### Study plan

### Name of study plan: Bachelor TET-LOG Full-Time from 2023/24

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-20/21

Name of the group: 1st 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 11 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
11CAL1	Calculus 1 Olga Vraštilová, Tomáš Tasák, Magdalena Hykšová, Bohumil Ková, Ond ej Navrátil <b>Bohumil Ková</b> Ond ej Navrátil (Gar.)	Z,ZK	7	2P+4C+22B	Z	z
11LA	Linear Algebra Lucie Kárná, Pavel Provinský, Martina Be vá ová Martina Be vá ová Martina Be vá ová (Gar.)	Z,ZK	3	2P+1C+10B	Z	Z
12ZYDI	Introduction to Transportation Engineering Zuzana arská, Dagmar Ko árková, Jan Kruntorád	Z,ZK	2	1P+1C	Z	Z
18MTY	Materials Science and Engineering Jaromír Kylar, Veronika Drechslerová, Jaromír Kylar, Nela Kr má ová, Jitka ezní ková, Jaroslav Valach, Vít Malinovský, Veronika Drechslerová, Jaromír Kylar Jaroslav Valach Jaroslav Valach (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 Vít Fábera Vít Fábera (Gar.)	KZ	3	0P+2C+8B	Z	Z
14KSP	Constructing with Computer Aid Vít Fábera, Radek Kratochvíl Lukáš Svoboda	KZ	2	0P+2C+8B	Z	Z
18TED	Technical Documentation  Jitka ezní ková, Vít Malinovský <b>Jitka ezní ková</b> Jitka ezní ková (Gar.)	KZ	2	1P+1C+8B	Z	Z
15DPLG	Transportation Psychology Eva Rezlerová, Jana Štikarová	Z	2	2P+0C+6B	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-20/21 Name=1st Sem. Bachelor Full-Time TET from 2020/21

11CAL1	Calculus 1	Z,ZK	7
Sequence of real number	ers and its limit. Basic properties of mappings. Function of one real variable, its limit and derivative. Indefinite integral, Newton in	tegral, Riemann ir	ntegral, improper
Riemann integral. First-	order differential equations, linear differential equations.		

11LA Linear Algebra Z,ZK 3
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.

	Introduction to Transportation Engineering	Z,ZK	2
Role of transport	ation in land-use planning. Basic terms in transportation engineering. Traffic survey and traffic prognosis. Introduction to topic of ro	oads, public mass trar	sport. Negative
impacts of transp	portation to environment and safety.		
18MTY	Materials Science and Engineering	Z,ZK	3
Basic course of n	naterials science and engineering explains mechanical properties of structural materials based on their bonding forces and micro	structure. However the	e main attention
is paid to metals	as the most important engineering materials, also other major classes of materials are presented, namely ceramics, polymers a	nd composites. Attent	ion is also paid
to degradation pr	ocesses in materials, to defectoscopy and to main mechanical tests.		
11GIE	Geometry	KZ	3
Differential geom	etry of curves - parameterization, the arc of the curve, torsion and curvature, Frenet's trihedron. Kinematics - a curve as a trajec	tory of the motion, the	e velocity, and
acceleration of a	particle moving on a curved path.		
14ASD	Algorithm and Data Structures	KZ	3
Students will ana	lyze problems, design a theoretical solution to a given problem and write the resulting algorithm using flowcharts, practice reading	g algorithms written u	sing flowcharts,
and use basic Bo	polean algebra to construct constraints in algorithms. Students will be introduced to the basics of the Python programming langua	age - variable, branch	ing, loops, they
will learn to work	with variables of basic data types (integer, floating point and string) and the list data structure in their programs.		
14KSP	Constructing with Computer Aid	KZ	2
"CAD systems" to	erm determination. CAD role in projecting system model. Existing CAD systems on Czech market. Project creation, basic commo	on work rules in graph	ic applications
and CA systems.	Co-ordinated systems, CAD environment skill (basics of constructing, dimensioning, modifications, user interfaces, projecting policy projecting projecti	ossibilites, AutoCAD e	
nrofiles drawing			environment
promes, drawing:	s with raster foundaments).	, , , , , , , , , , , , , , , , , , , ,	environment
18TED	s with raster foundaments).  Technical Documentation	KZ	environment 2
18TED		KZ	2
18TED	Technical Documentation rds, international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimens	KZ	2
18TED Technical standa	Technical Documentation rds, international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimens trawing sheets.	KZ	2
18TED Technical standa arrangement of de 15DPLG	Technical Documentation rds, international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimens	KZ   ional and geometrica	2 I accuracy,
18TED Technical standa arrangement of d 15DPLG Subject of psycho	Technical Documentation rds, international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensification sheets.  Transportation Psychology	KZ   ional and geometrica   Z   e construction. Psychological   Z   E   E   E   E   E   E   E   E   E	2 I accuracy,
18TED Technical standa arrangement of d 15DPLG Subject of psycho	Technical Documentation rds, international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimens lrawing sheets.  Transportation Psychology  logy and its basic concepts. Information intake, decision-making and behaviour. Performance. Engineering psychology and vehicle	KZ   ional and geometrica   Z   e construction. Psychological   Z   E   E   E   E   E   E   E   E   E	2 I accuracy,
18TED Technical standa arrangement of d 15DPLG Subject of psycho of travel route an 16UDOP	Technical Documentation rds, international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimens lrawing sheets.   Transportation Psychology ology and its basic concepts. Information intake, decision-making and behaviour. Performance. Engineering psychology and vehicle d traffic conditions, accidents and traffic incidents. Selection and training of the staff. Work and leisure. Age as a factor in transpo	KZ   cional and geometrica   Z   cional and geometrica   cional and geomet	2 I accuracy,  2 Diogical aspects
18TED Technical standa arrangement of d 15DPLG Subject of psycho of travel route an 16UDOP Vehicles and trare	Technical Documentation rds, international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensification sheets.  Transportation Psychology rlogy and its basic concepts. Information intake, decision-making and behaviour. Performance. Engineering psychology and vehicle d traffic conditions, accidents and traffic incidents. Selection and training of the staff. Work and leisure. Age as a factor in transpo	KZ   cional and geometrica   Z   cional and geometrica   cional and geomet	2 I accuracy,  2 Dlogical aspects
18TED Technical standa arrangement of d 15DPLG Subject of psycho of travel route an 16UDOP Vehicles and trare	Technical Documentation rds, international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensification sheets.  Transportation Psychology rlogy and its basic concepts. Information intake, decision-making and behaviour. Performance. Engineering psychology and vehicle diraffic conditions, accidents and traffic incidents. Selection and training of the staff. Work and leisure. Age as a factor in transpo  Introduction into Vehicles reportation systems. Functionality and setup. Movement and drive principles. Engines and their characteristics. Rail, road, air and	KZ   cional and geometrica   Z   cional and geometrica   cional and geomet	2 I accuracy,  2 Dlogical aspects

