		
20SYSA	Systems Analysis	Z,ZK	5
Introduction to sys	stem sciences, system viewpoint, terminology, typical system analysis tasks, system identification, system interface and i	nterface tasks, processes, sys	stem behaviou
and its analysis, s	trong functions and processes, genetic code, system identity, system architecture. Tools for system analysis - Petri nets,	decision tables, algorithms fo	r structural
tasks. Soft and ha	ard systems, methods for soft system analysis.		
14PRG	Programming	KZ	2
The Course Progr	ramming builds on and fully extends the course 14ASD (Algorithmization and Data Structures). The knowledge of the Py	thon programming language i	s expanded
here so that the pa	articipant gains skills and can apply them to solve various follow-up tasks. Main topics: lists, multidimensional arrays, sort	ting and searching, tuples, set	ts, dictionaries
working with date	and time, regular expressions, functions and procedures, working with files (CSV, JSON, XML).		
17TEDL	Transport Technology and Logistics	KZ	3

Basic terms in transport technology and logistics, particular steps of transport planning, line planning, timetabling, planning in pasanger and freight transport, organisation of traffic in each transport modus, technologic factors of the side of operator and client, organisation of city transport, logistic technologies and their aplication using various transport modus.

21ZALD	Basics of Air Transport	KZ	2	
History, definitions, term	inology, basic rules. VFR/IFR. Basics of aerodynamics. Propulsion of aircraft. Aircraft design. Basics of navigation, radio navigat	ion. Weight, balan	ce, performance.	l
Flight planning, optimiza	ıtion of speed and heights, minimum fuel. Limitations of operation, maintenance, service life of aircraft. Traffic management, ς	round handling, s	ecurity. Air crew.	l
Airlines and economics.	Space technologies.			l
TV-2	Physical Education	Z	1	l

Code of the group: 3S-BP-TET-24/25

Name of the group: 3rd Sem. Bachelor Full-Time TET from 2024/25

Requirement credits in the group: In this group you have to gain 30 credits

Requirement courses in the group: In this group you have to complete 8 courses

Credits in the group: 30 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	Completion	Cradita	Soons	Somostor	Role
Code	members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Kole
11FYZ	Physics Old ich Hykš, Pavel Demo, Zuzana Malá, Tomáš Vít , Jana Kuklová <b>Jana</b> Kuklová Pavel Demo (Gar.)	Z,ZK	5	2P+2C+18B	Z	Z
12MDE	Transport Models and Transport Excesses Tomáš Pad lek, Josef Kocourek	Z,ZK	3	2P+1C+8B	Z	Z
11TGA	Graph Theory and its Applications in Transport Alena Rybi ková, Denisa Mocková, Dušan Teichmann Alena Rybi ková Alena Rybi ková (Gar.)	Z,ZK	4	2P+2C+12B	Z	Z
18PZP	Elasticity and Strength Tomáš Doktor, Jitka ezní ková, Jan Šleichrt, Josef Jíra, Jan Vy ichl, Daniel Kytý, Ond ej Jiroušek <b>Ond ej Jiroušek</b> Ond ej Jiroušek (Gar.)	Z,ZK	3	2P+1C+10B	Z	Z
20UITS	Introduction to Intelligent Transport Systems Martin Šrotý, Martin Langr, Ji í R ži ka, Patrik Horaž ovský, Vladimír Faltus, Pavel Hrubeš, Kristýna Navrátilová, Eva Haj iarová Martin Langr	Z,ZK	7	3P+2C+20B	Z	Z
12PPOK	Designing Roads, Highways and Motorways Tomáš Pad lek, Josef Kocourek, Petr Kumpošt Josef Kocourek (Gar.)	KZ	3	1P+2C+10B	Z	Z
14DATS	Database Systems Jan Kr ál, Jana Kaliková <b>Jana Kalikov</b> á (Gar.)	KZ	2	1P+1C+10B	Z	Z
15JZ1A	Foreign Language - English 1 Markéta Vojanová, Dana Boušová, Marie Michlová, Marek Tome ek, Jan Feit, Markéta Musilová, Peter Morpuss, Jitka He manová, Eva Rezlerová Lenka Monková (Gar.)	Z	3	0P+4C+10B	Z	Z

#### Characteristics of the courses of this group of Study Plan: Code=3S-BP-TET-24/25 Name=3rd Sem. Bachelor Full-Time TET from 2024/25

11FYZ	Physics	Z,ZK	5
Kinematics, dynamic	s, Newton's laws, force fields, mechanics of continuum, thermodynamics, introduction to electrostatics and electric current.	' '	
12MDE	Transport Models and Transport Excesses	Z,ZK	3
Parameters of the tra	affic flow and methods for their measurement. Models of the traffic flow, communications load, line and urban systems. Theory	of queues, shock w	aves. Quality of
transport and its ass	essment. Statistical characteristics of transport. Transport excesses, their analysis, the causes, identify and minimize the cons	equences. Improvin	g of transport
safety and fluency.			
11TGA	Graph Theory and its Applications in Transport	Z,ZK	4
Basic terms of graph	theory, paths in graphs, flows in networks, location problems, design problems on graphs, optimum routing, use of graphs in c	ther scientific disci	plines.
18PZP	Elasticity and Strength	Z,ZK	3
Tension and compre	ssion. Bending of beam. Shear stress in bending of beam. Design and analysis of cross section of beam. Design of riveted, bo	ted and welded joir	nts of structures.
Analysis of deflection	n curve of beams. Torsion of circular cross sections. Combined loading. Stability.		
20UITS	Introduction to Intelligent Transport Systems	Z,ZK	7
	introduction to intolligent nanoport by come	2,21	•
	slative framework telematics systems and their architecture. Telematics systems in practice and their operation. Fundamentals of	1 ' 1	ecommunication
Terminology and legi		information and tele	
Terminology and legi	slative framework telematics systems and their architecture. Telematics systems in practice and their operation. Fundamentals of	information and tele	
Terminology and legi systems for ITS. Prin	slative framework telematics systems and their architecture. Telematics systems in practice and their operation. Fundamentals of	information and tele	
Terminology and legi systems for ITS. Prin principles of ITS. 12PPOK	slative framework telematics systems and their architecture. Telematics systems in practice and their operation. Fundamentals of ciples and technical support measurement of traffic data, localization and navigation. Practical work with traffic data. Real exan	information and telephones of possible ap	oplications of the
Terminology and legi systems for ITS. Prin principles of ITS. 12PPOK Definition, types, ow	slative framework telematics systems and their architecture. Telematics systems in practice and their operation. Fundamentals of ciples and technical support measurement of traffic data, localization and navigation. Practical work with traffic data. Real exan Designing Roads, Highways and Motorways	information and telephones of possible ap  KZ  dard speed. Route i	oplications of the 3 n rural areas.
Terminology and legi systems for ITS. Prin principles of ITS. 12PPOK Definition, types, ow	slative framework telematics systems and their architecture. Telematics systems in practice and their operation. Fundamentals of ciples and technical support measurement of traffic data, localization and navigation. Practical work with traffic data. Real examination Roads, Highways and Motorways  Designing Roads, Highways and Motorways	information and telephones of possible ap  KZ  dard speed. Route i	oplications of the 3 n rural areas.
Terminology and legi systems for ITS. Prin principles of ITS. 12PPOK Definition, types, ow Range of vision for s	slative framework telematics systems and their architecture. Telematics systems in practice and their operation. Fundamentals of ciples and technical support measurement of traffic data, localization and navigation. Practical work with traffic data. Real examination Roads, Highways and Motorways  Designing Roads, Highways and Motorways	information and telephones of possible ap  KZ  dard speed. Route i	oplications of the 3 n rural areas.
Terminology and legi systems for ITS. Prin principles of ITS. 12PPOK Definition, types, ow Range of vision for s intersections. 14DATS	slative framework telematics systems and their architecture. Telematics systems in practice and their operation. Fundamentals of ciples and technical support measurement of traffic data, localization and navigation. Practical work with traffic data. Real examination of traffic data, localization and navigation. Practical work with traffic data. Real examination of traffic data, localization and navigation. Practical work with traffic data. Real examination of traffic data, localization and navigation. Practical work with traffic data. Real examination of traffic data, localization and navigation. Practical work with traffic data. Real examination of traffic data, localization and navigation. Practical work with traffic data. Real examination of traffic data. Real examination of traffic data. Real examination of traffic data, localization and navigation. Practical work with traffic data. Real examination of traf	information and telepholes of possible apples of po	oplications of the 3 n rural areas. sings, junctions, 2
Terminology and legi systems for ITS. Prin principles of ITS. 12PPOK Definition, types, ow Range of vision for s intersections. 14DATS Basic concepts of de	slative framework telematics systems and their architecture. Telematics systems in practice and their operation. Fundamentals of ciples and technical support measurement of traffic data, localization and navigation. Practical work with traffic data. Real examined period of traffic data. Real examined period of traffic data and properties and technical support measurement of traffic data, localization and navigation. Practical work with traffic data. Real examined period of traffic data and properties and properties and properties and properties. Curve and transition curve. Sinuosity and standard topping and overtaking. Road body - shapes and proportions, bottom and superstructure. Drainage and components of roads.  Database Systems	information and telepholes of possible apples of po	oplications of the 3 n rural areas. sings, junctions, 2
Terminology and legi systems for ITS. Prin principles of ITS. 12PPOK Definition, types, ow Range of vision for s intersections. 14DATS Basic concepts of de	slative framework telematics systems and their architecture. Telematics systems in practice and their operation. Fundamentals of ciples and technical support measurement of traffic data, localization and navigation. Practical work with traffic data. Real examined properties and technical support measurement of traffic data, localization and navigation. Practical work with traffic data. Real examined properties and technical support measurement of traffic data, localization and navigation. Practical work with traffic data. Real examined properties and technical work with traffic data. Real examined properties and traffic data. Real examined properties a	information and telepholes of possible apples of po	oplications of the 3 n rural areas. sings, junctions, 2
Terminology and legi systems for ITS. Prin principles of ITS. 12PPOK Definition, types, ow Range of vision for s intersections. 14DATS Basic concepts of da queries, relational al 15JZ1A	slative framework telematics systems and their architecture. Telematics systems in practice and their operation. Fundamentals of ciples and technical support measurement of traffic data, localization and navigation. Practical work with traffic data. Real examination of traffic data, localization and navigation. Practical work with traffic data. Real examination of traffic data, localization and navigation. Practical work with traffic data. Real examination of traffic data, localization and navigation. Practical work with traffic data. Real examination of traffic data. Real exam	information and telepholes of possible apples of possible apples of possible apples of possible apples. Route it is a safety device. Croston of the control	3 n rural areas. sings, junctions, 2 a, database

Name of the block: Semestrální projekt Minimal number of credits of the block: 6

The role of the block: ZP

Code of the group: X1-BP-LOG-21/22

Name of the group: Research Groups Bachelor Full-Time TET-LOG from 2021/22

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
11X31	Project 1	Z	2	0P+1C	L	ZP
12X31	Project 1	Z	2	0P+1C	L	ZP
14X31	Project 1	Z	2	0P+1C	L	ZP
15X31	Project 1	Z	2	0P+1C	L	ZP
16X31	Project 1	Z	2	0P+1C	L	ZP
17X31	Project 1	Z	2	0P+1C	L	ZP
18X31	Project 1	Z	2	0P+1C	L	ZP
20X31	Project 1 Ji í R ži ka	Z	2	0P+1C	L	ZP
21X31	Project 1	Z	2	0P+1C	L	ZP
22X31	Project 1	Z	2	0P+1C	L	ZP
11X32	Project 2	Z	2	0P+2C	Z	ZP
12X32	Project 2	Z	2	0P+2C	Z	ZP
14X32	Project 2 Jan Kr ál, Jana Kaliková	Z	2	0P+2C	Z	ZP
15X32	Project 2	Z	2	0P+2C	Z	ZP
16X32	Project 2 Petr Bouchner, Tereza Kunclová	Z	2	0P+2C	Z	ZP
17X32	Project 2 Alena Rybi ková, Denisa Mocková, Dušan Teichmann, Andrea Hrní ková, Roman Št rba, Václav Baroch, Michal Drábek, Alexandra Dvo á ková, Veronika Faifrová,	Z	2	0P+2C	Z	ZP
18X32	Project 2 Nela Kr má ová	Z	2	0P+2C	Z	ZP
20X32	Project 2 Vladimír Faltus	Z	2	0P+2C	Z	ZP
21X32	Project 2 Viktor Valenta, Radoslav Zozu ák, Kate ina Grötschelová, Stanislav Pleninger, Jakub Kraus, Terézia Pilmannová, Slobodan Stoji, Andrej Lališ, Jakub Hospodka,	Z	2	0P+2C	Z	ZP
22X32	Project 2	Z	2	0P+2C	Z	ZP
11X33	Project 3	Z	2	0P+1C	L	ZP
12X33	Project 3	Z	2	0P+1C	L	ZP
14X33	Project 3	Z	2	0P+1C	L	ZP
15X33	Project 3	Z	2	0P+1C	L	ZP
16X33	Project 3	Z	2	0P+1C	L	ZP
17X33	Project 3	Z	2	0P+1C	L	ZP
18X33	Project 3	Z	2	0P+1C	L	ZP
20X33	Project 3	Z	2	0P+1C	L	ZP
21X33	Project 3	Z	2	0P+1C	L	ZP
22X33	Project 3	Z	2	0P+1C	L	ZP

### Characteristics of the courses of this group of Study Plan: Code=X1-BP-LOG-21/22 Name=Research Groups Bachelor Full-Time TET-LOG from 2021/22

Project 1	Z	2
Project 1	Z	2
	Project 1	Project 1         Z           Project 1         Z

22X31	Project 1	Z	2
11X32	Project 2	Z	2
12X32	Project 2	Z	2
14X32	Project 2	Z	2
15X32	Project 2	Z	2
16X32	Project 2	Z	2
17X32	Project 2	Z	2
18X32	Project 2	Z	2
20X32	Project 2	Z	2
21X32	Project 2	Z	2
22X32	Project 2	Z	2
11X33	Project 3	Z	2
12X33	Project 3	Z	2
14X33	Project 3	Z	2
15X33	Project 3	Z	2
16X33	Project 3	Z	2
17X33	Project 3	Z	2
18X33	Project 3	Z	2
20X33	Project 3	Z	2
21X33	Project 3	Z	2
22X33	Project 3	Z	2

Name of the block: Compulsory courses in the program

Minimal number of credits of the block: 72

The role of the block: P

Code of the group: 4S-BP-LOG-24/25

Name of the group: 4th Sem. Bachelor Full-Time TET-LOG from 2024/25 Requirement credits in the group: In this group you have to gain 26 credits

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

Credits in the group: 26 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members)  Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
11MSP	Modeling of Systems and Processes  Bohumil Ková	Z,ZK	4	2P+2C+12B	L	Р
17ESYS	Transport Systems Economy Rudolf Franz Heidu Rudolf Franz Heidu (Gar.)	Z,ZK	6	3P+2C+18B	L	Р
17LGT	Logistics	Z,ZK	6	3P+2C+18B	L	Р
11LP	Linear Programming	KZ	3	2P+1C+12B	L	Р
11MDP	Transport Prognostic Methods  Alena Rybi ková	KZ	2	2P+0C+10B	L	Р
16DPO	Vehicle Technology	KZ	2	2P+0C+10B	L	Р
15JZ2A	Foreign Language - English 2  Marek Tome ek (Gar.)	Z,ZK	3	0P+4C+10B	L	Р

# Characteristics of the courses of this group of Study Plan: Code=4S-BP-LOG-24/25 Name=4th Sem. Bachelor Full-Time TET-LOG from 2024/25

11MSP	Modeling of Systems and Processes	Z,ZK	4		
System and subsystem, external and internal system description, continuous and discrete system, mathematics as a tool, examples of formulation of differential and differential equations					
Linear and nonlinear system, stationary and non-stationary system, causality. Convolutional integral. Laplace and Z transformations. Transfer function. Stability of LTI systems.					
Discretization of continu	uous systems. System interconnection.				
17ESYS	Transport Systems Economy	Z,ZK	6		
Macroeconomics, macr	oeconomic indicators, transport system, transport externalities, energy in transport, shared economy, state transport system a	nd its quantificatio	n, rationalization		
of transport system.					
17LGT	Logistics	Z,ZK	6		
Logistics definition, bas	ic concepts, store, warehouse, transport and handling equipment, logistics technology, logistics centers, information and inte	lligent logistics sy	stems, logistics		
city.					
11LP	Linear Programming	KZ	3		
Formulation of the prob	lem of linear programming, transcription of some practical problems to the linear programming problems. Simplex and conve	x polyedra. Simple	ex method, basic		
solutions, duality princip	ole in linear programming, stability of solution of linear programming problem. Traffic problem.				
11MDP	Transport Prognostic Methods	KZ	2		
The techniques of ecor	iomical analysis in the domain of analysis of dependencies, analysis and construction of time series and comparsion of statis	stical values using	differencies and		
indices.					