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 Olga Vraštilová, Tomáš Tasák, Magdalena Hykšová, Ond ej Navrátil, Old ich Hykš <b>Magdalena Hykšová</b> Ond ej Navrátil (Gar.)	Z,ZK	5	2P+3C+20B	B L	Z
11STAT	Statistics Pavel Provinský, Evženie Uglickich, Pavla Pecherková, Michal Matowicki, Natálie Blahitka, Ivan Nagy, Jana Kuklová Pavla Pecherková Evženie Uglickich (Gar.)	Z,ZK	4	2P+2C+12B	S L	Z
12ZTS	Railway Lines and Stations Lukáš Týfa, Martin Jacura, Petr Šatra, Tomáš Javo ík, Ond ej Trešl Lukáš Týfa (Gar.)	Z,ZK	4	2P+2C+10B	B L	Z
18SAT	Structural Analysis Jaromír Kylar, Veronika Drechslerová, Nela Kr má ová, Jitka ezní ková, Daniel Kytý, Jan Vy ichl, Tomáš Doktor, Jan Falta, Jan Šleichrt Daniel Kytý (Gar.)	Z,ZK	4	2P+2C+14B	L L	Z
20SYSA	Systems Analysis Zuzana B linová, Ji í R ži ka, Patrik Horaž ovský, Petr Bureš Zuzana B linová (Gar.)	Z,ZK	5	2P+2C+14B	L L	Z
14PRG	Programming Alena Kubá ová, Jan Procházka, Martin Fiala, Jana Kaliková, Jan Kr ál, Lukáš Svoboda <b>Jana Kaliková</b> Jana Kaliková (Gar.)	KZ	2	0P+2C+8B	B L	Z
17TEDL	Transport Technology and Logistics Vít Janoš, Michal Drábek, Zden k Michl, Rudolf Vávra, Stanislav Metelka Zden k Michl Vít Janoš (Gar.)	KZ	3	2P+1C	L	Z
21ZALD	Basics of Air Transport Jakub Hospodka, Tomáš Tlu ho, Ji í Volt, Peter Olexa, Jan Slezá ek, Jakub Trýb, Sébastien Lán, Bo Stloukal	KZ	2	0P+2C+8B	L 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 equat	ions and their systems, differential calculus of functions of several real variables. Riemann integral in Rn. Line and surface in	tegrals.	

11STAT	Statistics	Z,ZK	4
Basics of probability De	scriptive statistics Population and sample, limit theorem Point estimate, construction and properties Interval estimates Paran	netric tests Nonpa	rametric tests
Regression and correla	tion analysis		
12ZTS	Railway Lines and Stations	Z,ZK	4
Rail transport. Railway	rack geometry parameters. Route layout of railway lines. Railway line construction - railway substructure and superstructure.	Spatial layout of ra	ailway lines.
Railway control systems	s in relation to infrastructure. Operating and carriage points. Railway lines net and category. Traction in rail transport.		
18SAT	Structural Analysis	Z,ZK	4
General system of force	s in plane and space. Calculation of reactions of bodies and structures. Assessment of internal forces on statically determina	ate beams and sin	nple girders.
Principle of virtual work.	Kinematic method for calculation of reactions of statically determinate systems. Determination of axial forces in truss construction	ons. Cross-section	al characteristics
of planar shapes. Fiber	polygons and chains.		
20SYSA	Systems Analysis	Z,ZK	5
Introduction to system s	ciences, system viewpoint, terminology, typical system analysis tasks, system identification, system interface and interface ta	sks, processes, sy	stem behaviour
and its analysis, strong	functions and processes, genetic code, system identity, system architecture. Tools for system analysis - Petri nets, decision t	ables, algorithms t	for structural
tasks. Soft and hard sys	stems, methods for soft system analysis.		
14PRG	Programming	KZ	2
The Course Programmi	ng builds on and fully extends the course 14ASD (Algorithmization and Data Structures). The knowledge of the Python progr	amming language	is expanded
here so that the particip	ant gains skills and can apply them to solve various follow-up tasks. Main topics: lists, multidimensional arrays, sorting and se	earching, tuples, se	ets, dictionaries,
working with date and t	me, regular expressions, functions and procedures, working with files (CSV, JSON, XML).		
17TEDL	Transport Technology and Logistics	KZ	3
Basic terms in transpor	t technology and logistics, particular steps of transport planning, line planning, timetabling, planning in pasanger and freight t	ransport, organisa	ation of traffic in
each transport modus,	technologic factors of the side of operator and client, organisation of city transport, logistic technologies and their aplication u	sing various trans	port 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, baland	ce, performance.
Flight planning, optimiza	ation of speed and heights, minimum fuel. Limitations of operation, maintenance, service life of aircraft. Traffic management, ç	round handling, s	ecurity. Air crew.
Airlines and economics	Space technologies.		
TV-2	Physical Education	Z	1

Code of the group: 3S-BP-TET-20/21

Name of the group: 3rd 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 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 members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
11FYZ	Physics Old ich Hykš, Jana Kuklová, Pavel Demo, Zuzana Malá, Tomáš Vít Jana Kuklová Pavel Demo (Gar.)	Z,ZK	5	2P+2C+18B	Z	Z
12MDE	Transport Models and Transport Excesses Josef Kocourek, Tomáš Pad lek	Z,ZK	3	2P+1C+8B	Z	Z
17TGA	Graph Theory and its Applications in Transport Alena Rybi ková, Denisa Mocková, Dušan Teichmann	Z,ZK	4	2P+2C+12B	Z	Z
18PZP	Elasticity and Strength Jitka ezni ková, Daniel Kytý, Jan Vy ichl, Tomáš Doktor, Jan Šleichrt, Josef Jíra, 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 Ji í R ži ka, Patrik Horaž ovský, Kristýna Navrátilová, Viktor Beneš, Eva Haj iarová, Martin Langr, Vladimír Faltus, Pavel Hrubeš <b>Martin Langr</b>	Z,ZK	7	3P+2C+20B	Z	Z
12PPOK	Designing Roads, Highways and Motorways Josef Kocourek, Tomáš Pad lek, Polina Zayats, Petr Kumpošt Josef Kocourek (Gar.)	KZ	3	1P+2C+10B	Z	Z
14DATS	Database Systems Jana Kaliková, Jan Kr ál <b>Jana Kaliková</b> Jana Kaliková (Gar.)	KZ	2	1P+1C+10B	Z	Z
15JZ1A	Foreign Language - English 1 Eva Rezlerová, Markéta Vojanová, Dana Boušová, Marie Michlová, Marek Tome ek, Jan Feit, Markéta Musilová, Peter Morpuss, Lenka Monková,	Z	3	0P+4C+10B	Z	Z

# Characteristics of the courses of this group of Study Plan: Code=3S-BP-TET-20/21 Name=3rd Sem. Bachelor Full-Time TET from 2020/21 11FYZ | Physics | Z,ZK | 5

Kinematics, dynamics, 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 traffic flow and methods for their measurement. Models of the traffic flow, communications load, line and urban systems. Theory of queues, shock waves. Quality of transport and its assessment. Statistical characteristics of transport. Transport excesses, their analysis, the causes, identify and minimize the consequences. Improving of transport

transport and its assessment. Statistical characteristics of transport excesses, their analysis, the causes, identify and minimize the consequences. Improving of transport safety and fluency.

17TGA 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 other scientific disciplines.

18PZP Elasticity and Strength Z,ZK

Tension and compression. Bending of beam. Shear stress in bending of beam. Design and analysis of cross section of beam. Design of riveted, bolted and welded joints of structures. Analysis of deflection curve of beams. Torsion of circular cross sections. Combined loading. Stability.

20UITS	Introduction to Intelligent Transport Systems	Z,ZK	7
Terminology and leg	islative framework telematics systems and their architecture. Telematics systems in practice and their operation. Fundamentals of i	information and tel	ecommunication
systems for ITS. Prir	nciples and technical support measurement of traffic data, localization and navigation. Practical work with traffic data. Real exam	ples of possible ap	oplications of the
principles of ITS.			
12PPOK	Designing Roads, Highways and Motorways	KZ	3
Definition tunes au		.'	
Delinition, types, ow	nership, maintenance, management and categorization of roads and highways. Curve and transition curve. Sinuosity and stand	lard speed. Route	in rural areas.
	nersnip, maintenance, management and categorization of roads and nignways. Curve and transition curve. Sinuosity and stand topping and overtaking. Road body - shapes and proportions, bottom and superstructure. Drainage and components of roads. S	•	
		•	
Range of vision for s		•	
Range of vision for sintersections.  14DATS	stopping and overtaking. Road body - shapes and proportions, bottom and superstructure. Drainage and components of roads. S	Safety device. Cros	ssings, junctions,
Range of vision for sintersections.  14DATS  Basic concepts of data	topping and overtaking. Road body - shapes and proportions, bottom and superstructure. Drainage and components of roads. S  Database Systems	Safety device. Cros	ssings, junctions,
Range of vision for sintersections.  14DATS  Basic concepts of data	topping and overtaking. Road body - shapes and proportions, bottom and superstructure. Drainage and components of roads. S  Database Systems  atabase systems, conceptual model, relational data model, the principles of normal forms, relational database design, security a	Safety device. Cros	ssings, junctions,

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

stylistics forms. Oral and written presentation of original research. Academic text principles and reading comprehension. Principles of rhetoric.

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 Michal Matowicki Michal Matowicki	Z	2	0P+1C	L	ZP
12X31	Project 1 Dagmar Ko árková, Martin Höfler	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 Vít Janoš, Michal Drábek, Zden k Michl, Rudolf Vávra, Stanislav Metelka, Alena Rybi ková, Denisa Mocková, Dušan Teichmann, Roman Št rba, Václav Baroch (Gar.)	Z	2	0P+1C	L	ZP
18X31	Project 1	Z	2	0P+1C	L	ZP
20X31	Project 1 Ji i R ži ka	Z	2	0P+1C	L	ZP
21X31	Project 1 Jakub Hospodka, Jakub Kraus, Andrej Lališ, Slobodan Stoji, Lenka Hanáková, Terézia Pilmannová, Peter Vittek, Natalia Guskova, Kate ina Grötschelová,	Z	2	0P+1C	L	ZP
22X31	Project 1	Z	2	0P+1C	L	ZP
23X31	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 Jana Kaliková, Jan Kr ál	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	<b>Project 2</b> Vít Janoš, Michal Drábek, Zden k Michl, Rudolf Vávra, Stanislav Metelka, Alena Rybi ková, Denisa Mocková, Dušan Teichmann, Andrea Hrní ková,	Z	2	0P+2C	Z	ZP
18X32	Project 2	Z	2	0P+2C	Z	ZP
20X32	Project 2 Vladimír Faltus	Z	2	0P+2C	Z	ZP
21X32	Project 2 Jakub Hospodka, Jakub Kraus, Andrej Lališ, Slobodan Stoji, Lenka Hanáková, Terézia Pilmannová, Peter Vittek, Natalia Guskova, Kate ina Grötschelová,	Z	2	0P+2C	Z	ZP
22X32	Project 2	Z	2	0P+2C	Z	ZP
23X32	Project 2	Z	2	0P+2C	Z	ZP