16DPOVehicle TechnologyKZ2Vehicle. Functions, principles. Drive, vehicle construction. Road transport, safety, heavy duty vehicle desing, dynamics. Rail transport, safety, carriage design. Drive. Electric traction.Transshipment. Technological components of various modes of transport. Management and control of various means of transport. Safety.15JZ2AForeign Language - English 2Z,ZK3

Grammatical structures and style. Selection of conversation topics relating to transportation sciences. Extending vocabulary, developing perceptive and communicative skills. Elementary stylistics forms. Oral and written presentation of original research. Academic text principles and reading comprehension. Principles of rhetoric.

Code of the group: 5S-BP-LOG-24/25

Name of the group: 5th Sem. Bachelor Full-Time TET-LOG from 2024/25 Requirement credits in the group: In this group you have to gain 23 credits

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

Credits in the group: 23 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
12ZPV	Railway Operation Jan Kruntorád, Martin Jacura	Z,ZK	4	2P+1C+12B	Z	Р
17EPOD	Economics of Transport Company Václav Baroch, Alexandra Dvo á ková Alexandra Dvo á ková (Gar.)	Z,ZK	6	4P+2C+18B	Z	Р
17TVD	Technology of Public Transport Vít Janoš, Zden k Michl, Ji í Pospíšil, Stanislav Metelka Vít Janoš (Gar.)	Z,ZK	5	2P+2C+18B	Z,L	Р
14DMG	Datamining Radek Holý Radek Holý Radek Holý (Gar.)	KZ	2	0P+2C+10B	Z	Р
17MAGD	Marketing in Transport Petra Skolilová Petra Skolilová (Gar.)	KZ	4	2P+1C+12B	Z	Р
17ZAP	Fundamentals od law Petra Skolilová, Martina D v rová Martina D v rová (Gar.)	Z	2	2P+0C+10B	Z	Р

### Characteristics of the courses of this group of Study Plan: Code=5S-BP-LOG-24/25 Name=5th Sem. Bachelor Full-Time TET-LOG from 2024/25

12ZPV Railway Operation	Z,ZK	4
Legislation in railway transport. Railway vehicles. Railway signals and signal devices. Railway traffic organisation and operation. Simplified railway tr	affic operation. Ra	lway vehicles
brakes. Railway vehicles marking. Operation intervals. Theoretical graph of train running.		
17EPOD Economics of Transport Company	Z,ZK	6
Economy, marginal utility, marginal costs, function of supply and demand, market equilibrium, perfect competition and types of market arrangement	Transportation ma	rket, transport
company, it's environment, balance sheet, costs, revenue, profit and maximalization of profit. Business plan, taxation in transport.		
17TVD Technology of Public Transport	Z,ZK	5
The course contents a detailed description of new knowledge and basic principles of hierarchical planning of public transport system accenting the	general transport	lanning and
quantified transport demand. The course would be oriented on multiple and multi-level optimisation of passenger public transport system.		
14DMG Datamining	KZ	2
Types of data sources and knowledge, data warehouses and OLAP technology for data mining, data preprocessing in the process of knowledge ac	quisition systems f	or data mining,
mining characteristics of concepts (classes), mining association rules from relational db. and data warehousing, classification (decisions tree, Bayes	sian cob., using ne	ural networks).
Prediction. Cluster analysis. Mining in complex structured data, multimedia dbf., www.		
17MAGD Marketing in Transport	KZ	4
Development of strategic marketing plans. Implementation of marketing campaigns. Branding and brand promotion. Public relations industry, business	ss and vertical ma	rkot Wobsito
Development of strategic marketing plans. Implementation of marketing campaigns. Dranding and brand promotion. Fublic relations industry, busine	oo ana vortioai ma	iket. Website
development, search engine optimization. Government relations and industry organization lobbying. Advertising and strategic sponsorships. Multimediately organization lobbying.		

Code of the group: 6S-BP-LOG-22/23

Name of the group: 6th Sem. Bachelor Full-Time TET-LOG from 2022/23 Requirement credits in the group: In this group you have to gain 23 credits

Requirement courses in the group: In this group you have to complete 8 courses

Credits in the group: 23

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
17FID	Financing and Investment in Transport	Z,ZK	4	2P+1C+12B	L	Р
17IVED	Integration of Public Transport	Z,ZK	3	2P+1C+10B	L	Р
17KLID	Quality in Transport Service	Z,ZK	3	2P+1C+10B	L	Р
17MRR	Managerial Decision-making and Management	Z,ZK	4	2P+2C	L	Р

14MPG	Modern Programming Approaches  Michal Je ábek	KZ	2	0P+2C+8B	L	Р
17GEDS	Geography of Transport Systems	KZ	2	2P+0C+8B	L	Р
12ZAR	Introduction to Architectural Design	Z	3	2P+0C+8B	L	Р
17NAPR	Freight Traffic	Z	2	2P+0C+8B	L	Р

#### Characteristics of the courses of this group of Study Plan: Code=6S-BP-LOG-22/23 Name=6th Sem, Bachelor Full-Time TET-LOG from

2 <b>022/23</b> 17FID	Financing and Investment in Transport	Z,ZK	4
	ng of transport infrastructure, the role of public administration in the financing and realization of investment in transport, the		· ·
	ir rules, competition, effectiveness and efficiency of spending public funds, evaluation systems of public projects and progra		t Cycle, Subsid
17IVED	Integration of Public Transport	Z,ZK	3
	f both EU and CR, transport sectoral strategies, land use planning and evolution of space organization, integration of public	1 '	-
activities and orga	inizational structures of integrated public transport systems, internal and external bindings, contracting, carriage relations, of g and quality, IS, marketing.	•	
17KLID	Quality in Transport Service	Z,ZK	3
quality costs, mark	nods of quality measurement, quality management, risks and opportunities, public transport quality, view of costumers, carri keting and costumer satisfaction.		ality standard
17MRR	Managerial Decision-making and Management	Z,ZK	4
Decision-making p hinking.	process; identifying exactly what the problem is; evaluating the issue; solving the issue; using multiple perspective analysis to	o make a decision; usual	method of
14MPG	Modern Programming Approaches	KZ	2
Students will be re	eminded of some aspects of Pythom programming, learn basic concepts and constructs from object-oriented programming	and their implementation	in Python. The
vill also try out the	e basics of working with data libraries in Python, namely NumPy, Pandas, Matplotlib, and practice with examples of smaller	and larger data sizes.	
17GEDS	Geography of Transport Systems	KZ	2
Regional differenti	ation of the transport system. Sociogeographic regionalization and its relation to transport. Transport and local and regiona	I development. Spatial into	eraction -
heoretical and me	thodological framework. Mobility research - travel behavior, mode choice and the influence onto "modal-split." Modal competiti	on. Practical use of transpo	ort-geographic
analysis in transpo	ortation planning.		
12ZAR	Introduction to Architectural Design	Z	3
	hitecture of traffic systems. Bus and trolley-bus transport. Tramway and town tracks. Design of vehicles. Subway. Railway transtonal airports.	ansport. Railway stations.	Local
17NAPR	Freight Traffic	Z	2
	The state of the s	1 1	

Name of the block: Compulsory elective courses

Freight traffic and transportation system, conditions of implementation, forwarding.

Minimal number of credits of the block: 6

The role of the block: PV

Code of the group: Y1-BP-LOG-24/25

Name of the group: Comp. Sel. Courses Bachelor Full-Time TET-LOG 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.

NOTE OU 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
21Y1AM	Aeronautical Information Management (AIM) Radek Hoda Radek Hoda (Gar.)	KZ	2	2P+0C	Z	PV
00Y1XB	Active participation in a scientific project, workshop, short-term trip abroad  Patrik Horaž ovský Patrik Horaž ovský (Gar.)	KZ	2	2P+0C		PV
20Y1AF	Alternative Forms of Transportation Project Financing Mária Jánešová Mária Jánešová Mária Jánešová (Gar.)	KZ	2	2P+0C	Z	PV
18Y1AM	Anatomy, Mobility and Safety of Man	KZ	2	2P+0C	Z	PV
14Y1AV	Animation and Visualization	KZ	2	2P+0C	L	PV
12Y1AE	Applied Ecology	KZ	2	2P+0C	Z	PV
20Y1AE	Applied Electronics	KZ	2	2P+0C	Z	PV
14Y1BE	Barrierless Transport Jan Kr ál	KZ	2	2P+0C	L	PV
15Y1BO	Work Safety and Health Protection in Transportation	KZ	2	2P+0C	L,Z	PV
11Y1BK	Error Detection Codes for Interlocking Systems Lucie Kárná Lucie Kárná Lucie Kárná (Gar.)	KZ	2	2P+0C	Z	PV

21Y1BS	Unmanned aircraft systems 1	KZ	2	2P+0C	L	PV
14Y1BM	Biometric Methods	KZ	2	2P+0C	Z	PV
15Y1DZ	History of Railway	KZ	2	2P+0C	L	PV
12Y1DS	Project Documentation in Practice	KZ	2	2P+0C	Z	PV
20Y1EK	Qualification in Electrical Engineering	KZ	2	2P+0C	L	PV
16Y1EN	Energy Requirements of Vehicles	KZ	2	2P+0C	L	PV
20Y1EA	Environmental Aspects of Transport	KZ	2	2P+0C	Z	PV
15Y1EH	European Integration within Historical Context	KZ	2	2P+0C	Z	PV
	Jan Feit Jan Feit (Gar.)  Experimental Methods in Mechanics					
18Y1EM	Daniel Kytý <b>Daniel Kytý</b> Daniel Kytý (Gar.)	KZ	2	2P+0C	Z,L	PV
15Y1FD	French Area Studies and Transportation	KZ	2	2P+0C	L	PV
14Y1HW	Computer Hardware	KZ	2	2P+0C	L	PV
15Y1HL	History of Civil Aviation	KZ	2	2P+0C	L	PV
15Y1HD	History of City Mass Transport  Milan Dont Milan Dont (Gar.)	KZ	2	2P+0C	Z	PV
12Y1HD	Traffic Noise	KZ	2	2P+0C	L	PV
15Y1HE	Work Hygiene and Ergonomics in Traffic Petr Musil Petr Musil (Gar.)	KZ	2	2P+0C	Z	PV
16Y1IS	Interactive simulators and simulations	KZ	2	2P+0C	L,Z	PV
12Y1KN	Combined Transportation Petr Nejedlý Petr Nejedlý (Gar.)	KZ	2	2P+0C	Z	PV
12Y1KP	Communication and Promotion of Transport Projects	KZ	2	2P+0C	L	PV
20Y1KP	Communication and presentation skills Ji í R ži ka, Patrik Horaž ovský, Kristýna Navrátilová <b>Ji í R ži ka</b> Ji í	KZ	2	2P+0C	Z	PV
21Y1LJ	R ži ka (Gar.)  Aeronautical Radio and Flight Instruments	KZ	2	2P+0C	L	PV
21Y1LS	Air Traffic Services	KZ	2	2P+0C	L	PV
17Y1LL	Logistics of Passenger and Freight Air Transport	KZ	2	2P+0C	L,Z	PV
20Y1LN	Location and Navigation	KZ	2	2P+0C	L	PV
17Y1MD	Marketing in Transportation	KZ	2	2P+0C	Z	PV
18Y1MT	Engineering Materials  Jaroslav Valach Petr Koudelka (Gar.)	KZ	2	2P+0C	L,Z	PV
21Y1MP	Matlab for project-oriented study  Lenka Hanáková, Vladimír Socha Lenka Hanáková Vladimír Socha (Gar.)	KZ	2	2P+0C	Z	PV
14Y1MP	Modeling Complex Assemblies and Models in Parametric Modeller	KZ	2	2P+0C	Z	PV
15Y1MK	Modern History in Context: Every Day Life and Transport	KZ	2	2P+0C	L	PV
15Y1NE	German in the Economy and Society	KZ	2	2P+0C	Z	PV
21Y1OH	Airline Business and Operations Peter Vittek, Ladislav Capoušek, Peter Olexa Peter Olexa Peter Vittek (Gar.)	KZ	2	2P+0C	Z	PV
20Y1OI	Fare Collection and Information Systems	KZ	2	2P+0C	L	PV
14Y1OJ	Object - oriented programming in JAVA	KZ	2	2P+0C	L	PV
14Y1OP	Operating System	KZ	2	2P+0C	Z	PV
17Y1OF	Personal Finance	KZ	2	2P+0C	Z,L	PV
20Y1OK	Road Lighting	KZ	2	2P+0C	L	PV
11Y1PV	Parametrical and Multicriterial Programming Olga Vraštilová Olga Vraštilová Olga Vraštilová (Gar.)	KZ	2	2P+0C	Z	PV
17Y1PM	Personnel Management	KZ	2	2P+0C	L	PV
12Y1PC	Pedestrian and Cycling Transport	KZ	2	2P+0C	L,Z	PV
14Y1PG	Computer Graphics	KZ	2	2P+0C	L	PV
14Y1P2	Computer Aid of Transportation Projecting 2	KZ	2	2P+0C	Z	PV
18Y1PS	Computer Simulations in Mechanics	KZ	2	2P+0C	L	PV
14Y1PI	Corporate Information System	KZ	2	2P+0C	Z	PV
14Y1PZ	Advanced Data Processing in Spreadsheets	KZ	2	2P+0C	Z	PV
21Y1PC	ATC Procedures and Activities Stanislav Pleninger, Terézia Pilmannová Terézia Pilmannová Stanislav Pleninger (Gar.)	KZ	2	2P+0C	Z	PV
20Y1PK	Product Quality Management Processes  Martin Leso Martin Leso (Gar.)	KZ	2	2P+0C	Z	PV
14Y1PJ	C Programming Language	KZ	2	2P+0C	Z	PV

12Y1C1	Designing Roads in Civil 3D I	KZ	2	2P+0C	L,Z	PV
12Y1C2	Designing Roads in Civil 3D II	KZ	2	2P+0C	Z,L	PV
14Y1PA	Tomáš Honc Tomáš Honc (Gar.)  3D Modeling in AutoCAD	KZ	2	2P+0C	Z	PV
16Y1PV	Operation, Construction and Maintenance of Vehicles	KZ	2	2P+0C	L	PV
12Y1PU	Organization Disposition of Railway Stations	KZ	2	2P+0C	L	PV
12Y1RU	Railway Lines Reconstruction	KZ	2	2P+0C	Z	PV
16Y1RE	Control and Electronic Vehicle Systems Josef Mík, Pemysl Toman Josef Mík (Gar.)	KZ	2	2P+0C	Z	PV
21Y1RZ	Human Resources Management	KZ	2	2P+0C	L	PV
17Y1ST	Titan Simulation	KZ	2	2P+0C	L	PV
21Y1SI	ATC Simulator	KZ	2	2P+0C	L	PV
20Y1SC	Sensors and Actuators	KZ	2	2P+0C	L	PV
17Y1SL	Sociology of Human Resources	KZ	2	2P+0C	Z	PV
11Y1SI	Transportation Software Engineering	KZ	2	2P+0C	Z	PV
16Y1KS	Quality and Reliability of Vehicles David Lehet, Jaroslav Machan Jaroslav Machan (Gar.)	KZ	2	2P+0C	Z	PV
12Y1SU	Road Management and Maintenance	KZ	2	2P+0C	L	PV
16Y1SO	Strategy and innovation in mobility	KZ	2	2P+0C	Z	PV
17Y1SK	<b>Urban and Regional Rail Transport Systems</b>	KZ	2	2P+0C	L,Z	PV
11Y1TG	Graph Theory Lucie Kárná	KZ	2	2P+0C	L	PV
14Y1TI	Creating Interactive Internet Applications	KZ	2	2P+0C	L	PV
21Y1UL	Aircraft Maintenance	KZ	2	2P+0C	L	PV
14Y1UP	Editing of Theses in MS Word	KZ	2	2P+0C	L	PV
18Y1UK	Introduction of Rail Vehicles	KZ	2	2P+0C	L	PV
12Y1VR	Public Transport in Cities and Regions Vladimír Pušman Vladimír Pušman (Gar.)	KZ	2	2P+0C	Z	PV
14Y1VM	<b>Development of Applications for Mobile Devices</b>	KZ	2	2P+0C	Z	PV
16Y1VT	Development in Railroad Vehicles	KZ	2	2P+0C	L	PV
14Y1WG	Webdesign	KZ	2	2P+0C	Z	PV
14Y1W1	Webdesign 1	KZ	2	2P+0C	Z	PV
14Y1W2	Webdesign 2	KZ	2	2P+0C	L	PV
16Y1ZG	Introduction into Applied Computer Graphics	KZ	2	2P+0C	L	PV
14Y1ZM	Fundamentals of parametric and adaptive modeling	KZ	2	2P+0C	L	PV
11Y1ZM	Foundation of MATLAB Programming Šárka Vorá ová	KZ	2	2P+0C	L	PV
14Y1ZJ	Fundamentals of programming in JAVA	KZ	2	2P+0C	Z	PV
12Y1ZU	Principles of Urbanism Karel Hájek Karel Hájek (Gar.)	KZ	2	2P+0C	Z,L	PV
15Y1ZV	East-West dichotomy: Prelude to the Cold War Marie Michlová Marie Michlová (Gar.)	KZ	2	2P+0C	Z	PV
16Y1ZL	Vehicle Testing, Legislation and Construction Zuzana Radová Zuzana Radová (Gar.)	KZ	2	2P+0C	Z	PV