11X33	Project 3	Z	2	0P+1C	L	ZP
12X33	Project 3 Dagmar Ko árková, Josef Kocourek, Tomáš Pad lek, Martin Höfler, Jakub Zají ek, Ivo Novotný	Z	2	0P+1C	L	ZP
14X33	Project 3 Jana Kaliková, Jan Kr ál	Z	2	0P+1C	L	ZP
15X33	Project 3	Z	2	0P+1C	L	ZP
16X33	Project 3 Petr Bouchner, Dmitrij Rožd stvenský	Z	2	0P+1C	L	ZP
17X33	Project 3 Vit Janoš, Michal Drábek, Zden k Michl, Rudolf Vávra, Stanislav Metelka, Alena Rybi ková, Denisa Mocková, Dušan Teichmann, Roman Št rba, Václav Baroch (Gar.)	Z	2	0P+1C	L	ZP
18X33	Project 3 Tomáš Fíla	Z	2	0P+1C	L	ZP
20X33	Project 3	Z	2	0P+1C	L	ZP
21X33	Project 3 Jakub Hospodka, Andrej Lališ, Slobodan Stoji , Lenka Hanáková, Terézia Pilmannová, Peter Vittek, Natalia Guskova, Stanislav Pleninger, Lukáš Popek,	Z	2	0P+1C	L	ZP
22X33	Project 3	Z	2	0P+1C	L	ZP
23X33	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

11X31	Project 1	Z	2
12X31	Project 1	Z	2
14X31	Project 1	Z	2
15X31	Project 1	Z	2
16X31	Project 1	Z	2
17X31	Project 1	Z	2
18X31	Project 1	Z	2
20X31	Project 1	Z	2
21X31	Project 1	Z	2
22X31	Project 1	Z	2
23X31	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
23X32	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
23X33	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-21/22

Name of the group: 4th Sem. Bachelor Full-Time TET-LOG from 2021/22 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, Lucie Kárná Bohumil Ková Bohumil Ková (Gar.)	Z,ZK	4	2P+2C+12E	L L	Р
17ESYS	Transport Systems Economy Roman Št rba, Rudolf Franz Heidu Rudolf Franz Heidu (Gar.)	Z,ZK	6	3P+2C+18E	B L	Р
17LGT	Logistics Tomáš Horák, Eliška Glaserová Tomáš Horák (Gar.)	Z,ZK	6	3P+2C+18E	L L	Р
17MDP	Transport Prognostic Methods	KZ	2	2P+0C+10E	L	Р
11LP	Linear Programming Šárka Vorá ová, Pavla Pecherková, Ivan Nagy Pavla Pecherková Ivan Nagy (Gar.)	KZ	3	2P+1C+12E	L L	Р
16DPO	Vehicle Technology Josef Mik, Josef Svoboda, P emysl Toman Josef Mik (Gar.)	KZ	2	2P+0C+10E	B L	Р
15JZ2A	Foreign Language - English 2 Eva Rezlerová, Markéta Vojanová, Marie Michlová, Marek Tome ek, Jan Feit, Markéta Musilová, Peter Morpuss, Lenka Monková, Jitka He manová,	Z,ZK	3	0P+4C+10E	B L	Р

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

11MSP	Modeling of Systems and Processes	Z,ZK	4
	tem, external and internal system description, continuous and discrete system, mathematics as a tool, examples of formulation of dar system, stationary and non-stationary system, causality. Convolutional integral. Laplace and Z transformations. Transfer function		
	ntinuous systems. System interconnection.	•	
17ESYS	Transport Systems Economy	Z,ZK	6
Macroeconomics, most transport system.	nacroeconomic indicators, transport system, transport externalities, energy in transport, shared economy, state transport system a	and its quantification	n, rationalization
17LGT	Logistics	Z,ZK	6
Logistics definition, city.	basic concepts, store, warehouse, transport and handling equipment, logistics technology, logistics centers, information and into	elligent logistics sys	stems, logistics
17MDP	Transport Prognostic Methods	KZ	2
The techniques of e	Transport Prognostic Methods economical analysis in the domain of analysis of dependencies, analysis and construction of time series and comparsion of static	1	<del>-</del>
The techniques of e	, , , , , , , , , , , , , , , , , , ,	1	<del>-</del>
The techniques of e indices.  11LP  Formulation of the p	economical analysis in the domain of analysis of dependencies, analysis and construction of time series and comparsion of stati	istical values using	differencies and
The techniques of e indices.  11LP Formulation of the p	Linear Programming  oroblem of linear programming, transcription of some practical problems to the linear programming problems. Simplex and converges	istical values using	differencies and
The techniques of e indices.  11LP  Formulation of the p solutions, duality pri 16DPO  Vehicle. Functions, I	Linear Programming  problem of linear programming, transcription of some practical problems to the linear programming, problems, stability of solution of linear programming, stability of solution of linear programming, problems.	KZ KZ KZ	3 x method, basic
The techniques of e indices.  11LP  Formulation of the p solutions, duality pri 16DPO  Vehicle. Functions, I	Linear Programming  problem of linear programming, transcription of some practical problems to the linear programming problems. Simplex and converged in linear programming, stability of solution of linear programming problem.  Vehicle Technology  principles. Drive, vehicle construction. Road transport, safety, heavy duty vehicle desing, dynamics. Rail transport, safety, carriage.	KZ KZ KZ	3 x method, basic
The techniques of eindices.  11LP Formulation of the posolutions, duality pri 16DPO Vehicle. Functions, I Transshipment. Tech	Linear Programming  problem of linear programming, transcription of some practical problems to the linear programming problems. Simplex and conversionable in linear programming, stability of solution of linear programming problem.  Vehicle Technology  principles. Drive, vehicle construction. Road transport, safety, heavy duty vehicle desing, dynamics. Rail transport, safety, carriage thrological components of various modes of transport. Management and control of various means of transport. Safety.	KZ ex polyedra. Simple  KZ ge design. Drive. El	3 x method, basic 2 ectric traction.

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	B Z	Р
17EPOD	Economics of Transport Company Václav Baroch, Alexandra Dvo á ková Alexandra Dvo á ková (Gar.)	Z,ZK	6	4P+2C+18B	B Z	Р
17TVD	Technology of Public Transport Vít Janoš, Zden k Michl, Stanislav Metelka, Ji í Pospíšil Vít Janoš (Gar.)	Z,ZK	5	2P+2C+18B	B Z	Р
14DMG	Datamining Radek Holý Radek Holý (Gar.)	KZ	2	0P+2C+10B	B Z	Р
17MAGD	Marketing in Transport Petra Skolilová Petra Skolilová (Gar.)	KZ	4	2P+1C+12B	B Z	Р
17ZAP	Fundamentals od law Martina D v rová Martina D v rová (Gar.)	Z	2	2P+0C+10B	S 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
•	y transport. Railway vehicles. Railway signals and signal devices. Railway traffic organisation and operation. Simplified railway tr icles marking. Operation intervals. Theoretical graph of train running.	affic operation. Ra	ailway vehicles
17EPOD	Economics of Transport Company	Z,ZK	6
	utility, marginal costs, function of supply and demand, market equilibrium, perfect competition and types of market arrangement Inment, balance sheet, costs, revenue, profit and maximalization of profit. Business plan, taxation in transport	Transportation m	arket, transpor
17TVD	Technology of Public Transport	Z,ZK	5
	s a detailed description of new knowledge and basic principles of hierarchical planning of public transport system accenting the demand. The course would be oriented on multiple and multi-level optimisation of passenger public transport system.	general transport	planning and
14DMG	Datamining	KZ	2
mining characteristi	es and knowledge, data warehouses and OLAP technology for data mining, data preprocessing in the process of knowledge ac cs of concepts (classes), mining association rules from relational db. and data warehousing, classification (decisions tree, Bayes analysis. Mining in complex structured data, multimedia dbf., www.		•
17MAGD	Marketing in Transport	KZ	4
development, searc	tegic marketing plans. Implementation of marketing campaigns. Branding and brand promotion. Public relations industry, busine h engine optimization. Government relations and industry organization lobbying. Advertising and strategic sponsorships. Multimenting and related lead generation campaigns.		
177AP	Fundamentals od law	7	2

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  Alexandra Dvo á ková, Olga Mertlová Olga Mertlová (Gar.)	Z,ZK	4	2P+1C+12B	L	Р
17IVED	Integration of Public Transport Roman Št rba Roman Št rba (Gar.)	Z,ZK	3	2P+1C+10B	L	Р
17KLID	Quality in Transport Service Pavel Edvard Van ura Pavel Edvard Van ura (Gar.)	Z,ZK	3	2P+1C+10B	L	Р
17MRR	Managerial Decision-making and Management Daniel Pilát, Petra Skolilová Petra Skolilová (Gar.)	Z,ZK	4	2P+2C	L	Р
14MPG	Modern Programming Approaches  Michal Je ábek, Vít Fábera Michal Je ábek Vít Fábera (Gar.)	KZ	2	0P+2C+8B	L	Р
17GEDS	Geography of Transport Systems Miroslav Marada Miroslav Marada (Gar.)	KZ	2	2P+0C+8B	L	Р
12ZAR	Introduction to Architectural Design Karel Hájek	Z	3	2P+0C+8B	L	Р
17NAPR	Freight Traffic Roman Št rba Roman Št rba (Gar.)	Z	2	2P+0C+8B	Ĺ	Р

17NAPR	Freight Traffic	Z	2	2P+0C+8B	L	Р
	Roman Št rba Roman Št rba (Gar.)					
Characteristic	on of the courses of this group of Study Dlan, Code, CS	BD I OC 22/22 Name 6th 6	Sam Bas	halar Eull T	ima TE'	T I OC from
	cs of the courses of this group of Study Plan: Code=6S	-BP-LOG-22/23 Name=oth S	beiii. Dat	neior Full-1	ime i E	I-LOG Iron
2022/23	1					
17FID	Financing and Investment in Transport			Z,2		4
	ing of transport infrastructure, the role of public administration in the financi	•			ct project	cycle, subsidy
programs and thei	ir rules, competition, effectiveness and efficiency of spending public funds,	evaluation systems of public projects	and progra	ms.		
17IVED	Integration of Public Transport			Z,2	ZK	3
Transport policy of	f both EU and CR, transport sectoral strategies, land use planning and evo	lution of space organization, integration	on of public	service in territo	ory, forms a	and content of
activities and orga	anizational structures of integrated public transport systems, internal and ex	cternal bindings, contracting, carriage	relations, c	onditions of both	rail and b	us transport
operations, gradin	ng and quality, IS, marketing.					
17KLID	Quality in Transport Service			Z,2	ZK	3
General interpreta	ation of quality, standards and international standardization, integrated man	agement systems, modern attitudes of	of quality ma	anagement, qua	lity in trans	sport service
and logistics, meth	hods of quality measurement, quality management, risks and opportunities	, public transport quality, view of costu	mers, carri	ers and PT-orgai	nizers, qua	lity standards
quality costs, mark	keting and costumer satisfaction.					
17MRR	Managerial Decision-making and Management			Z,2	ZK	4
Decision-making p	process; identifying exactly what the problem is; evaluating the issue; solvin	g the issue; using multiple perspective	e analysis t	o make a decisio	on; usual n	nethod of
thinking.						
14MPG	Modern Programming Approaches			K	$\overline{z}$	2
Students will be re	eminded of some aspects of Pythom programming, learn basic concepts ar	nd constructs from object-oriented pro	gramming	and their implem	entation ir	n Python. They
will also try out the	e basics of working with data libraries in Python, namely NumPy, Pandas, N	Matplotlib, and practice with examples	of smaller	and larger data :	sizes.	
17GEDS	Geography of Transport Systems			K	Z	2
	iation of the transport system. Sociogeographic regionalization and its relat	ion to transport. Transport and local a	nd regional	1	_	· <del>-</del>
ŭ	ethodological framework. Mobility research - travel behavior, mode choice and	·	•	•	•	
analysis in transpo	,	•			•	5 5 1