# Characteristics of the courses of this group of Study Plan: Code=Y1-BP-LOG-24/25 Name=Comp. Sel. Courses Bachelor Full-Time TET-LOG from 2024/25

TET-LOG from 202	44/25					
21Y1AM	Aeronautical Information Management (AIM)	KZ	2			
Definition and basic overview of AIS and AIM. Transition from AIS to AIM. Regulatory base. Provision of AIS/AIM in the Czech Rep. AIP (Aeronautical Inf. Publication). VFR Manual of						
the Czech Rep. AIRAC	System. NOTAM messages.PIB (Pre-flight Informtion Bulletin). AIC (Aeoronautical Inf. Circulars). Aeronautical Charts. EAD (	Europena AIS Da	tabase). QMS			
(Quality Mng. System).	ADQ (Aeronautical Data Quality). AIXM (Aeronautical Inf. Exchnage Format).					
00Y1XB	Active participation in a scientific project, workshop, short-term trip abroad	KZ	2			
20Y1AF	Alternative Forms of Transportation Project Financing	KZ	2			
In will be specifed such	forms of financing in transportation and telecomunications, where the public sector body perform the final debtor, i. e. debt pa	ayments come fro	m its budget but			
the final debtor is not a	direct participant of the transaction and it is not the counterparty of the financial institute which provides the funding. Issue of	securities as an a	Iternative source			
of transportation and te	lecomunication projects.					
18Y1AM	Anatomy, Mobility and Safety of Man	KZ	2			
Survey of tissues. Anato	mical structure and growth of bones. Articular joint. Remodelling of bone tissue. Anatomical structure of muscles. Blood circulat	ion and nervous s	ystem. Structure			
and biomechanics of m	uscular-skeletal system. Injury of human organs and musculo-skeletal system during traffic accidents. Mobility of ill and injure	ed man and his tre	eatment. Human			
joint prostheses. Protective means and traffic safety regulations.						
14Y1AV	Animation and Visualization	KZ	2			
Advanced modifications and modeling of NURBS, Patch objects, selection of objects (according to filter and properties). 3D Studio MAX systems and Space Warp objects. Atmospheric						
and other effects, rendering filters, Motion blur, advanced animations, Motion panel. Modeling for morphing and animation, bone formation, animation using Inverse Kinematics.						

12Y1AE Applied Ecology	KZ	2
General ecology - ecological concepts and principles, ecosystem, ecological factors, energy flow through the ecosystem. Application of knowledge		-
ecology. Landscape ecology - origin and historical development. Landscape definition and classification. Success. Traffic constructions in the country	yside. Landscape	and nature
protection. Applied ecology.	1/7	2
20Y1AE Applied Electronics	KZ	2
Basic electronic semiconductor components, their principles, characteristics and typical connection diagrams. Semiconductor PN junction diodes, tr amplifiers, basic logic gates. Functions of basic electronic circuits and methods for their designs (rectifiers, voltage regulator with Zener diode, trans		•
amplifier as an inverting and noninverting amplifier).	istor as an ampline	er, operational
14Y1BE Barrierless Transport	KZ	2
The issue of barrierless accessible public transportation in terms of architectural barriers and also for transportation-technological point of view. Stude	1 1	
of barrierless environment roads, railway stations, public transport stops, terminal buildings, vehicles, public transport, information and orientation syst	_	_
Theoretical knowledge will be supplemented by practical examples.		
15Y1BO Work Safety and Health Protection in Transportation	KZ	2
Fundamental legislative, definition of terms, risks and possible health damage, working conditions and health protection with focus on transportation	n. Health protection	n programmes,
health insurance of home and foreign business trips, statistics, working practice.		
11Y1BK Error Detection Codes for Interlocking Systems	KZ	2
Safe communication and methods for its assuring. Safety codes linear codes, cyclic codes, BCH codes, Reed-Solomon codes. Transmission channel	s, detection of tran	smission errors,
probability of undetected error. Design and assessment of detection codes; requirements of the European standard EN 50159.		
21Y1BS Unmanned aircraft systems 1	KZ	2
Unmanned Aviation Development. Aircraft design. Legislation in force in the Czech Republic. Planning and execution of the flight. Airspace division.	Operational risks a	and operational
procedures. Practical flights.	T	
14Y1BM Biometric Methods	KZ	2
Basic biometric terms, authentication methods, principles and performance measurement of biometric systems, overview of biometric technologies,		_
retina recognition method, 2D and 3D face recognition, vein patterns on the wrist, ear biometrics, fingerprint recognition, skin spectroscopy, behavious transport applications, asfaty and risks of biometric technologies.	rai methods, the u	ise of biometrics
in transport applications, safety and risks of biometric technologies.	1/7	2
15Y1DZ History of Railway	KZ	2
Horse-drawn railways, steam railways, railway network development in the 2nd half of 19th century, regional railways epoch, railways of the "First R War II railways, railway development in the 2nd half of 20th century, high-speed railway origins, railway lines closing, important long-distance train conf	•	
railway accidents, railway junctions. Excursions and projections.	lections, railway iii	ies construction,
12Y1DS Project Documentation in Practice	KZ	2
Project documentation creating. Project documentation types. Support materials for project documentation creating. Building permit obtaining proce	1 1	_
creation of some project documentation parts.	55. Budget and pri	cing. i ractical
20Y1EK Qualification in Electrical Engineering	KZ	2
Practical experience with measurements in laboratories, electrical equipment, power supply, electrical installation of low voltage, electric shock haza		_
voltage, maximum allowed currents, electrical equipment protection against short circuit and overload protection, control and revision, first aid, legis	=	_
in relation to health and safety and electrical engineering.	,	3
16Y1EN Energy Requirements of Vehicles	KZ	2
Dynamics and the driving inertial of the vehicles. Types of energy - kinetic, static, heat, chemical and others. Ways of energy change into kinetic energy - kinetic static, heat, chemical and others.		
drive, steam engine, air engine. Energy accumulation means, accumulator, flywheel, fuel cell. Energy recuperation. WTW analysis.		_
20Y1EA Environmental Aspects of Transport	KZ	2
State of the atmosphere, weather observation network, weather in transportation, road meteorology. Weather forecasting, data assimilation, probabilities of the atmosphere of	istic forecasts, fore	ecast evaluation.
Air quality, main pollutants and their effects, atmospheric chemistry, traffic emissions. Greenhouse gasses, carbon cycle, a role of energy and transp	ortation in climate	change.
15Y1EH European Integration within Historical Context	KZ	2
Versailles system, formation of new states. Europe and the powers, League of Nations. European policy in the 1920s. Fascism, nacism, communism		principles and
goals. Europe after Hitler's getting to power, system of bilateral agreements. Decline of the LN. Rearrangement of powers during WWII. Cold war an	d its consequence	s for Europe.
New quality of French-German relationship - a driving power of starting European integration.		
18Y1EM Experimental Methods in Mechanics	KZ	2
The purpose and role of experimental mechanics. Sensors for mechanical testing. Overview of experimental methods. Destructive and non-destructive	ŭ	•
experimental procedures and sample preparation. Tensile and bending tests. Electrical resistance strain gages. Optical based strain measurement.	Fatigue and lifetim	e prediction.
Instrumented hardness testing. Introduction to electron microscopy. Errors in measurement.		
15Y1FD French Area Studies and Transportation	KZ	2
France - geography and regions, transport infrastructure. Paris and its sights, city public transport. Road traffic, motorways, railway traffic, TGV, air tr		erminology.
French society and culture. Current political system. System of education, studying in France. Selected authors of French literature. French gastrono	, -	
14Y1HW   Computer Hardware	KZ	2
Computer architecture, basics of logical circuits design and their realization using FPGA. In detail, description of computer architecture and separat	e parts designing -	- controllers,
arithmetic and logical units, I/O subsystem.		
15Y1HL History of Civil Aviation	KZ	2
Beginnings of flying, development of aircrafts lighter than air. Beginnings of aircrafts heavier than air. Czechoslovak aviation pioneers. Development	-	
World airports. Famous aviators. Helicopters. CSA airplanes. Development of aircrafts in Czechoslovakia between the years 1945-1989. Classic era aviation. Modern era of civil aviation. Airline companies. Supersonic flying.	or aviation. Golde	n era or civii
	V7	2
15Y1HD History of City Mass Transport  History of city mass transport in the world, development of transport and trolley-bus systems. History of transport networks in the world, current transport.	KZ	2 ants of tariff and
History of city mass transport in the world, development of tram, bus and trolley-bus systems. History of transport networks in the world, current tree clearance systems. History of city transport in Prague and Brno. History of tram, bus and trolley-bus operation systems in the Czech Republic and S	•	ביינס טו נמוווו מווס
12Y1HD Traffic Noise	KZ	2
Acoustic introduction, basic terms, quantities. Basics of physiological acoustic, noise impacts on human body. Acoustic legislation, standarts, regula	1	
area, principles of urban acoustic, noise transmission, soundproofing. Types of noise sources in area. Determination of acoustic situation in the area		
computing and measurement of transport noise. Acoustic studies, measuring protocol.		<del> </del>
15Y1HE Work Hygiene and Ergonomics in Traffic	KZ	2
Basic knowledge of occupational hygiene and ergonomics, and their application in transport. Working environment factors, and the influence of thes	1 1	
Creation and protection of working conditions that do not damage public health. Mutual links: man-machine-environment. Adaptation of technology		
Practical examples from the field of transportation; relevant legislature.		

16Y1IS	Interactive simulators and simulations	KZ	2
Simulation theory and a	pplication of computing equipment. Creating computing models. Mechanical and dynamic systems and their mathematical m	nodels. Computing	methods.
Simulation of vehicle dy	rnamics, on-land carriage in particular. Virtual reality systems. Practical exercise with simulation software and interactive simulation.	ılators.	
12Y1KN	Combined Transportation	KZ	2
	ategy and legislation. Load units. Means of transport in combined transport. Combined transport systems. Transshipping area	as. Multimodal logi	
12Y1KP	Communication and Promotion of Transport Projects	KZ	2
	Relations and the power of public opinion. Work and tasks of PR department and press spokesperson. Communication with		
	Communication strategy of transport projects. Systematic goodwill building. Crisis situations in communication and preparation	n for crisis commu	unication. The
	rketing and political PR on transport projects. Lobbing.		
20Y1KP	Communication and presentation skills	KZ	2
	d their fulfillment, current communication networks, work with various sources, formal requirements of emails and final these		•
	telligence, manipulation and way of working with it, coping with stressful situations, formal requirements of presentations, wa	ys of communicat	ion auring
	ion skills, presentation skills in online environment.	1/7	
21Y1LJ	Aeronautical Radio and Flight Instruments	KZ	2
	y of aircraft instrumentation, aerometric instrumentation, Earth magnetism, aircraft electric equipment, gyroscopic instrumenta		
	t, engine instrumentation, warning and recording systems, instrumentation operational requirements, radiocommunication ar		
21Y1LS	Air Traffic Services	KZ	2
	zech Republic and other countries. Introduction and description of ATS units in Czech Republic. Practical examples of TWR, rakia. ATS - Model of financing. Training System of Air Traffic Controllers. Future development of ATS.	AFF a ACC contic	ii. History of Ars
17Y1LL		KZ	2
	Logistics of Passenger and Freight Air Transport ger and cargo. Aircraft and airport terminals for passenger and cargo transport. Airlines in terms of logistics systems. Aerial t		
	ystems in air transport. Global distribution systems.	ransport process	passerigers and
20Y1LN	Location and Navigation	KZ	2
-	ן בטכמוטוז מזע זאמאוקמוטוז les of road networks, localization on the network. Routing algorithms, their properties and implementation. Description and פּי	1	
	routing algorithms, their properties and implementation.	vamples of datase	to infully
17Y1MD	Marketing in Transportation	KZ	2
	plantering in Transportation arketing applied to transport issues, marketing tools suitable for transport as a service, specifics of public passenger transpo	1	_
the application of marke		it and the resultin	g dillerences in
18Y1MT	Engineering Materials	KZ	2
_	main classes of materials used in technical design. In addition to main classes of materials, i. e. metals, ceramics, polymers	1 .	_
-	and to biomimetics. Integral approach to material selection process is also demonstrated based on so called Ashby's selection	-	attention is paid
21Y1MP	Matlab for project-oriented study	KZ	2
	ן ואמנומט וסד פוסןפטניסוופרונפט study s focused on the problem-solving during bachelor's thesis preparation and it is based on students' requests. Individual exerci	1 .	
	sed on actual students' needs and suggestions. The subject will have a flexible form, which is expected to bring an improven		_
14Y1MP	Modeling Complex Assemblies and Models in Parametric Modeller	KZ	2
	ng - tools and methodology of working subassemblies and assemblies, sheet metal parts modelling, welded assemblies, pipe	1	
	ndering - physical and material properties, lighting sources. MKP - visual example.	miles, and distribe	ation inico.
15Y1MK	Modern History in Context: Every Day Life and Transport	KZ	2
	nodern history of every day life, science, technology and transport in a wider context.	112	_
15Y1NE	German in the Economy and Society	KZ	2
	social issues of German speaking countries and of the EU. Reading and listening of texts. Lexical, grammatical and semantic		
selected topics.		analysis si texto.	2.00000.0
21Y1OH	Airline Business and Operations	KZ	2
	omprehensive view of the commercial, operational and transportation activities of air transport companies. It focuses on the org		
· ·	strategy, economic and operational indicators. It introduces students in detail to operational processes and the essentials of tra		=
•	nomic aspects of air transport.		•
20Y1OI	Fare Collection and Information Systems	KZ	2
	in public transport and their components (on-board units, validators, turnstiles,). Information systems and their componen	1	
panels) and operator	s (cycles, location or current delay of vehicles,). The issue of tariff systems. Other examples of clearance systems (parking	<b>j</b> ).	•
14Y1OJ	Object - oriented programming in JAVA	KZ	2
	apsulation. Classes. Attributes. Access modifiers. Methods and overloading. Special methods (constructors, getters / setters)		
	Polymorphism. Statics, constants, interfaces, abstract classes, enum, packages, exceptions, collections, generics, lambda e	·	
14Y1OP	Operating System	KZ	2
	n GNU/Linux OS. X-window system. Rights management - users and groups, ACL rights. Filesystems and attributes. Prograr	1	
runlevels. Basic console	e programs / commands. Config files. SW management, package systems. Programs in graphic shell - text, spreadsheet, gra	phic editors, soun	d, video and
communication. Service	es management. Safe and secure configuration of OS. Remote administration.		
17Y1OF	Personal Finance	KZ	2
	et, financing of basic living needs), debt (loans and credits, payment instruments, interest and fees, debt trap), financing of h		
consumer loans, refinar	ncing), savings and investments (investment horizon, return, risk, investment strategy), insurance (insurance types, suitability a	and adequacy), se	curing the future
(retirement savings and	I insurance).		
20Y1OK	Road Lighting	KZ	2
	and terms, street lighting components (luminaires, control cabinets for street lighting, street lighting cables), characteristics of l	uminaires (lifetime	of light sources,
light distribution), stand	ards, measurement of illuminance and luminance in road lighting, tunnels, conceptual approach to street lighting design, ligh	ting calculations in	n DIALux and
Relux, street lighting co	introl systems.		
11Y1PV	Parametrical and Multicriterial Programming	KZ	2
Solution to the problem	of linear programming with a parameter in objective function, on right sides and in the matrix of coeficients of linear constraints	s. Computation of	efficient solution.
17Y1PM	Personnel Management	KZ	2
Human sources, work g	group, man as personality, planning, choice, evaluation and education of human sources, work adaptation, teamwork, intercu	ltural communicat	ion.
12Y1PC	Pedestrian and Cycling Transport	KZ	2
Routes for pedestrians.	Pedestrian crossings. Modifications for blind, dim-sighted and disabled people. Design of cycle routes network. Ways of cycle r	oute layout and de	sign parameters
for cyclists. Separation	of cyclists from other transport modes. Cycle tracks and its design - one way streets, reserved traffic lanes, bus stops, crossing	ngs with other trar	nsport modes,
crossroads. Traffic signs	s and road marking for cyclists.		