Name of the block: Compulsory elective courses

Minimal number of credits of the block: 6

The role of the block: PV

Code of the group: Y1-BP-LOG-23/24

Name of the group: Comp. Sel. Courses Bachelor Full-Time TET-LOG from 2023/24

Requirement credits in the group: In this group you have to gain 6 credits

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

Credits in the group: 6 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members)  Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
21Y1AM	Aeronautical Information Management (AIM)	KZ	2	2P+0C	Z	PV
00Y1XB	Active participation in a scientific project, workshop, short-term trip abroad  Patrik Horaž ovský Patrik Horaž ovský Patrik Horaž ovský (Gar.)	KZ	2	2P+0C		PV
20Y1AF	Alternative Forms of Transportation Project Financing  Mária Jánešová Mária Jánešová	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 Martin Jacura, Kristýna Neubergová	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	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 Tomáš Tlu ho , Jakub Kraus, Michal erný	KZ	2	2P+0C	L	PV
14Y1BM	Biometric Methods	KZ	2	2P+0C	Z	PV
15Y1DZ	History of Railway Eva Rezlerová, Martin Jacura	KZ	2	2P+0C	L	PV
12Y1DS	Project Documentation in Practice	KZ	2	2P+0C	Z	PV
17Y1EV	Public Sector Economy	KZ	2	2P+0C	Z	PV
23Y1EH	Electronics and hardware in security of transportation	KZ	2	2P+0C	L	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  Jan Feit	KZ	2	2P+0C	Z	PV
18Y1EM	Experimental Methods in Mechanics Daniel Kytý Daniel Kytý Daniel Kytý (Gar.)	KZ	2	2P+0C	Z	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 Vladimír Plos	KZ	2	2P+0C	L	PV
15Y1HD	History of City Mass Transport Milan Dont	KZ	2	2P+0C	Z	PV
12Y1HD	Traffic Noise Dagmar Ko árková, Libor Ládyš	KZ	2	2P+0C	L	PV
15Y1HE	Work Hygiene and Ergonomics in Traffic Petr Musil	KZ	2	2P+0C	Z	PV
16Y1IS	Interactive simulators and simulations	KZ	2	2P+0C	L	PV
12Y1KN	Combined Transportation Petr Nejedlý	KZ	2	2P+0C	Z	PV

12Y1KP	Communication and Promotion of Transport Projects  Dagmar Ko árková, Ond ej Kubala	KZ	2	2P+0C	L	PV
20Y1KP	Communication and presentation skills  Ji í R ži ka, Patrik Horaž ovský, Kristýna Navrátilová, Eva Haj iarová <b>Ji í</b> R ži ka	KZ	2	2P+0C	Z	PV
23Y1KM	Crisis Management	KZ	2	2P+0C	Z	PV
23Y1KO	Quantum Physics and Optoelectronics	KZ	2	2P+0C	L	PV
23Y1KY	Cybernality	KZ	2	2P+0C	L	PV
23Y1KB	Cyber security in transportation	KZ	2	2P+0C	L	PV
21Y1LJ	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 Petra Skolilová Petra Skolilová (Gar.)	KZ	2	2P+0C	L	PV
20Y1LN	Location and Navigation Petr Bureš	KZ	2	2P+0C	L	PV
23Y1MK	Crisis Situation Management in Critical Infrastructure	KZ	2	2P+0C	L	PV
23Y1MU	Emergency Events Management Solution in Transport Infrastructure	KZ	2	2P+0C	Z	PV
17Y1MD	Marketing in Transportation	KZ	2	2P+0C	Z	PV
18Y1MT	Engineering Materials Jaroslav Valach Jaroslav Valach (Gar.)	KZ	2	2P+0C	L	PV
21Y1MP	Matlab for project-oriented study Lenka Hanáková, Vladimír Socha Vladimír Socha	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  Marie Michlová	KZ	2	2P+0C	L	PV
15Y1NE	German in the Economy and Society  Eva Rezlerová	KZ	2	2P+0C	Z	PV
21Y1OH	Airline Business and Operations Peter Olexa, Eva Endrizalová Peter Olexa	KZ	2	2P+0C	Z	PV
23Y1OK	Protection of Critical Objects and Infrastructures	KZ	2	2P+0C	L	PV
20Y1OI	Fare Collection and Information Systems Patrik Horaž ovský, Milan Sliacky Milan Sliacky (Gar.)	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	PV
20Y1OK	Road Lighting František Kekula	KZ	2	2P+0C	L	PV
11Y1PV	Parametrical and Multicriterial Programming 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  Denis Liutov	KZ	2	2P+0C	L	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 Petr Zlámal Petr Zlámal (Gar.)	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  Terézia Pilmannová Terézia Pilmannová	KZ	2	2P+0C	Z	PV
12Y1PD	Assessment of Transport Structures	KZ	2	2P+0C	Z	PV
20Y1PK	Product Quality Management Processes  Martin Leso Martin Leso	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	PV
12Y1C2	Designing Roads in Civil 3D II Tomáš Honc	KZ	2	2P+0C	Z	PV
14Y1PA	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
16Y1RF	Control and Electronic Vehicle Systems	K7	2	2P+0C	7	PV
16Y1RE	-	KZ	2	2P+0C	Z	