14Y1PG Computer Graphics	KZ	2
Basic formats of graphic and possibilities of their editing and mutual conversion. Use of individual types according to character of work. Work w	vith editing programs (w	ithin the user
level scope) using layers, DPI, colors. Basics of digital photography, scanning and computer technology like monitors and graphics cards.  14Y1P2 Computer Aid of Transportation Projecting 2	KZ	2
Overview of CAx application for transportation projecting aid. AutoCAD environment possibilities of basic tasks automatizing (programming, scri	1	
modification (attributes, relation to databases). Work in projecting group, external references. Basic tasks for cummunication projecting (clotoidid	transition curve, cross	and longitudinal
section). Basics of 3D modelling.		
18Y1PS Computer Simulations in Mechanics	KZ	2
Principles and overview of tools for stress analysis of structures. Numerical methods in mechanics, finite element method. Geometric model defrom other CAE systems. Assignment of material properties. The types of elements and their use. Discretization of solid model. Boundary cond		
tasks of structural and modal analysis. Introduction to complex nonlinear problems.		
14Y1PI Corporate Information System	KZ	2
Data-information-knowledge, components of information system, syntatic and semantic sense of data, structure of corporate information system.	•	-
(personalistic, production, storage, etc.), corporate information politic and information control, risks of information system operation, legal environs state information system, information system security, data protection, safety politics.	onment of information s	ystem operation,
14Y1PZ Advanced Data Processing in Spreadsheets	KZ	2
Students will be familiar with principles of working in a spreadsheet. Graphic layout of the table appearance, formatting of numbers, insertion o		
addressing, error detection. Working with large spreadsheets, filters, advanced filters, database functions. Pivot tables and charts, conditional for	matting, solution finding	, solver, macros,
data analysis. Examples and questions from various companies and training.	1/7	2
21Y1PC ATC Procedures and Activities  Air traffic control procedures, basics of communication and phraseology, aircraft identification, spacing and traffic coordination. In addition, the	COURSE discusses air tr	2 affic control at
the airports and low visibility operational procedures. Students will during the course learn basic safety management applications applied across		and control at
20Y1PK Product Quality Management Processes	KZ	2
General principles of organization management. Management systems and international standards; quality management systems. Quality process.		
of standards for systems management, management principles. Principles of process management, monitoring and measurement systems management principles. Metrology and testing. Product contification	gement. Uniform framev	ork of standards
for systems management. Process management principles. Metrology and testing. Product certification.  14Y1PJ C Programming Language	KZ	2
C programming language. Preprocessor, basics of the C language (data types, syntax, commands), functions, pointes, dynamical memory allocated types, syntax, commands.		_
Implementations of abstract data types (FIFO, LIFO, list), programming techniques (sorting, searching, recursion), using bitwise oprerators.		
12Y1C1 Designing Roads in Civil 3D I	KZ	2
The course is devoted to the traffic buildings design field, specifically the design of roads as such, by the means of a 3D software. Students go		
particular linear building, from the initial situation, over the longitudinal section, to the model and work sections and the cubic capacity calculati explanation of the traffic building design in the real-life profession.	ion. The course also inc	ludes a basic
12Y1C2 Designing Roads in Civil 3D II	KZ	2
The course is devoted to the traffic buildings design field, specifically the design of roads as such, by the means of a 3D software. Students go	through the complete of	design of this
particular linear building, from the initial situation, over the longitudinal section, to the model and work sections and the cubic capacity calculati	The	2
	ion. The previously acqu	lired skills are
improved and developed. Students learn to design intersections.		
improved and developed. Students learn to design intersections.  14Y1PA 3D Modeling in AutoCAD	KZ	2
improved and developed. Students learn to design intersections.	KZ	2
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Improved and developed. Students learn to design intersections.    14Y1PA	KZ easurement. Transmissi  KZ easurement. Transmissi  KZ eas. Zone stations. Form lway network.  KZ ubstructure maintenance  KZ s, disadvantages, functiontrol, safety, communication of second remuneration r	2 on mechanism.  2 on mechanism.  2 nation yards.  2 oe, scheduling  2 on. Conventional cation and  2 d external staff. Positioning,  2 a price and ions by the form  2
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Improved and developed. Students learn to design intersections.  14Y1PA 3D Modeling in AutoCAD  Work in 3D non-parametric modeller (AutoCAD)  Work in 3D non-parametric modeller (AutoCAD) environment, scenes rendering, creation of planar and volumetric objects, user setup creation connected with external database. Basic definition of work with lights, materials and reflexes. Models presentation.  16Y1PV Operation, Construction and Maintenance of Vehicles  Methods of whicle production. Vehicle maintenance. Vehicle diagnostics. Maintenence and repair plans. Engine maintenance and emission megeneral principles of engine diagnostics.  12Y1PU Organization Disposition of Railway Stations  Connecting station. Passenger transport equipment. Freight transport equipment. Branch lines and railway traffic inside industrial company are Reserve stations. Technology of work in railway station with regard to its disposition. Railway station documentations in the Czech Republic rail  12Y1RU Railway Lines Reconstruction  Reseing railway line operational, maintaining lines and stations, geometrical alignment of railway line, vehicles for railway superstructure and s and organising possesions, preparation of railway lines reconstruction and maintenance, process of ralway line reconstruction.  16Y1RE Control and Electronic Vehicle Systems  Elementary concepts of regulation. Tools for analytical solution, linear system description. Basic types of a regulator (PID), properties, advantages and hybrid drive control. Electric drive. Vehicle communication bus (CAN, LIN, FlexRay, ISObus, KWP2000 protocole etc.). Vehicle electronic comfort systems.  21Y1RZ Human Resources Management  The position of human resources in the organization and related disciplines file. Substance, importance and challenges of human resources menvironment of human resources in the organization and related disciplines file. Substance, importance and challenges of human resources menvironment of human resources in the organization and related disciplines file. Subs	KZ easurement. Transmissi  KZ easurement. Transmissi  KZ eas. Zone stations. Form lway network.  KZ ubstructure maintenance  KZ s, disadvantages, function control, safety, communic  KZ eanagement. Internal and and remuneration of secure control o	2 on mechanism.  2 on mechanism.  2 nation yards.  2 oe, scheduling  2 on. Conventional cation and  2 d external staff. Positioning,  2 a price and ions by the form  2 3. Practical parrival and
improved and developed. Students learn to design intersections.  14Y1PA 3D Modeling in AutoCAD  Work in 3D non-parametric modeller (AutoCAD) environment, scenes rendering, creation of planar and volumetric objects, user setup creation connected with external database. Basic definition of work with lights, materials and reflexes. Models presentation.  6Y1PV Operation, Construction and Maintenance of Vehicles  Methods of vehicle production. Vehicle maintenance. Vehicle diagnostics. Maintenence and repair plans. Engine maintenance and emission me General principles of engine diagnostics.  12Y1PU Organization Disposition of Railway Stations  Connecting station. Passenger transport equipment. Freight transport equipment. Branch lines and railway traffic inside industrial company are Reserve stations. Technology of work in railway station with regard to its disposition. Railway station documentations in the Czech Republic rail 12Y1RU Railway Lines Reconstruction  Keeping railway line operational, maintaining lines and stations, geometrical alignment of railway line, vehicles for railway superstructure and s and organising possesions, preparation of railway lines reconstruction and maintenance, process of ralway line reconstruction.  16Y1RE Control and Electronic Vehicle Systems  Elementary concepts of regulation. Tools for analytical solution, linear system description. Basic types of a regulator (PID), properties, advantages and hybrid drive control. Electric drive. Vehicle communication bus (CAN, LIN, FlexRay, ISObus, KWP2000 protocole etc.). Vehicle electronic comfort systems.  11Y1RZ Human Resources Management  The position of human resource management. Human resource planning. Search, recruitment and selection of employees. Motivation, evaluation dismissal and redundancies of employees. Education of employees. Planning career management.  17Y1ST Titan Simulation  Titan is a management game simulating the business decisions. Lets 2-8 student groups to produce and compete in the market with the same determine the	KZ easurement. Transmissi  KZ easurement. Transmissi  KZ eas. Zone stations. Form lway network.  KZ ubstructure maintenance  KZ s, disadvantages, function control, safety, communic  KZ eanagement. Internal and earn and remuneration of selection of their decise  KZ product. Students set a equences of their decise  KZ eace, use of RNAV points ROACH area, practicing	2 on mechanism.  2 on mechanism.  2 on mechanism.  2 on station yards.  2 on. Conventional cation and  2 d external staff. Positioning,  2 a price and ions by the form  2 a Practical arrival and  2
Improved and developed. Students learn to design intersections.  14Y1PA 3D Modeling in AutoCAD  Work in 3D non-parametric modeller (AutoCAD)  Work in 3D non-parametric modeller (AutoCAD) environment, scenes rendering, creation of planar and volumetric objects, user setup creation connected with external database. Basic definition of work with lights, materials and reflexes. Models presentation.  16Y1PV Operation, Construction and Maintenance of Vehicles  Methods of whicle production. Vehicle maintenance. Vehicle diagnostics. Maintenence and repair plans. Engine maintenance and emission megeneral principles of engine diagnostics.  12Y1PU Organization Disposition of Railway Stations  Connecting station. Passenger transport equipment. Freight transport equipment. Branch lines and railway traffic inside industrial company are Reserve stations. Technology of work in railway station with regard to its disposition. Railway station documentations in the Czech Republic rail  12Y1RU Railway Lines Reconstruction  Reseing railway line operational, maintaining lines and stations, geometrical alignment of railway line, vehicles for railway superstructure and s and organising possesions, preparation of railway lines reconstruction and maintenance, process of ralway line reconstruction.  16Y1RE Control and Electronic Vehicle Systems  Elementary concepts of regulation. Tools for analytical solution, linear system description. Basic types of a regulator (PID), properties, advantages and hybrid drive control. Electric drive. Vehicle communication bus (CAN, LIN, FlexRay, ISObus, KWP2000 protocole etc.). Vehicle electronic comfort systems.  21Y1RZ Human Resources Management  The position of human resources in the organization and related disciplines file. Substance, importance and challenges of human resources menvironment of human resources in the organization and related disciplines file. Substance, importance and challenges of human resources menvironment of human resources in the organization and related disciplines file. Subs	KZ easurement. Transmissi  KZ easurement. Transmissi  KZ eas. Zone stations. Form lway network.  KZ ubstructure maintenance  KZ s, disadvantages, function control, safety, communic  KZ eanagement. Internal and earn and remuneration of selection of their decise  KZ product. Students set a equences of their decise  KZ eace, use of RNAV points ROACH area, practicing	2 on mechanism.  2 on mechanism.  2 on mechanism.  2 on station yards.  2 on. Conventional cation and  2 d external staff. Positioning,  2 a price and ions by the form  2 a Practical arrival and  2
improved and developed. Students learn to design intersections.  14Y1PA  3D Modeling in AutoCAD  Work in 3D non-parametric modeller (AutoCAD) environment, scenes rendering, creation of planar and volumetric objects, user setup creation connected with external database. Basic definition of work with lights, materials and reflexes. Models presentation.  16Y1PV  Operation, Construction and Maintenance of Vehicles  Methods of vehicle production. Vehicle maintenance. Vehicle diagnostics. Maintenance and repair plans. Engine maintenance and emission me General principles of engine diagnostics.  12Y1PU  Organization Disposition of Railway Stations  Connecting station. Passenger transport equipment. Freight transport equipment. Branch lines and railway traffic inside industrial company are Reserve stations. Technology of work in railway station with regard to its disposition. Railway station documentations in the Czech Republic rail 12Y1RU  Railway Lines Reconstruction  Keeping railway line operational, maintaining lines and stations, geometrical alignment of railway line, vehicles for railway superstructure and s and organising possesions, preparation of railway lines reconstruction and maintenance, process of ralway line reconstruction.  16Y1RE  Control and Electronic Vehicle Systems  Control systems.  21Y1RZ  Human Resources Management  The position of human resources in the organization and related disciplines file. Substance, importance and challenges of human resources management. Human resource planning. Search, recruitment and selection of employees. Motivation, evaluation dismissal and redundancies of employees. Education of employees. Planning career management.  17Y1ST  Titan Simulation  Titan is a management game simulating the business decisions. Lets 2-8 student groups to produce and compete in the market with the same determine the quantity and capacity of production, plan budgets for marketing, research and development. They become familiar with the cons of financial corporate reports and they use this	KZ easurement. Transmissi  KZ easurement. Transmissi  KZ eas. Zone stations. Form lway network.  KZ ubstructure maintenance  KZ s, disadvantages, function control, safety, communic  KZ eanagement. Internal and earn and remuneration of selection of their decise  KZ product. Students set a equences of their decise  KZ eace, use of RNAV points ROACH area, practicing	2 on mechanism.  2 on mechanism.  2 on mechanism.  2 on station yards.  2 on. Conventional cation and  2 d external staff. Positioning,  2 a price and ions by the form  2 a Practical arrival and  2
improved and developed. Students learn to design intersections.  14Y1PA 3D Modeling in AutoCAD Work in 3D non-parametric modeller (AutoCAD) environment, scenes rendering, creation of planar and volumetric objects, user setup creation connected with external database. Basic definition of work with lights, materials and reflexes. Models presentation.  16Y1PV Operation, Construction and Maintenance of Vehicles Methods of vehicle production. Vehicle maintenance. Vehicle diagnostics. Maintenence and repair plans. Engine maintenance and emission me General principles of engine diagnostics.  12Y1PU Organization Disposition of Railway Stations Connecting station. Passenger transport equipment. Freight transport equipment. Branch lines and railway traffic inside industrial company are Reserve stations. Technology of work in railway station with regard to its disposition. Railway station documentations in the Czech Republic rail 12Y1RU Railway Lines Reconstruction  Keeping railway line operational, maintaining lines and stations, geometrical alignment of railway line, vehicles for railway superstructure and s and organising possesions, preparation of railway lines reconstruction and maintenance, process of railway line reconstruction.  16Y1RE Control and Electronic Vehicle Systems Elementary concepts of regulation. Tools for analytical solution, linear system description. Basic types of a regulator (PID), properties, advantages and hybrid drive control. Electric drive. Vehicle communication bus (CAN, LIN, FlexRay, ISObus, KWP2000 protocole etc.). Vehicle electronic or comfort systems.  21Y1RZ Human Resources Management  The position of human resources in the organization and related disciplines file. Substance, importance and challenges of human resources meniorment of human resource management. Human resource planning. Search, recruitment and selection of employees. Motivation, evaluation dismissal and redundancies of employees. Education of employees. Planning career management.  17Y1ST Titan Simulation  Titan is a man	KZ easurement. Transmissi  KZ easurement. Transmissi  KZ eas. Zone stations. Form lway network.  KZ ubstructure maintenance  KZ s, disadvantages, function control, safety, communication of services of their decise  KZ product. Students set a sequences of their decise  KZ eace, use of RNAV points ROACH area, practicing  KZ Sensors of mechanical, each	2 on mechanism.  2 on mechanism.  2 on mechanism.  2 on station yards.  2 on. Conventional cation and  2 of external staff. Positioning,  2 a price and ions by the form  2 a price and ions by the form  2 c. Practical arrival and  2 electro-magnetic,  2

11Y1SI Transportation Software Engineering	KZ	2
Basic concepts of software engineering, ranging from domain analysis, requirement analysis and software architectures to analyses, design and imp	lementation using fo	rmal techniques
and practical usuage.	KZ	2
16Y1KS   Quality and Reliability of Vehicles Quality and reliability theory in design, development, production and operation of vehicles. Definition and possible approach to quality and reliability		
Mode and Effects Analysis), QFD (Quality Function Deployment), DFx (Design for Assamly, Manufacturying, Quality, Services) and other method		
Knowledge-based systems of quality and reliability, data collection.		
12Y1SU Road Management and Maintenance	KZ	2
Getting familiar with ownership of roads in the Czech Republic and the administration of the road at the state and county level. It is presented deve	•	
nedium and long-term strategy of the Ministry of Transport. Maintenance of roads winter and summer, its requirements, specifics, possibilities and classroom as well as investment activity in highway engineering.	repair methods are	discussed in the
16Y1SO Strategy and innovation in mobility	KZ	2
ntroduction to innovation, definition. Innovation strategy. Innovation life cycle and ecosystem, main sources and funding opportunities. Successful	1	_
co-financing, evaluation. Sprint method and its use. Innovative business model - main patterns and examples, design, strategy, processes and out		-
of use). Creating an innovation strategy. Customer and value map, design and testing.		
17Y1SK Urban and Regional Rail Transport Systems	KZ	2
Factors affecting transport demand, modal-split, distribution of passenger flows on public regional transport lines. Optimization of line management		-
evaluation of the timetable. Vehicle circulation creation. Optimizing driver shifts and arranging them in turnus. Effects of barrier-free and public tran marketing.	sport preferences. I	ne role of
11Y1TG Graph Theory	KZ	2
Basic concepts and terminology of graph theory, graph representation. Problems of graph theory, problem instance. Graph search algorithms, tree	1 1	
path problem, Eulerian path, bipartite graph matching, flow networks, circulations, critical path method, traveling salesman problem. Problem of existe	nce and optimization	n and algorithms
or their solving. Computational complexity, dealing with NP-complete problems, heuristic approach.		
14Y1TI   Creating Interactive Internet Applications	KZ	2
Possibilities of scripting language PHP. Overview of PHP language syntax, and functions. Analysis of finished scripts and demonstration of solution	s. Your own applicati	on programmed
n PHP language.		2
21Y1UL   Aircraft Maintenance Aircraft operations and technical operations. Maintenance and work processes. Defects search methods, status check diagnostic tools. Selection ar	KZ   nd qualification of avi	
Basic documentation for maintenance. Optimization of time maintenance intervals. Regulation no. 1321/2014 Part 145. Human factors of aircraft m	-	
EASA for aircraft maintenance. Seminars will be focused on practical application.	ŭ	
14Y1UP Editing of Theses in MS Word	KZ	2
Students will be introduced to the principles of creating and editing large documents and basic typographic rules. They will properly apply styles, c		
igures, tables, graphs, etc. Footnotes, captions, index. They practice corrections of finished documents. The goal is to prepare students for seamless that they are able to concentrate mainly on writing a thesis.	ess editing dissertation	ons and theses,
to that they are able to concentrate mainly on writing a thesis.  INSY1UK Introduction of Rail Vehicles	KZ	2
Basic characteristics and parameters rail transport systems - railway and urban transport. Basis driving mechanics rail vehicles - equation of motic	1 1	
rack resistance. Total running resistance. Acceleration force. Analyzing driving cycle rail vehicle. Speed-power diagrams and characteristics rail veh		-
and electric drive. Design concept rail vehicles and drive of wheel set.		
12Y1VR Public Transport in Cities and Regions	KZ	2
Professional and political pillars of public transport. Accessibility of public transport. Transport demand management and directional coordination of		-
Basic operating parameters and transport variations. Types of lines according to their routing and basic operating parameters. Time coordination o Organization of tram operation in Prague. Tram safety.	r lines. Operational t	ranic control.
14Y1VM Development of Applications for Mobile Devices	KZ	2
Diject oriented programming, Java programming language, development environment, operating system Android, development application - widg	1 1	
permissions, services, GUI.		
16Y1VT Development in Railroad Vehicles	KZ	2
Railroad vehicles traction. Railroad vehicle parametres regulation. Control and driving of railroad vehicles. Importance in heavy duty and personal	transportation. Critic	al situation
assesment. New materials in design. International standardization.	1/7	
14Y1WG   Webdesign Students will learn the basics of HTTP communication, URL and addressing, HTML5 markup language, advanced CSS3 techniques, accessible a	KZ	2
vebdesign, content management systems, web server installation + configuration directives. The subject matter will be trained on examples.	nd usable web rules	s, responsive
14Y1W1 Webdesign 1	KZ	2
Students will learn the basics of communication HTTP, URL and addressing, markup languages HTML and XHTML, HTML tags, rules of web acces	1 1	
and selectors, the issue of web browsers, creating one to three column layout pages, sites validation, conditional comments. Topics will be practice	ed on practical exam	ples.
14Y1W2 Webdesign 2	KZ	2
Students will learn advanced techniques CSS, responsive webdesign, CSS frontends, content management systems, JavaScript, jQuery, SEO, we	eb server installation	+ configuration
directives. Topics will be practiced on practical examples.	1/7	
Introduction into Applied Computer Graphics Computer graphics, division and applications with emphasis on transport, including development and research. Colours, colour perception, colour	KZ	2 vrinciples of 2D
and 3D generation, elementary algorithms for graphic data workout. Visualisation principles and tasks, technics, graphics and visualisation HW ba	-	
graphics software.		
14Y1ZM Fundamentals of parametric and adaptive modeling	KZ	2
Basics of work at products and parts creation. Sketch drawing by help of geometric relations, parametric dimensions, creation of adaptive models f	rom 2D sketches. Im	nport and export
rom and to another systems. Fundamentals of assemblies creation.		
11Y1ZM Foundation of MATLAB Programming	KZ	2
To explain the principle of algorithmization, flow charts, description of MATLAB environment and its settings, MATLAB help, mathematical operators control flow, inputs and outputs, graphics, optimization and program code debugging.	, matrices and elem-	ents operations,
14Y1ZJ Fundamentals of programming in JAVA	KZ	2
ntroduction to the Java SE Platform. IDE Installation and First Project. Comments. Variables and Type System. Operators. User Input and Parsing.	1	
Chain and Mathematical Methods. Terms. Relational Operators and Switches. Cycles for, while, foreach. Field - declaration, initialization, methods		
parameters, return value, recursion. Program creation.		

12Y1ZU Principles of Urbanism 2 Survey on history of city and settlement building. Functional components and their mutual relations (working, living, recreation, transportation). Spacial arrangement of settlements. Types of towns or cities with a certain prevailing function, forms of their development. Brief overview of land-use planning. 15Y1ZV East-West dichotomy: Prelude to the Cold War ΚZ Historical prologue, evolution of the "West" and "East" from the 1500s. Focus on the history in the period between 1850 nad 1950. Milestones and continuity of the international relations in the end of 19th century and the beginning of the 20th century. Revolutions, the causes and consequences. Scientific and technological progress, the causes and consequences. Economic and financial history. Social changes. Discussions on texts, sources. Vehicle Testing, Legislation and Construction ΚZ Vehicle, bus and motorbike costruction, aggregate computing, driving resistance, build and parameters of traction, constructional arrangement of personal cars, trucks, buses, motorbikes, legislation in the EU and in the world, technical legislation creation, testing methods, vehicle tests, accelerated tests, mathematical modelling in testing.

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

The role of the block: V

Code of the group: VP-BP-TET-20/21

Name of the group: Bachelor Full-Time TET voluntary

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

Credits in the group: 0 Note on the group:

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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
14DPK	Digital Support for Designing of Roads and Highways Drahomír Schmidt, Libor Žídek Drahomír Schmidt Drahomír Schmidt (Gar.)	Z	0	0P+2C	Z	V
14DZT	Digital Support for Railway Lines  Martin Brumovský	Z	0	0P+2C	L	V
11SCFZ	Seminar of Physics Old ich Hykš, Zuzana Malá, Tomáš Vít , Jana Kuklová <b>Zuzana Malá</b> Zuzana Malá (Gar.)	Z	0	0P+2C	Z	٧
21SLD	Seminar of Air Transport	Z	0	0P+2C	L	V
18SPP	Seminary from Elasticity and Strength Tomáš Doktor, Jan Vy ichl Jan Vy ichl (Gar.)	Z	0	0P+2C	Z	V
18STD	Seminary from Technical Documentation	Z	0	0P+2C	Z	V
18SS	Seminary from Structural Analysis	Z	0	0P+2C	L	V
11SSF	Secondary School Physics Course Zuzana Malá	Z	0	0P+2C	L	V
TVKLV	Physical Education Course	Z	0	7dní	L	V
TVKZV	Physical Education Course	Z	0	7dní	Z	V

14DPK	Digital Support for Designing of Roads and Highways	Z	0
Seminars possibili	lities of technical processing problems focused on designing of roads and highways.	'	'
14DZT	Digital Support for Railway Lines	Z	0
Seminars possibili	lities of technical processing problems solved in the field of railway lines.		
11SCFZ	Seminar of Physics	Z	0
Solving problems	on kinematics, particle dynamics, dynamics of particle systems and rigid body. Continuum mechanics, thermodynamics.		
21SLD	Seminar of Air Transport	Z	0
History, definitions	s, terminology, basic rules. VFR / IFR. Basics of aerodynamics. Propulsion of aircraft. Aircraft design. Basics of navigation, rac	dio navigation. Weight,	balance,
performance. Fligh	<sub>i</sub> ht planning, optimization of speed and heights, minimum fuel. Limitations of operation, maintenance, service life of aircraft. Tr	affic management, gro	ound handling,
security. Air crew.	Airlines and economics. Space technologies.		
security. Air crew. 18SPP	Airlines and economics. Space technologies.  Seminary from Elasticity and Strength	Z	0
18SPP		-	1
18SPP Excersise for prac	Seminary from Elasticity and Strength	-	1
18SPP Excersise for prac	Seminary from Elasticity and Strength ctice. Tension and compression. Bending of beam. Shear stress during bending of beam. Design and analysis of cross section	-	1
18SPP Excersise for pract of beam. Torsion of 18STD	Seminary from Elasticity and Strength ctice. Tension and compression. Bending of beam. Shear stress during bending of beam. Design and analysis of cross sectior of circle cross section. Combined loading. Stability of compressed bar and buckling.	n of beam. Analysis of	deflection curve
18SPP Excersise for pract of beam. Torsion of 18STD	Seminary from Elasticity and Strength ctice. Tension and compression. Bending of beam. Shear stress during bending of beam. Design and analysis of cross section of circle cross section. Combined loading. Stability of compressed bar and buckling.  Seminary from Technical Documentation rds, international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensional standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensional standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensional standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensional standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensional standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensional standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensional drawings, representation of technical objects, technical diagrams and charts, dimensional drawings, representation of technical objects, technical diagrams and charts, dimensional drawings, representation of technical objects, technical diagrams and charts, dimensional drawings, representation of technical objects, technical diagrams and charts, dimensional drawings, representation of technical objects, technical diagrams and charts, dimensional drawings are described as the control of technical drawings are described as the charts of the	n of beam. Analysis of	deflection curve
18SPP Excersise for pract of beam. Torsion of 18STD Technical standard	Seminary from Elasticity and Strength ctice. Tension and compression. Bending of beam. Shear stress during bending of beam. Design and analysis of cross section of circle cross section. Combined loading. Stability of compressed bar and buckling.  Seminary from Technical Documentation rds, international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensional standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensional standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensional standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensional standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensional standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensional standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensional standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensional drawings, representation of technical objects, technical diagrams and charts, dimensional drawings, representation of technical objects, technical diagrams and charts, dimensional drawings, representation of technical objects, technical diagrams and charts, dimensional drawings, representation of technical objects, technical diagrams and charts, dimensional drawings, representation of technical objects, technical drawings, representation of technical drawings, representation of technical drawings are described as th	n of beam. Analysis of	deflection curve
18SPP Excersise for pract of beam. Torsion of 18STD Technical standard arrangement of dr 18SS	Seminary from Elasticity and Strength ctice. Tension and compression. Bending of beam. Shear stress during bending of beam. Design and analysis of cross section of circle cross section. Combined loading. Stability of compressed bar and buckling.  Seminary from Technical Documentation rds, international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimetrawing sheets.	n of beam. Analysis of  Z ensional and geometric	deflection curve  0 cal accuracy,
18SPP Excersise for pract of beam. Torsion of 18STD Technical standard arrangement of dr 18SS Examples for practices.	Seminary from Elasticity and Strength ctice. Tension and compression. Bending of beam. Shear stress during bending of beam. Design and analysis of cross section of circle cross section. Combined loading. Stability of compressed bar and buckling.  Seminary from Technical Documentation rds, international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimerawing sheets.  Seminary from Structural Analysis	n of beam. Analysis of  Z ensional and geometric  Z beam and simple frame	deflection curve  0 cal accuracy,  0 ework. Applicatio
18SPP Excersise for pract of beam. Torsion of 18STD Technical standard arrangement of dr 18SS Examples for pract of principle of virtual standard of principle of virtual standard arrangement of princip	Seminary from Elasticity and Strength ctice. Tension and compression. Bending of beam. Shear stress during bending of beam. Design and analysis of cross section of circle cross section. Combined loading. Stability of compressed bar and buckling.  Seminary from Technical Documentation rds, international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimerating sheets.  Seminary from Structural Analysis ctise. General system of forces. Reactions of mass objects and compound systems. Internal forces on statically determinate by	n of beam. Analysis of  Z ensional and geometric  Z beam and simple frame	deflection curve  0 cal accuracy,  0 ework. Applicatio
18SPP Excersise for pract of beam. Torsion of 18STD Technical standard arrangement of dr 18SS Examples for pract of principle of virtual standard of principle of virtual standard arrangement of princip	Seminary from Elasticity and Strength ctice. Tension and compression. Bending of beam. Shear stress during bending of beam. Design and analysis of cross section of circle cross section. Combined loading. Stability of compressed bar and buckling.  Seminary from Technical Documentation rds, international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimerating sheets.  Seminary from Structural Analysis ctise. General system of forces. Reactions of mass objects and compound systems. Internal forces on statically determinate burla works for calculation of reactions of statically determinate systems. Determination of axial forces in truss construction - me	n of beam. Analysis of  Z ensional and geometric  Z beam and simple frame	deflection curve  0 cal accuracy,  0 ework. Applicatio
18SPP Excersise for pract of beam. Torsion of 18STD Technical standard arrangement of dr 18SS Examples for pract of principle of virtu. Geometry of cross 11SSF	Seminary from Elasticity and Strength ctice. Tension and compression. Bending of beam. Shear stress during bending of beam. Design and analysis of cross section of circle cross section. Combined loading. Stability of compressed bar and buckling.  Seminary from Technical Documentation rds, international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimetrawing sheets.  Seminary from Structural Analysis ctise. General system of forces. Reactions of mass objects and compound systems. Internal forces on statically determinate but works for calculation of reactions of statically determinate systems. Determination of axial forces in truss construction - meass sections. Plane fiber polygons.	n of beam. Analysis of  Z ensional and geometri  Z beam and simple frame	deflection curve  0 cal accuracy,  0 ework. Applicatio
18SPP Excersise for pract of beam. Torsion of 18STD Technical standard arrangement of dr 18SS Examples for pract of principle of virtu. Geometry of cross 11SSF	Seminary from Elasticity and Strength ctice. Tension and compression. Bending of beam. Shear stress during bending of beam. Design and analysis of cross section of circle cross section. Combined loading. Stability of compressed bar and buckling.  Seminary from Technical Documentation rds, international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimerawing sheets.  Seminary from Structural Analysis ctise. General system of forces. Reactions of mass objects and compound systems. Internal forces on statically determinate burlar works for calculation of reactions of statically determinate systems. Determination of axial forces in truss construction - meass sections. Plane fiber polygons.  Secondary School Physics Course	n of beam. Analysis of  Z ensional and geometri  Z beam and simple frame	deflection curve  0 cal accuracy,  0 ework. Applicatio

Name of the block: Jazyky

Minimal number of credits of the block: 6

The role of the block: J

Code of the group: JZ-BP-TET-22/23

Name of the group: Bachelor TET (ex LED) 2nd Language Courses from 2022/23

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 2 courses

Credits in the group: 6 Note on the group:

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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
	, , , , , , , , , , , , , , , , , , , ,					
15JZ3F	Foreign Language - French 3 Irena Veselková	Z	3	0P+4C+10E	8 Z	J
15JZ3I	Foreign Language - Italian 3 Irena Veselková	Z	3	0P+4C+10E	B Z	J
15JZ3N	Foreign Language - German 3 Jana Štikarová, Markéta Vojanová, Eva Rezlerová, Martina Navrátilová	Z	3	0P+4C+10E	B Z	J
15JZ3R	Foreign Language - Russian 3 Marie Michlová	Z	3	0P+4C+10E	B Z	J
15JZ3S	Foreign Language - Spanish 3 Zuzana Krinková	Z	3	0P+4C+10E	Z	J
15JZ4F	Foreign Language - French 4	Z,ZK	3	0P+4C+10E	B L	J
15JZ4I	Foreign Language - Italian 4	Z,ZK	3	0P+4C+10E	B L	J
15JZ4N	Foreign Language - German 4	Z,ZK	3	0P+4C+10E	L	J
15JZ4R	Foreign Language - Russian 4	Z,ZK	3	0P+4C+10E	L L	J
15JZ4S	Foreign Language - Spanish 4	Z,ZK	3	0P+4C+10E	L L	J

## Characteristics of the courses of this group of Study Plan: Code=JZ-BP-TET-22/23 Name=BachelorTET (ex LED) 2nd Language Courses from 2022/23

15JZ3F Foreign Language - French 3 Z 3
Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation.

15JZ3I Foreign Language - Italian 3

Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation.

15JZ3N Foreign Language - German 3

Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation.