17Y1ST	Human Resources Management	KZ	2	2P+0C	L	PV
	Titan Simulation	KZ	2	2P+0C	L	PV
21Y1SI	ATC Simulator Terézia Pilmannová	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 Jan Leistner, Filip Kotas, Jaroslav Machan, David Lehet	KZ	2	2P+0C	Z	PV
12Y1SU	Road Management and Maintenance Dagmar Ko árková, Otakar Vacín	KZ	2	2P+0C	L	PV
16Y1SO	Strategy and innovation in mobility	KZ	2	2P+0C	Z	PV
17Y1SK	Urban and Regional Rail Transport Systems Ji í Pospíšil Ji í Pospíšil (Gar.)	KZ	2	2P+0C	L	PV
11Y1TG	Graph Theory Lucie Kárná Lucie Kárná (Gar.)	KZ	2	2P+0C	L	PV
23Y1TP	Criminal Law in IT and Transportation	KZ	2	2P+0C	Z	PV
14Y1TI	Creating Interactive Internet Applications	KZ	2	2P+0C	L	PV
21Y1UL	Aircraft Maintenance Tomáš T ma	KZ	2	2P+0C	L	PV
14Y1UP	Editing of Theses in MS Word	KZ	2	2P+0C	L	PV
I8Y1UK	Introduction of Rail Vehicles Jitka ezní ková, Josef Kolá, Josef Kolá Josef Kolá (Gar.)	KZ	2	2P+0C	L	PV
12Y1VR	Public Transport in Cities and Regions Vladimír Pušman	KZ	2	2P+0C	Z	PV
23Y1VS	Negotiation and Cooperation	KZ	2	2P+0C	Z	PV
14Y1VM	Development of Applications for Mobile Devices	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 <b>Šárka Vorá ová</b> Sárka Vorá ová (Gar.)	KZ	2	2P+0C	L	PV
14Y1ZJ	Fundamentals of programming in JAVA	KZ	2	2P+0C	Z	PV
12Y1ZU	Principles of Urbanism Karel Hájek	KZ	2	2P+0C	Z	PV
15Y1ZV	East-West dichotomy: Prelude to the Cold War Marie Michlová	KZ	2	2P+0C	Z	PV
	Vehicle Testing, Legislation and Construction Zuzana Radová, Josef Mík	KZ	2	2P+0C	Z	PV

Definition and basic over	rview of AIS and AIM. Transition from AIS to AIM. Regulatory base. Provision of AIS/AIM in the Czech Rep. AIP (Aeronautica	al Inf. Publication).	VFR Manual of
the Czech Rep. AIRAC	System. NOTAM messages.PIB (Pre-flight Informtion Bulletin). AIC (Aeoronautical Inf. Circulars). Aeronautical Charts. EAD (I	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 particles.	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 al	ternative 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	atment. Human
joint prostheses. Protec	tive 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 obje	cts. Atmospheric
and other effects, rende	ring filters, Motion blur, advanced animations, Motion panel. Modeling for morphing and animation, bone formation, animation	n using Inverse K	inematics.
12Y1AE	Applied Ecology	KZ	2
General ecology - ecolo	gical concepts and principles, ecosystem, ecological factors, energy flow through the ecosystem. Application of knowledge v	vithin EIA docume	entation. Special
ecology. Landscape eco	ology - origin and historical development. Landscape definition and classification. Success. Traffic constructions in the country	side. Landscape	and nature
protection. Applied ecol	ogy.		