15JZ3R Foreign Language - Russian 3

Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation.

15JZ3S Foreign Language - Spanish 3

Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation.

15JZ4F Foreign Language - French 4

Z,ZK

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Ζ

7

3

Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation.

15JZ4I Foreign Language - Italian 4

Z,ZK

Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation.

15JZ4N Foreign Language - German 4

Z,ZK 3

Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation.

15JZ4R	Foreign Language - Russian 4	Z,ZK	3
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	ımunicative 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	l and written presentation.		
15JZ4S	Foreign Language - Spanish 4	Z,ZK	3
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	ımunicative 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	and written presentation.		

#### List of courses of this pass:

Code	Name of the course	Completion	Credits
00Y1XB	Active participation in a scientific project, workshop, short-term trip abroad	KZ	2
11CAL1 Sequence of real r	Calculus 1 numbers and its limit. Basic properties of mappings. Function of one real variable, its limit and derivative. Indefinite integral, Newton integral, Newton integral, Pirst-order differential equations, linear differential equations.	Z,ZK gral, Riemann integr	7 ral, imprope
11CAL2	Calculus 2 ar differential equations and their systems, differential calculus of functions of several real variables. Riemann integral in Rn. Line and	Z,ZK surface integrals.	5
11FYZ	Physics Kinematics, dynamics, Newton's laws, force fields, mechanics of continuum, thermodynamics, introduction to electrostatics and electrostatics and electrostatics.	Z,ZK	5
11GIE Differential geom	Geometry etry of curves - parameterization, the arc of the curve, torsion and curvature, Frenet's trihedron. Kinematics - a curve as a trajectory of acceleration of a particle moving on a curved path.	KZ of the motion, the v	3 elocity, and
	Linear Algebra ear combinations, linear independence, dimension, basis, coordinates). Matrices and operations. Systems of linear equations and the their applications. Scalar product. Similarity of matrices (eigenvalues and eigenvectors). Quadratic forms and their classifications.	-	3 minants an
11LP Formulation of the	Linear Programming problem of linear programming, transcription of some practical problems to the linear programming problems. Simplex and convex problems, duality principle in linear programming, stability of solution of linear programming problem. Traffic problem.	KZ olyedra. Simplex m	3 ethod, basid
11MDP The techniques of	Transport Prognostic Methods economical analysis in the domain of analysis of dependencies, analysis and construction of time series and comparsion of statistical indices.	KZ al values using diffe	2 erencies an
	Modeling of Systems and Processes stem, external and internal system description, continuous and discrete system, mathematics as a tool, examples of formulation of differnilinear system, stationary and non-stationary system, causality. Convolutional integral. Laplace and Z transformations. Transfer functional Discretization of continuous systems. System interconnection.		
11SCFZ	Seminar of Physics Solving problems on kinematics, particle dynamics, dynamics of particle systems and rigid body. Continuum mechanics, thermod	Z lynamics.	0
11SSF	Secondary School Physics Course Basics of kinematics, dynamics, thermodynamics, electric field and magnetic field.	Z	0
11STAT Basics of probab	Statistics  Statistics  Statistics  Begin and sample, limit theorem Point estimate, construction and properties Interval estimates Parame Regression and correlation analysis	Z,ZK etric tests Nonparan	4 netric tests
11TGA Basic terms of	Graph Theory and its Applications in Transport of graph theory, paths in graphs, flows in networks, location problems, design problems on graphs, optimum routing, use of graphs in	Z,ZK	4
11X31	Project 1	Z	2
11X32	Project 2	Z	2
11X33	Project 3	Z	2
11Y1BK Safe communicati	Error Detection Codes for Interlocking Systems on and methods for its assuring. Safety codes linear codes, cyclic codes, BCH codes, Reed-Solomon codes. Transmission channels, d	KZ letection of transmis	2 ssion errors
	probability of undetected error. Design and assessment of detection codes; requirements of the European standard EN 501		
11Y1PV Solution to the pro	Parametrical and Multicriterial Programming blem of linear programming with a parameter in objective function, on right sides and in the matrix of coeficients of linear constraints. C	KZ omputation of effici	2 ent solutior
11Y1SI Basic concepts of	Transportation Software Engineering software engineering, ranging from domain analysis, requirement analysis and software architectures to analyses, design and impleme and practical usuage.	KZ ntation using forma	2 I technique
11Y1TG Basic concepts ar	Graph Theory  Individual terminology of graph theory, graph representation. Problems of graph theory, problem instance. Graph search algorithms, trees, mi	KZ	2 ee, shortes
· · · · · · · · · · · · · · · · · · ·	erian path, bipartite graph matching, flow networks, circulations, critical path method, traveling salesman problem. Problem of existence a for their solving. Computational complexity, dealing with NP-complete problems, heuristic approach.	• •	
11Y1ZM	Foundation of MATLAB Programming	KZ	2
	ciple of algorithmization, flow charts, description of MATLAB environment and its settings, MATLAB help, mathematical operators, mat control flow, inputs and outputs, graphics, optimization and program code debugging.		

12MDE	Transport Models and Transport Excesses	Z,ZK	3
	traffic flow and methods for their measurement. Models of the traffic flow, communications load, line and urban systems. Theory of qu		- 1
transport and its a	assessment. Statistical characteristics of transport. Transport excesses, their analysis, the causes, identify and minimize the consequences for the conference of the confere	ances. Improving o	of transport
12PPOK	safety and fluency.  Designing Roads, Highways and Motorways	KZ	3
	ownership, maintenance, management and categorization of roads and highways. Curve and transition curve. Sinuosity and standard		- 1
	stopping and overtaking. Road body - shapes and proportions, bottom and superstructure. Drainage and components of roads. Safet	•	
Ū	intersections.	,	, ,
12X31	Project 1	Z	2
12X32	Project 2	Z	2
12X33	Project 3	Z	2
12Y1AE	Applied Ecology	KZ	2
	ecological concepts and principles, ecosystem, ecological factors, energy flow through the ecosystem. Application of knowledge within		
ecology. Landsc	ape ecology - origin and historical development. Landscape definition and classification. Success. Traffic constructions in the countrys	side. Landscape a	nd nature
	protection. Applied ecology.		
12Y1C1	Designing Roads in Civil 3D I	KZ	2
	voted to the traffic buildings design field, specifically the design of roads as such, by the means of a 3D software. Students go through building, from the initial situation, over the longitudinal section, to the model and work sections and the cubic capacity calculation. The	•	-
particular ililear b	explanation of the traffic building design in the real-life profession.	course also includ	ies a basic
12Y1C2	Designing Roads in Civil 3D II	KZ	2
	voted to the traffic buildings design field, specifically the design of roads as such, by the means of a 3D software. Students go through		1
particular linear b	uilding, from the initial situation, over the longitudinal section, to the model and work sections and the cubic capacity calculation. The	previously acquire	ed skills are
	improved and developed. Students learn to design intersections.		
12Y1DS	Project Documentation in Practice	KZ	2
Project document	ation creating. Project documentation types. Support materials for project documentation creating. Building permit obtaining process.	Budget and pricin	g. Practical
12Y1HD	creation of some project documentation parts.  Traffic Noise	KZ	2
	on, basic terms, quantities. Basics of physiological acoustic, noise impacts on human body. Acoustic legislation, standarts, regulation:		
	of urban acoustic, noise transmission, soundproofing. Types of noise sources in area. Determination of acoustic situation in the area		
	computing and measurement of transport noise. Acoustic studies, measuring protocol.		
12Y1KN	Combined Transportation	KZ	2
Combined transp	port strategy and legislation. Load units. Means of transport in combined transport. Combined transport systems. Transshipping areas.	Multimodal logist	ic centres.
12Y1KP	Communication and Promotion of Transport Projects	KZ	2
	Public Relations and the power of public opinion. Work and tasks of PR department and press spokesperson. Communication with the		
networks and bey	rond. Communication strategy of transport projects. Systematic goodwill building. Crisis situations in communication and preparation f influence of political marketing and political PR on transport projects. Lobbing.	or crisis communi	cation. The
12Y1PC	Pedestrian and Cycling Transport	KZ	2
	ans. Pedestrian crossings. Modifications for blind, dim-sighted and disabled people. Design of cycle routes network. Ways of cycle route		1
· · · · · · · · · · · · · · · · · · ·	ration of cyclists from other transport modes. Cycle tracks and its design - one way streets, reserved traffic lanes, bus stops, crossings	-	•
	crossroads. Traffic signs and road marking for cyclists.		
12Y1PU	Organization Disposition of Railway Stations	KZ	2
	on. Passenger transport equipment. Freight transport equipment. Branch lines and railway traffic inside industrial company areas. Zon		tion yards.
	rve stations. Technology of work in railway station with regard to its disposition. Railway station documentations in the Czech Republic		
12Y1RU Keening railway li	Railway Lines Reconstruction  ne operational, maintaining lines and stations, geometrical alignment of railway line, vehicles for railway superstructure and substruct	KZ	2 scheduling
Reeping failway ii	and organising possesions, preparation of railway lines reconstruction and maintenance, process of railway line reconstruction		Scrieduling
12Y1SU	Road Management and Maintenance	KZ	2
	with ownership of roads in the Czech Republic and the administration of the road at the state and county level. It is presented develop		
medium and long-t	erm strategy of the Ministry of Transport. Maintenance of roads winter and summer, its requirements, specifics, possibilities and repair	methods are disc	cussed in the
	classroom as well as investment activity in highway engineering.		
12Y1VR	Public Transport in Cities and Regions	KZ	2
	political pillars of public transport. Accessibility of public transport. Transport demand management and directional coordination of linerarmeters and transport variations. Types of lines according to their routing and basic operating parameters. Time coordination of line	•	- 1
basic operating p	Organization of tram operation in Prague. Tram safety.	s. Operational tra	ilic control.
12Y1ZU	Principles of Urbanism	KZ	2
	of city and settlement building. Functional components and their mutual relations (working, living, recreation, transportation). Spacial		1
	Types of towns or cities with a certain prevailing function, forms of their development. Brief overview of land-use planning.		
12ZADY	Introduction to Transportation Engineering	Z,ZK	4
12ZAR	Introduction to Architectural Design	Z	3
Urbanism and	architecture of traffic systems. Bus and trolley-bus transport. Tramway and town tracks. Design of vehicles. Subway. Railway transport	t. Railway stations	s. Local
4075	communications. International airports.	··	
12ZPV	Railway Operation	Z,ZK	4
Legislation in rails	way transport. Railway vehicles. Railway signals and signal devices. Railway traffic organisation and operation. Simplified railway traffi brakes. Railway vehicles marking. Operation intervals. Theoretical graph of train running.	operation. Railw	ay venicies
12ZTS	Railway Lines and Stations	Z,ZK	4
	Adilway Liftes and Stations ailway track geometry parameters. Route layout of railway lines. Railway line construction - railway substructure and superstructure. S		
	Railway control systems in relation to infrastructure. Operating and carriage points. Railway lines net and category. Traction in rail to	-	-
14ASD	Algorithm and Data Structures	KZ	3
-	ze problems, design a theoretical solution to a given problem and write the resulting algorithm using flowcharts, practice reading algor		-
and use basic Boo	lean algebra to construct constraints in algorithms. Students will be introduced to the basics of the Python programming language - vi	_	, loops, they
	will learn to work with variables of basic data types (integer, floating point and string) and the list data structure in their progra	ms.	

14DATS	Database Systems	KZ	2
Basic concepts of	of database systems, conceptual model, relational data model, the principles of normal forms, relational database design, security and		database
	queries, relational algebra, SQL language, client / server, multilayer architectures, distributed database systems. Access to data via t		
14DMG	Datamining	KZ	. 2
	rces and knowledge, data warehouses and OLAP technology for data mining, data preprocessing in the process of knowledge acquis stics of concepts (classes), mining association rules from relational db. and data warehousing, classification (decisions tree, Bayesian		
mining characteris	Prediction. Cluster analysis. Mining in complex structured data, multimedia dbf., www.	cob., using neural	networks).
14DPK	Digital Support for Designing of Roads and Highways	Z	0
	Seminars possibilities of technical processing problems focused on designing of roads and highways.	- '	
14DZT	Digital Support for Railway Lines	Z	0
	Seminars possibilities of technical processing problems solved in the field of railway lines.	'	
14MPG	Modern Programming Approaches	KZ	2
	minded of some aspects of Pythom programming, learn basic concepts and constructs from object-oriented programming and their in	-	-
	try out the basics of working with data libraries in Python, namely NumPy, Pandas, Matplotlib, and practice with examples of smaller a		
14PRG	Programming	KZ	2
_	rramming builds on and fully extends the course 14ASD (Algorithmization and Data Structures). The knowledge of the Python program Irticipant gains skills and can apply them to solve various follow-up tasks. Main topics: lists, multidimensional arrays, sorting and searcl		
nere so mai me pa	working with date and time, regular expressions, functions and procedures, working with files (CSV, JSON, XML).	iling, tupies, sets, t	uictionanes,
14X31	Project 1	Z	2
14X32	Project 2	Z	2
14X33	Project 3	Z	2
14Y1AV	Animation and Visualization	KZ	2
	ations and modeling of NURBS, Patch objects, selection of objects (according to filter and properties). 3D Studio MAX systems and Spa		_
	ts, rendering filters, Motion blur, advanced animations, Motion panel. Modeling for morphing and animation, bone formation, animation		-
14Y1BE	Barrierless Transport	KZ	2
The issue of barrie	rless accessible public transportation in terms of architectural barriers and also for transportation-technological point of view. Students	will gain theoretica	l knowledge
of barrierless enviro	$onment\ roads, railway\ stations, public\ transport\ stops,\ terminal\ buildings,\ vehicles,\ public\ transport,\ information\ and\ orientation\ systems$	and transportation	technology.
	Theoretical knowledge will be supplemented by practical examples.		
14Y1BM	Biometric Methods	KZ	2
	erms, authentication methods, principles and performance measurement of biometric systems, overview of biometric technologies, ha	-	-
reuna recognition r	method, 2D and 3D face recognition, vein patterns on the wrist, ear biometrics, fingerprint recognition, skin spectroscopy, behavioral n in transport applications, safety and risks of biometric technologies.	nethods, the use o	Diometrics
14Y1HW	Computer Hardware	KZ	2
	ecture, basics of logical circuits design and their realization using FPGA. In detail, description of computer architecture and separate p		
·	arithmetic and logical units, I/O subsystem.	0 0	
14Y1MP	Modeling Complex Assemblies and Models in Parametric Modeller	KZ	2
Assemblies pro	gramming - tools and methodology of working subassemblies and assemblies, sheet metal parts modelling, welded assemblies, pipel	ines, and distributi	ion lines.
	Photorealistic output rendering - physical and material properties, lighting sources. MKP - visual example.		
14Y1OJ	Object - oriented programming in JAVA	KZ	2
	Encapsulation. Classes. Attributes. Access modifiers. Methods and overloading. Special methods (constructors, getters / setters). Ba ance. Polymorphism. Statics, constants, interfaces, abstract classes, enum, packages, exceptions, collections, generics, lambda expre	-	
14Y1OP	Operating System	KZ	2
	stallation GNU/Linux OS. X-window system. Rights management - users and groups, ACL rights. Filesystems and attributes. Programs		OS boot.
	console programs / commands. Config files. SW management, package systems. Programs in graphic shell - text, spreadsheet, graph		
	communication. Services management. Safe and secure configuration of OS. Remote administration.		
14Y1P2	Computer Aid of Transportation Projecting 2	KZ	2
	pplication for transportation projecting aid. AutoCAD environment possibilities of basic tasks automatizing (programming, scripting, data		
modification (attrib	utes, relation to databases). Work in projecting group, external references. Basic tasks for cummunication projecting (clotoidic transition	i curve, cross-and	longitudinal
14Y1PA	section). Basics of 3D modelling.	KZ	2
	3D Modeling in AutoCAD  parametric modeller (AutoCAD) environment, scenes rendering, creation of planar and volumetric objects, user setup creation, object of		
Work in 05 non p	connected with external database. Basic definition of work with lights, materials and reflexes. Models presentation.	Jaka Grodilori, Worr	t with data
14Y1PG	Computer Graphics	KZ	2
	graphic and possibilities of their editing and mutual conversion. Use of individual types according to character of work. Work with editing		
	level scope) using layers, DPI, colors. Basics of digital photography, scanning and computer technology like monitors and graphics	s cards.	
14Y1PI	Corporate Information System	KZ	2
	on-knowledge, components of information system, syntatic and semantic sense of data, structure of corporate information system, pal		-
(personalistic, prod	duction, storage, etc.), corporate information politic and information control, risks of information system operation, legal environment of	information systen	n operation,
14Y1PJ	state information system, information system security, data protection, safety politics.  C Programming Language	KZ	2
	pagage. Preprocessor, basics of the C language (data types, syntax, commands), functions, pointes, dynamical memory allocation, strin		
,	Implementations of abstract data types (FIFO, LIFO, list), programming techniques (sorting, searching, recursion), using bitwise op	-	
14Y1PZ	Advanced Data Processing in Spreadsheets	KZ	2
	familiar with principles of working in a spreadsheet. Graphic layout of the table appearance, formatting of numbers, insertion of formu		
addressing, error d	letection. Working with large spreadsheets, filters, advanced filters, database functions. Pivot tables and charts, conditional formatting, s	olution finding, solv	ver, macros,
	data analysis. Examples and questions from various companies and training.		
14Y1TI	Creating Interactive Internet Applications	KZ	2
FUSSIDIIIUES OF SCRI	pting language PHP. Overview of PHP language syntax, and functions. Analysis of finished scripts and demonstration of solutions. Youi in PHP language.	омп аррисацой р	nogrammed

14Y1UP			
141101	Editing of Theses in MS Word	KZ	2
	introduced to the principles of creating and editing large documents and basic typographic rules. They will properly apply styles, creat		
figures, tables, gra	phs, etc. Footnotes, captions, index. They practice corrections of finished documents. The goal is to prepare students for seamless ed	ting dissertations	and theses
	so that they are able to concentrate mainly on writing a thesis.		
14Y1VM	Development of Applications for Mobile Devices	KZ	2
Object oriented	programming, Java programming language, development environment, operating system Android, development application - widgets,	containers, threa	ds, menu,
	permissions, services, GUI.		_
14Y1W1	Webdesign 1	KZ	2
Students will learn	the basics of communication HTTP, URL and addressing, markup languages HTML and XHTML, HTML tags, rules of web accessibility	and usability, CS	S propertie
and selectors	s, the issue of web browsers, creating one to three column layout pages, sites validation, conditional comments. Topics will be practice	d on practical exa	imples.
14Y1W2	Webdesign 2	KZ	2
Students will learn	advanced techniques CSS, responsive webdesign, CSS frontends, content management systems, JavaScript, jQuery, SEO, web seriodirectives. Topics will be practiced on practical examples.	ver installation + o	configuration
14Y1WG	Webdesign	KZ	2
Students will lea	rn the basics of HTTP communication, URL and addressing, HTML5 markup language, advanced CSS3 techniques, accessible and u	sable web rules,	responsive
	webdesign, content management systems, web server installation + configuration directives. The subject matter will be trained on e	xamples.	
14Y1ZJ	Fundamentals of programming in JAVA	KZ	2
	e Java SE Platform. IDE Installation and First Project. Comments. Variables and Type System. Operators. User Input and Parsing. Chai		1
	ematical Methods. Terms. Relational Operators and Switches. Cycles for, while, foreach. Field - declaration, initialization, methods for f		
	parameters, return value, recursion. Program creation.		
14Y1ZM	Fundamentals of parametric and adaptive modeling	KZ	2
	products and parts creation. Sketch drawing by help of geometric relations, parametric dimensions, creation of adaptive models from 2		I.
	from and to another systems. Fundamentals of assemblies creation.		
15JZ1A	Foreign Language - English 1	Z	3
	tures and Style. Selection of conversation topics relating to transportation sciences. Extending vocabulary, developing perceptive and cor	_	_
z.a.m.a.ioai oii uc	stylistics forms. Oral and written presentation of original research. Academic text principles and reading comprehension. Principles o		on ona
15JZ2A	Foreign Language - English 2	Z,ZK	3
	Toreign Language - English 2 tures and style. Selection of conversation topics relating to transportation sciences. Extending vocabulary, developing perceptive and cor	,	-
oranimatical struc	stylistics forms. Oral and written presentation of original research. Academic text principles and reading comprehension. Principles of		. Lienieniai
45 1705			
15JZ3F	Foreign Language - French 3	Z	3
-	listics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of la		_
and perceptive ar	nd communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work v	vith (professional)	text and its
	features. Practice of oral and written presentation.		_
15JZ3I	Foreign Language - Italian 3	Z	3
	listics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of la		_
and perceptive ar	nd communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work v	vith (professional)	text and its
	features. Practice of oral and written presentation.		
15JZ3N	Foreign Language Cormon 2		
	Foreign Language - German 3	Z	3
Grammar and sty	listics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of la	nguage structure	knowledge
Grammar and sty	listics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of land communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work v	nguage structure	knowledge
Grammar and sty and perceptive ar	listics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of land communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work values features. Practice of oral and written presentation.	inguage structure vith (professional)	knowledge text and its
Grammar and sty and perceptive ar 15JZ3R	listics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of lead communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work vocabulary development. Practice of oral and written presentation.  Foreign Language - Russian 3	inguage structure vith (professional)	knowledge text and its
Grammar and sty and perceptive ar 15JZ3R Grammar and sty	listics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of lead communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work vocabulary development. Practice of oral and written presentation.  Foreign Language - Russian 3  Ilistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language level and study focus at the Faculty.	inguage structure vith (professional)  Z inguage structure	knowledge text and its
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15X33	Project 3	Z	2
15Y1BO	Work Safety and Health Protection in Transportation	KZ	2
Fundamental legisla	ative, definition of terms, risks and possible health damage, working conditions and health protection with focus on transportation.	ealth protection p	rogramme
45)(457	health insurance of home and foreign business trips, statistics, working practice.	1/7	
15Y1DZ	History of Railway	KZ	2
	ays, steam railways, railway network development in the 2nd half of 19th century, regional railways epoch, railways of the "First Repu		
var II railways, railw	ay development in the 2nd half of 20th century, high-speed railway origins, railway lines closing, important long-distance train connecti	ons, railway iines	construction
457/4511	railway accidents, railway junctions. Excursions and projections.	1/7	1 2
15Y1EH	European Integration within Historical Context ormation of new states. Europe and the powers, League of Nations. European policy in the 1920s. Fascism, nacism, communism. Li	KZ	2
•	r Hitler's getting to power, system of bilateral agreements. Decline of the LN. Rearrangement of powers during WWII. Cold war and i		
godis. Europe dite	New quality of French-German relationship - a driving power of starting European integration.	3 consequences	ioi Luiope
15Y1FD	French Area Studies and Transportation	KZ	2
	ny and regions, transport infrastructure. Paris and its sights, city public transport. Road traffic, motorways, railway traffic, TGV, air traf		1
	ch society and culture. Current political system. System of education, studying in France. Selected authors of French literature. French		, i i i i i i i i i i i i i i i i i i i
15Y1HD	History of City Mass Transport	KZ	2
- 1	transport in the world, development of tram, bus and trolley-bus systems. History of transport networks in the world, current trends a		1
	nce systems. History of city transport in Prague and Brno. History of tram, bus and trolley-bus operation systems in the Czech Reput	•	o oa a
15Y1HE	Work Hygiene and Ergonomics in Traffic	KZ	2
	of occupational hygiene and ergonomics, and their application in transport. Working environment factors, and the influence of these		1
_	tion of working conditions that do not damage public health. Mutual links: man-machine-environment. Adaptation of technology to po		
	Practical examples from the field of transportation; relevant legislature.		
15Y1HL	History of Civil Aviation	KZ	2
-	, development of aircrafts lighter than air. Beginnings of aircrafts heavier than air. Czechoslovak aviation pioneers. Development of a		_
	mous aviators. Helicopters. CSA airplanes. Development of aircrafts in Czechoslovakia between the years 1945-1989. Classic era o	•	
,	aviation. Modern era of civil aviation. Airline companies. Supersonic flying.		
15Y1MK	Modern History in Context: Every Day Life and Transport	KZ	2
	Historical overview of modern history of every day life, science, technology and transport in a wider context.		_
15Y1NE	German in the Economy and Society	KZ	2
	and social issues of German speaking countries and of the EU. Reading and listening of texts. Lexical, grammatical and semantic an		1
	selected topics.	,	
15Y1ZV	East-West dichotomy: Prelude to the Cold War	KZ	2
listorical prologue.	evolution of the "West" and "East" from the 1500s. Focus on the history in the period between 1850 nad 1950. Milestones and continu		1
• -	evolution of the "West" and "East" from the 1500s. Focus on the history in the period between 1850 nad 1950. Milestones and continuicentury and the beginning of the 20th century. Revolutions, the causes and consequences. Scientific and technological progress, the	ty of the internation	onal relation
• -	century and the beginning of the 20th century. Revolutions, the causes and consequences. Scientific and technological progress, the	ty of the internation	onal relatio
in the end of 19th of	century and the beginning of the 20th century. Revolutions, the causes and consequences. Scientific and technological progress, the Economic and financial history. Social changes. Discussions on texts, sources.	ty of the internation causes and con	onal relations
in the end of 19th of	century and the beginning of the 20th century. Revolutions, the causes and consequences. Scientific and technological progress, the	ty of the internation causes and con	sequences
in the end of 19th of	century and the beginning of the 20th century. Revolutions, the causes and consequences. Scientific and technological progress, the Economic and financial history. Social changes. Discussions on texts, sources.  Vehicle Technology principles. Drive, vehicle construction. Road transport, safety, heavy duty vehicle desing, dynamics. Rail transport, safety, carriage designs.	ty of the internation causes and con KZ esign. Drive. Elec	sequences
16DPO Vehicle. Functions,	century and the beginning of the 20th century. Revolutions, the causes and consequences. Scientific and technological progress, the Economic and financial history. Social changes. Discussions on texts, sources.  Vehicle Technology	ty of the internation causes and con KZ esign. Drive. Elec	sequences
16DPO Vehicle. Functions,	century and the beginning of the 20th century. Revolutions, the causes and consequences. Scientific and technological progress, the Economic and financial history. Social changes. Discussions on texts, sources.  Vehicle Technology  principles. Drive, vehicle construction. Road transport, safety, heavy duty vehicle desing, dynamics. Rail transport, safety, carriage of transport. Technological components of various modes of transport. Management and control of various means of transport.	ty of the internation of causes and constant KZ esign. Drive. Electronic Safety.	onal relations sequences 2 ctric traction 2
16DPO Vehicle. Functions,	century and the beginning of the 20th century. Revolutions, the causes and consequences. Scientific and technological progress, the Economic and financial history. Social changes. Discussions on texts, sources.  Vehicle Technology  principles. Drive, vehicle construction. Road transport, safety, heavy duty vehicle desing, dynamics. Rail transport, safety, carriage of transport. Technological components of various modes of transport. Management and control of various means of transport.  Introduction into Vehicles	ty of the internation of causes and constant KZ esign. Drive. Electronic Safety.	onal relations sequences 2 ctric traction 2
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16Y1ZG	Introduction into Applied Computer Graphics	KZ	2
Computer graphics	s, division and applications with emphasis on transport, including development and research. Colours, colour perception, colour sche	mes, models, princ	ciples of 2D
and 3D generation	on, elementary algorithms for graphic data workout. Visualisation principles and tasks, technics, graphics and visualisation HW basics	s. Introduction to 2	D and 3D
	graphics software.		
16Y1ZL	Vehicle Testing, Legislation and Construction	KZ	2
Vehicle, bus and mo	otorbike costruction, aggregate computing, driving resistance, build and parameters of traction, constructional arrangement of personal of	ars, trucks, buses,	motorbikes,
legis	slation in the EU and in the world, technical legislation creation, testing methods, vehicle tests, accelerated tests, mathematical mode	elling in testing.	
17EPOD	Economics of Transport Company	Z,ZK	6
	l utility, marginal costs, function of supply and demand, market equilibrium, perfect competition and types of market arrangement. Tra	,	t, transport
	company, it's environment, balance sheet, costs, revenue, profit and maximalization of profit. Business plan, taxation in transp	oort.	
17ESYS	Transport Systems Economy	Z,ZK	6
	nacroeconomic indicators, transport system, transport externalities, energy in transport, shared economy, state transport system and it		
,	of transport system.	,	
17FID	Financing and Investment in Transport	Z.ZK	4
	g of transport infrastructure, the role of public administration in the financing and realization of investment in transport, the investmen	,	- 1
	programs and their rules, competition, effectiveness and efficiency of spending public funds, evaluation systems of public projects and		,,
17GEDS	Geography of Transport Systems	KZ	2
1	ntiation of the transport system. Sociogeographic regionalization and its relation to transport. Transport and local and regional develo		
_	nodological framework. Mobility research - travel behavior, mode choice and the influence onto "modal-split." Modal competition. Practica	•	
and on our and mou	analysis in transportation planning.	400 01 1141.00011 9	,cog.apca.
17IVED	Integration of Public Transport	Z.ZK	3
	both EU and CR, transport sectoral strategies, land use planning and evolution of space organization, integration of public service in	,	_
	nizational structures of integrated public transport systems, internal and external bindings, contracting, carriage relations, conditions	•	
acarrace and orga	operations, grading and quality, IS, marketing.	o. 2011. Tall all a	o transport
17KLID	Quality in Transport Service	Z,ZK	3
	tion of quality, standards and international standardization, integrated management systems, modern attitudes of quality managemen		_
	ods of quality measurement, quality management, risks and opportunities, public transport quality, view of costumers, carriers and PT		
and regiones, mean	quality costs, marketing and costumer satisfaction.	organizoro, quant	, otaridardo,
17LGT	Logistics	Z.ZK	6
	basic concepts, store, warehouse, transport and handling equipment, logistics technology, logistics centers, information and intellige	,	
Logistics definition	city.	on logistics system	io, iogistics
17MAGD	Marketing in Transport	KZ	4
- 1	trategic marketing plans. Implementation of marketing campaigns. Branding and brand promotion. Public relations industry, business		- 1
	ch engine optimization. Government relations and industry organization lobbying. Advertising and strategic sponsorships. Multimedia		
actolopinoni, coal			
		r procentations and	Corporate
17MRR	videos. Direct marketing and related lead generation campaigns.		-
17MRR Decision-making	videos. Direct marketing and related lead generation campaigns.  Managerial Decision-making and Management	Z,ZK	4
	videos. Direct marketing and related lead generation campaigns.	Z,ZK	4
Decision-making	videos. Direct marketing and related lead generation campaigns.  Managerial Decision-making and Management process; identifying exactly what the problem is; evaluating the issue; solving the issue; using multiple perspective analysis to make thinking.	Z,ZK a decision; usual n	4 nethod of
	videos. Direct marketing and related lead generation campaigns.  Managerial Decision-making and Management process; identifying exactly what the problem is; evaluating the issue; solving the issue; using multiple perspective analysis to make thinking.  Freight Traffic	Z,ZK	4
Decision-making	videos. Direct marketing and related lead generation campaigns.  Managerial Decision-making and Management  process; identifying exactly what the problem is; evaluating the issue; solving the issue; using multiple perspective analysis to make thinking.  Freight Traffic  Freight traffic and transportation system, conditions of implementation, forwarding.	Z,ZK a decision; usual n	4 nethod of
Decision-making 17NAPR 17TEDL	videos. Direct marketing and related lead generation campaigns.  Managerial Decision-making and Management process; identifying exactly what the problem is; evaluating the issue; solving the issue; using multiple perspective analysis to make thinking.  Freight Traffic Freight traffic and transportation system, conditions of implementation, forwarding.  Transport Technology and Logistics	Z,ZK a decision; usual n Z	4 nethod of 2
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Decision-making  17NAPR  17TEDL  Basic terms in tran each transport me	videos. Direct marketing and related lead generation campaigns.  Managerial Decision-making and Management process; identifying exactly what the problem is; evaluating the issue; solving the issue; using multiple perspective analysis to make thinking.  Freight Traffic Freight traffic and transportation system, conditions of implementation, forwarding.  Transport Technology and Logistics sport technology and logistics, particular steps of transport planning, line planning, timetabling, planning in pasanger and freight transports, technologic factors of the side of operator and client, organisation of city transport, logistic technologies and their aplication using the state of the side of operator and client, organisation of city transport, logistic technologies and their aplication using the state of the side of operator and client, organisation of city transport, logistic technologies and their aplication using the state of the side of the	Z,ZK a decision; usual n Z  KZ sport, organisation ng various transpo	4 nethod of 2 3 of traffic in our modus.
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17NAPR  17TEDL  Basic terms in tran each transport m  17TVD	videos. Direct marketing and related lead generation campaigns.  Managerial Decision-making and Management process; identifying exactly what the problem is; evaluating the issue; solving the issue; using multiple perspective analysis to make thinking.  Freight Traffic Freight traffic and transportation system, conditions of implementation, forwarding.  Transport Technology and Logistics sport technology and logistics, particular steps of transport planning, line planning, timetabling, planning in pasanger and freight transports, technologic factors of the side of operator and client, organisation of city transport, logistic technologies and their aplication using the description of new knowledge and basic principles of hierarchical planning of public transport system accenting the generator and client, organisation of planning of public transport system accenting the generator and client, organisation of planning of public transport system accenting the generator and client, organisation of planning of public transport system accenting the generator and client, organisation of planning of public transport system accenting the generator and client, organisation of planning of public transport system accenting the generator and client, organisation of planning of public transport system accenting the generator and client, organisation of planning of public transport system accenting the generator and client, organisation organ	Z,ZK a decision; usual n Z KZ sport, organisation ng various transpo Z,ZK neral transport pla	4 nethod of 2 3 of traffic in out modus. 5
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17Y1ST	Titan Simulation	KZ	2				
Titan is a manag	gement game simulating the business decisions. Lets 2-8 student groups to produce and compete in the market with the same produ	ct. Students set a	orice and				
determine the quantity and capacity of production, plan budgets for marketing, research and development. They become familiar with the consequences of their decisions by the form							
of financial corporate reports and they use this information for other business decisions.							
17ZAP	Fundamentals od law	Z	2				
18MTY	Materials Science and Engineering	Z,ZK	3				
	terials science and engineering explains mechanical properties of structural materials based on their bonding forces and microstructu						
is paid to metals as	s the most important engineering materials, also other major classes of materials are presented, namely ceramics, polymers and con	nposites. Attention	is also paid				
	to degradation processes in materials, to defectoscopy and to main mechanical tests.		_				
18PZP	Elasticity and Strength	Z,ZK	3				
lension and compr	ression. Bending of beam. Shear stress in bending of beam. Design and analysis of cross section of beam. Design of riveted, bolted a	and welded joints of	t structures.				
40CAT	Analysis of deflection curve of beams. Torsion of circular cross sections. Combined loading. Stability.	7.71/	4				
18SAT	Structural Analysis of forces in plane and space. Calculation of reactions of bodies and structures. Assessment of internal forces on statically determinate	Z,ZK	4 lo girdore				
		-	-				
1 mople of virtual v	Principle of virtual work. Kinematic method for calculation of reactions of statically determinate systems. Determination of axial forces in truss constructions. Cross-sectional characteristics of planar shapes. Fiber polygons and chains.						
18SPP	Seminary from Elasticity and Strength	Z	0				
	tice. Tension and compression. Bending of beam. Shear stress during bending of beam. Design and analysis of cross section of bean		_				
· ·	of beam. Torsion of circle cross section. Combined loading. Stability of compressed bar and buckling.	•					
18SS	Seminary from Structural Analysis	Z	0				
Examples for pract	ise. General system of forces. Reactions of mass objects and compound systems. Internal forces on statically determinate beam and	simple framework.	Application				
of principle of virtu	al works for calculation of reactions of staticaly determinate systems. Determination of axial forces in truss construction - method of j	joints and method	of sections.				
	Geometry of cross sections. Plane fiber polygons.						
18STD	Seminary from Technical Documentation	Z	0				
Technical standa	ords, international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensional	al and geometrical	accuracy,				
	arrangement of drawing sheets.						
18TKK	Technical Drawing and Designing	KZ	4				
18X31	Project 1	Z	2				
18X32	Project 2	Z	2				
18X33	Project 3	Z	2				
18Y1AM	Anatomy, Mobility and Safety of Man	KZ	2				
Survey of tissues. A	natomical structure and growth of bones. Articular joint. Remodelling of bone tissue. Anatomical structure of muscles. Blood circulation	and nervous system	m. Structure				
and biomechanics	of muscular-skeletal system. Injury of human organs and musculo-skeletal system during traffic accidents. Mobility of ill and injured n	nan and his treatm	ent. Human				
	joint prostheses. Protective means and traffic safety regulations.						
18Y1EM	Experimental Methods in Mechanics	KZ	2				
	ole of experimental mechanics. Sensors for mechanical testing. Overview of experimental methods. Destructive and non-destructive	-	-				
experimental pro	cedures and sample preparation. Tensile and bending tests. Electrical resistance strain gages. Optical based strain measurement. Fa	itigue and lifetime p	prediction.				
18Y1MT	Instrumented hardness testing. Introduction to electron microscopy. Errors in measurement.	1/7	2				
	Engineering Materials  ew of main classes of materials used in technical design. In addition to main classes of materials, i. e. metals, ceramics, polymers and	KZ	2				
· ·	ogical materials and to biomimetics. Integral approach to material selection process is also demonstrated based on so called Ashby's	•	ilion is paiu				
18Y1PS	Computer Simulations in Mechanics	KZ	2				
	rview of tools for stress analysis of structures. Numerical methods in mechanics, finite element method. Geometric model developme						
	stems. Assignment of material properties. The types of elements and their use. Discretization of solid model. Boundary conditions and	•					
	tasks of structural and modal analysis. Introduction to complex nonlinear problems.	• •					
18Y1UK	Introduction of Rail Vehicles	KZ	2				
	ics and parameters rail transport systems - railway and urban transport. Basis driving mechanics rail vehicles - equation of motion tra	in and unit trains.	Rolling and				
track resistance. To	tal running resistance. Acceleration force. Analyzing driving cycle rail vehicle. Speed-power diagrams and characteristics rail vehicle -	hydromechanic, hy	drodynamic				
	and electric drive. Design concept rail vehicles and drive of wheel set.						
20SYSA	Systems Analysis	Z,ZK	5				
	em sciences, system viewpoint, terminology, typical system analysis tasks, system identification, system interface and interface tasks						
and its analysis,	strong functions and processes, genetic code, system identity, system architecture. Tools for system analysis - Petri nets, decision tal	oles, algorithms for	structural				
0011170	tasks. Soft and hard systems, methods for soft system analysis.	7.71	-				
20UITS	Introduction to Intelligent Transport Systems	Z,ZK	7				
	gislative framework telematics systems and their architecture. Telematics systems in practice and their operation. Fundamentals of infor inciples and technical support measurement of traffic data, localization and navigation. Practical work with traffic data. Real examples						
3/3(011)3 101 11 0.1 1	principles of ITS.	or possible applied	ations of the				
20X31	Project 1	Z	2				
20X32	Project 2	Z	2				
20X32 20X33	Project 3	Z	2				
	•	KZ	2				
20Y1AE	Applied Electronics semiconductor components, their principles, characteristics and typical connection diagrams. Semiconductor PN junction diodes, tran	1					
	permittenductor components, their principles, characteristics and typical connection diagrams. Semiconductor PN junction diodes, transisto Ogic gates. Functions of basic electronic circuits and methods for their designs (rectifiers, voltage regulator with Zener diode, transisto		-				
	amplifier as an inverting and noninverting amplifier).		,				
20Y1AF	Alternative Forms of Transportation Project Financing	KZ	2				
	such forms of financing in transportation and telecomunications, where the public sector body perform the final debtor, i. e. debt paym						
	ot a direct participant of the transaction and it is not the counterparty of the financial institute which provides the funding. Issue of section 2.		-				
	of transportation and telecomunication projects.						

20Y1EA	Environmental Aspects of Transport	KZ	2
	here, weather observation network, weather in transportation, road meteorology. Weather forecasting, data assimilation, probabilistic		
	pollutants and their effects, atmospheric chemistry, traffic emissions. Greenhouse gasses, carbon cycle, a role of energy and transp		
20Y1EK	Qualification in Electrical Engineering	KZ	2
Practical experience	e with measurements in laboratories, electrical equipment, power supply, electrical installation of low voltage, electric shock hazard, s	symbols and labeli	ng, nominal
voltage, maximum	allowed currents, electrical equipment protection against short circuit and overload protection, control and revision, first aid, legislatic	on, standards and	regulations
	in relation to health and safety and electrical engineering.		
20Y1KP	Communication and presentation skills	KZ	2
• •	s and their fulfillment, current communication networks, work with various sources, formal requirements of emails and final theses, b	,, ,, ,	
teamwork, emot	ional intelligence, manipulation and way of working with it, coping with stressful situations, formal requirements of presentations, way	s of communication	n during
	presentation, presentation skills, presentation skills in online environment.		
20Y1LN	Location and Navigation	KZ	2
Description and e	xamples of road networks, localization on the network. Routing algorithms, their properties and implementation. Description and examples of road networks, localization on the network.	mples of datasets	for finding
	transport connections, routing algorithms, their properties and implementation.		
20Y1OI	Fare Collection and Information Systems	KZ	2
-	stems in public transport and their components (on-board units, validators, turnstiles,). Information systems and their components		es, maps,
	nels) and operators (cycles, location or current delay of vehicles,). The issue of tariff systems. Other examples of clearance systems.		
20Y1OK	Road Lighting	KZ	2
	ities and terms, street lighting components (luminaires, control cabinets for street lighting, street lighting cables), characteristics of luminates and terms, street lighting cables, characteristics of luminates and luminates in road lighting tunnels, approach to street lighting design, lighting		
light distribution),	standards, measurement of illuminance and luminance in road lighting, tunnels, conceptual approach to street lighting design, lightin- Relux, street lighting control systems.	g calculations in D	IALux and
20V4 DIZ		V7	2
20Y1PK	Product Quality Management Processes of organization management. Management systems and international standards; quality management systems. Quality products, pro	KZ	2 \framowork
	on organization management, management systems and international standards, quality management systems. Quality Items management, management principles. Principles of process management, monitoring and measurement systems management. U		
OI Staridards for Syst	for systems management. Process management principles. Metrology and testing. Product certification.	milorii iramework (	Ji Stariuarus
201/100		V7	2
20Y1SC	Sensors and Actuators	KZ	2
Principles of sensors	s and actuators. Basics of measuring theory and actuating influence. The respective technologies and construction principles. Sensors of state (temperature, humidity), chemical and particle flow values. Electrical, pneumatic and hydraulic actuators and solid phase ele		o-magnetic,
2401.0			0
21SLD	Seminar of Air Transport	Z	0
-	ons, terminology, basic rules. VFR / IFR. Basics of aerodynamics. Propulsion of aircraft. Aircraft design. Basics of navigation, radio na ht planning, optimization of speed and heights, minimum fuel. Limitations of operation, maintenance, service life of aircraft. Traffic ma	-	
periormance. Filgi	security. Air crew. Airlines and economics. Space technologies.	nagement, ground	rianuling,
24 V 24		7	2
21X31	Project 1	Z	2
21X32	Project 2	Z	2
21X33	Project 3		2
	1 Toject o	Z	2
21Y1AM	Aeronautical Information Management (AIM)	KZ	2
21Y1AM Definition and basic	Aeronautical Information Management (AIM) c overview of AIS and AIM. Transition from AIS to AIM. Regulatory base. Provision of AIS/AIM in the Czech Rep. AIP (Aeronautical In	KZ f. Publication). VFF	2 R Manual of
21Y1AM Definition and basic	Aeronautical Information Management (AIM) c overview of AIS and AIM. Transition from AIS to AIM. Regulatory base. Provision of AIS/AIM in the Czech Rep. AIP (Aeronautical In RAC System. NOTAM messages.PIB (Pre-flight Informtion Bulletin). AIC (Aeoronautical Inf. Circulars). Aeronautical Charts. EAD (Eu	KZ f. Publication). VFF	2 R Manual of
21Y1AM Definition and basic the Czech Rep. Al	Aeronautical Information Management (AIM) c overview of AIS and AIM. Transition from AIS to AIM. Regulatory base. Provision of AIS/AIM in the Czech Rep. AIP (Aeronautical In RAC System. NOTAM messages.PIB (Pre-flight Informtion Bulletin). AIC (Aeoronautical Inf. Circulars). Aeronautical Charts. EAD (Eu (Quality Mng. System). ADQ (Aeronautical Data Quality). AIXM (Aeronautical Inf. Exchnage Format).	KZ f. Publication). VFF ropena AIS Databa	2 R Manual of
21Y1AM Definition and basic the Czech Rep. Al	Aeronautical Information Management (AIM) c overview of AIS and AIM. Transition from AIS to AIM. Regulatory base. Provision of AIS/AIM in the Czech Rep. AIP (Aeronautical In RAC System. NOTAM messages.PIB (Pre-flight Informtion Bulletin). AIC (Aeoronautical Inf. Circulars). Aeronautical Charts. EAD (Eu (Quality Mng. System). ADQ (Aeronautical Data Quality). AIXM (Aeronautical Inf. Exchnage Format).  Unmanned aircraft systems 1	KZ f. Publication). VFF ropena AIS Databa KZ	2 R Manual of ase). QMS
21Y1AM Definition and basic the Czech Rep. Al	Aeronautical Information Management (AIM) c overview of AIS and AIM. Transition from AIS to AIM. Regulatory base. Provision of AIS/AIM in the Czech Rep. AIP (Aeronautical In RAC System. NOTAM messages.PIB (Pre-flight Informtion Bulletin). AIC (Aeoronautical Inf. Circulars). Aeronautical Charts. EAD (Eu (Quality Mng. System). ADQ (Aeronautical Data Quality). AIXM (Aeronautical Inf. Exchnage Format).  Unmanned aircraft systems 1  Development. Aircraft design. Legislation in force in the Czech Republic. Planning and execution of the flight. Airspace division. Operations of the flight of the flight.	KZ f. Publication). VFF ropena AIS Databa KZ	2 R Manual of ase). QMS
21Y1AM Definition and basic the Czech Rep. Al  21Y1BS Unmanned Aviation	Aeronautical Information Management (AIM) c overview of AIS and AIM. Transition from AIS to AIM. Regulatory base. Provision of AIS/AIM in the Czech Rep. AIP (Aeronautical In RAC System. NOTAM messages.PIB (Pre-flight Informtion Bulletin). AIC (Aeoronautical Inf. Circulars). Aeronautical Charts. EAD (Eu (Quality Mng. System). ADQ (Aeronautical Data Quality). AIXM (Aeronautical Inf. Exchnage Format).  Unmanned aircraft systems 1	KZ f. Publication). VFF ropena AIS Databa KZ erational risks and	2 R Manual of ase). QMS 2 operational
21Y1AM Definition and basic the Czech Rep. Al  21Y1BS Unmanned Aviation	Aeronautical Information Management (AIM) c overview of AIS and AIM. Transition from AIS to AIM. Regulatory base. Provision of AIS/AIM in the Czech Rep. AIP (Aeronautical In RAC System. NOTAM messages.PIB (Pre-flight Informtion Bulletin). AIC (Aeoronautical Inf. Circulars). Aeronautical Charts. EAD (Eu (Quality Mng. System). ADQ (Aeronautical Data Quality). AIXM (Aeronautical Inf. Exchnage Format).  Unmanned aircraft systems 1  Development. Aircraft design. Legislation in force in the Czech Republic. Planning and execution of the flight. Airspace division. Ope procedures. Practical flights.  Aeronautical Radio and Flight Instruments	KZ f. Publication). VFF ropena AIS Databa KZ erational risks and	2 R Manual of ase). QMS 2 operational
21Y1AM Definition and basic the Czech Rep. Al  21Y1BS Unmanned Aviatior  21Y1LJ Basic definitions, his	Aeronautical Information Management (AIM) c overview of AIS and AIM. Transition from AIS to AIM. Regulatory base. Provision of AIS/AIM in the Czech Rep. AIP (Aeronautical In RAC System. NOTAM messages.PIB (Pre-flight Informtion Bulletin). AIC (Aeoronautical Inf. Circulars). Aeronautical Charts. EAD (Eu (Quality Mng. System). ADQ (Aeronautical Data Quality). AIXM (Aeronautical Inf. Exchnage Format).  Unmanned aircraft systems 1  n Development. Aircraft design. Legislation in force in the Czech Republic. Planning and execution of the flight. Airspace division. Ope procedures. Practical flights.  Aeronautical Radio and Flight Instruments story of aircraft instrumentation, aerometric instrumentation, Earth magnetism, aircraft electric equipment, gyroscopic instrumentation	KZ f. Publication). VFF ropena AIS Databa  KZ erational risks and  KZ , airframe instrume	2 R Manual of asse). QMS 2 operational 2 entation and
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21ZALD	Basics of Air Transport	KZ	2			
History, definitions, terminology, basic rules. VFR/IFR. Basics of aerodynamics. Propulsion of aircraft. Aircraft design. Basics of navigation, radio navigation. Weight, balance, performance.						
Flight planning, optimization of speed and heights, minimum fuel. Limitations of operation, maintenance, service life of aircraft. Traffic management, ground handling, security. Air crew.						
Airlines and economics. Space technologies.						
22X31	Project 1	Z	2			
22X32	Project 2	Z	2			
22X33	Project 3	Z	2			
TV-1	Physical Education	Z	1			
TV-2	Physical Education	Z	1			
TVKLV	Physical Education Course	Z	0			
TVKZV	Physical Education Course	Z	0			

For updated information see <a href="http://bilakniha.cvut.cz/en/FF.html">http://bilakniha.cvut.cz/en/FF.html</a> Generated: day 2025-11-27, time 21:14.