20Y1AE	Applied Electronics	KZ	2
	anductor components, their principles, characteristics and typical connection diagrams. Semiconductor PN junction diodes, translated for their designs (restificate values or applicate value of the control of the cont	=	-
	ates. Functions of basic electronic circuits and methods for their designs (rectifiers, voltage regulator with Zener diode, transi g and noninverting amplifier).	istor as an amplific	er, operational
14Y1BE	Barrierless Transport	KZ	2
	accessible public transportation in terms of architectural barriers and also for transportation-technological point of view. Stude		_
of barrierless environme	ent roads, railway stations, public transport stops, terminal buildings, vehicles, public transport, information and orientation syste	ems and transporta	ation technology.
	will be supplemented by practical examples.		1
15Y1BO	Work Safety and Health Protection in Transportation	KZ	2
-	e, definition of terms, risks and possible health damage, working conditions and health protection with focus on transportation ne and foreign business trips, statistics, working practice.	n. Health protection	n programmes,
11Y1BK	Error Detection Codes for Interlocking Systems	KZ	2
	d methods for its assuring. Safety codes linear codes, cyclic codes, BCH codes, Reed-Solomon codes. Transmission channels	1	l
	d error. Design and assessment of detection codes; requirements of the European standard EN 50159.	,	,
21Y1BS	Unmanned aircraft systems 1	KZ	2
	velopment. Aircraft design. Legislation in force in the Czech Republic. Planning and execution of the flight. Airspace division.	Operational risks	and operational
procedures. Practical fli			
14Y1BM	Biometric Methods	KZ	2
	authentication methods, principles and performance measurement of biometric systems, overview of biometric technologies, od, 2D and 3D face recognition, vein patterns on the wrist, ear biometrics, fingerprint recognition, skin spectroscopy, behavio		-
-	s, safety and risks of biometric technologies.	rai momodo, mo e	acc or biornounce
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 Re	epublic", electric tr	action, World
	development in the 2nd half of 20th century, high-speed railway origins, railway lines closing, important long-distance train conn	nections, railway lir	nes construction,
-	ay junctions. Excursions and projections.		
12Y1DS	Project Documentation in Practice	KZ	2
creation of some project	creating. Project documentation types. Support materials for project documentation creating. Building permit obtaining procest trigocumentation parts	ss. Budget and pri	icing. Practical
17Y1EV	Public Sector Economy	KZ	2
	theory of public sector, public choice theory, externalites, decisions about public finance allocation, economic assessment of	1	l
tax system of the CR, st	ate budget, management of public projects a their economic efficiency assessment, way of elaboration of PPP projects, funding	ig from EU funds, p	program HDM-4.
23Y1EH	Electronics and hardware in security of transportation	KZ	2
• • • • • • • • • • • • • • • • • • • •	of signals. Passive circuits, properties, basic measurements. Passive filters, semiconductors. Operational amplifiers, basic circuits.	•	
	ircuits. AD converters. Connection of analog and digital parts. Basic blocks of digital signal processing. Measurement processin	ng. Design and fabi	rication methods
in electronics.			
20V1EK	Qualification in Flactrical Engineering	k7	2
20Y1EK Practical experience wi	Qualification in Electrical Engineering th measurements in laboratories, electrical equipment, power supply, electrical installation of low voltage, electric shock haza	KZ ard, symbols and la	2 abeling, nominal
Practical experience wi	Qualification in Electrical Engineering th measurements in laboratories, electrical equipment, power supply, electrical installation of low voltage, electric shock haza ved currents, electrical equipment protection against short circuit and overload protection, control and revision, first aid, legisl	ard, symbols and la	abeling, nominal
Practical experience wi voltage, maximum allow	th measurements in laboratories, electrical equipment, power supply, electrical installation of low voltage, electric shock haza	ard, symbols and la	abeling, nominal
Practical experience wi voltage, maximum allow in relation to health and 16Y1EN	th measurements in laboratories, electrical equipment, power supply, electrical installation of low voltage, electric shock hazaved currents, electrical equipment protection against short circuit and overload protection, control and revision, first aid, legisl safety and electrical engineering.  Energy Requirements of Vehicles	ard, symbols and lation, standards a	abeling, nominal and regulations
Practical experience wi voltage, maximum allow in relation to health and 16Y1EN Dynamics and the driving	th measurements in laboratories, electrical equipment, power supply, electrical installation of low voltage, electric shock hazaved currents, electrical equipment protection against short circuit and overload protection, control and revision, first aid, legisl safety and electrical engineering.  Energy Requirements of Vehicles ag inertial of the vehicles. Types of energy - kinetic, static, heat, chemical and others. Ways of energy change into kinetic ene	ard, symbols and lation, standards a	abeling, nominal and regulations
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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 influer Creation and protection of working conditions that do not damage public health. Mutual links: man-machine-environment. Adaptation of te	
Practical examples from the field of transportation; relevant legislature.	or motors and or a main.
16Y1IS Interactive simulators and simulations	KZ 2
Simulation theory and application of computing equipment. Creating computing models. Mechanical and dynamic systems and their math	· -
Simulation of vehicle dynamics, on-land carriage in particular. Virtual reality systems. Practical exercise with simulation software and inter 12Y1KN Combined Transportation	KZ 2
Combined transport strategy and legislation. Load units. Means of transport in combined transport. Combined transport systems. Transsh	1 1
12Y1KP   Communication and Promotion of Transport Projects	KZ 2
Fundamentals of Public Relations and the power of public opinion. Work and tasks of PR department and press spokesperson. Communi networks and beyond. Communication strategy of transport projects. Systematic goodwill building. Crisis situations in communication and	•
influence of political marketing and political PR on transport projects. Lobbing.	proparation of onoic communication. The
20Y1KP Communication and presentation skills	KZ 2
Motivation, priorities and their fulfillment, current communication networks, work with various sources, formal requirements of emails and	
teamwork, emotional intelligence, manipulation and way of working with it, coping with stressful situations, formal requirements of presentation, presentation skills, presentation skills in online environment.	itations, ways or communication during
23Y1KM Crisis Management	KZ 2
Theory and legal frame of crisis management with direction to Rescue system (IZS). After introduction to safety domain, there are terms are	
management and its targets; IZS-crisis management-crisis planning; and basic legislation. Practical part is concentrated to responsibility	
23Y1KO Quantum Physics and Optoelectronics Ground of quantum physics. Application of quantum physics in practice. Optoelectronics. Production of optoelectronics components.	KZ   2
23Y1KY Cybernality	KZ 2
Juridical aspects of behavior on the computer network and computer systems. Cybernetic crime technology. Theory basis and models. Cyb	perterrorism. Infoware and connected aspects.
23Y1KB Cyber security in transportation	KZ 2
Basic concepts of security and cyber security, legal status in the field of cyber security, virtual cyberspace and communities, taxonomy of engineering, cyber attack technology, information security, cyber attacks on telematics systems, security of systems with artificial intellige	
21Y1LJ Aeronautical Radio and Flight Instruments	KZ 2
Basic definitions, history of aircraft instrumentation, aerometric instrumentation, Earth magnetism, aircraft electric equipment, gyroscopic in	-
other aircraft equipment, engine instrumentation, warning and recording systems, instrumentation operational requirements, radiocommu	
21Y1LS   Air Traffic Services	KZ 2
Airspace structure in Czech Republic and other countries. Introduction and description of ATS units in Czech Republic. Practical examples at USA and Czechoslovakia. ATS - Model of financing. Training System of Air Traffic Controllers. Future development of ATS.	s of TWR, APP a ACC control. History of ATS
17Y1LL Logistics of Passenger and Freight Air Transport	KZ 2
Logistics airline passenger and cargo. Aircraft and airport terminals for passenger and cargo transport. Airlines in terms of logistics system	ms. Aerial transport process passengers and
air cargo. Information systems in air transport. Global distribution systems.	1/7
20Y1LN   Location and Navigation   Description and examples of road networks, localization on the network. Routing algorithms, their properties and implementation. Description	KZ 2
transport connections, routing algorithms, their properties and implementation.	storr and examples of database for infamily
23Y1MK Crisis Situation Management in Critical Infrastructure	KZ 2
Determination of critical infrastructute elements on all levels, their protection systems, responsibilities of particular agencies of the state a their responsibilities to anounce particular safety provisions. Physical and cyber protection of critical infrastructure with special attention to	•
23Y1MU Emergency Events Management Solution in Transport Infrastructure	KZ 2
Basic solutions of emergency events with emphasis of the transport infrastructure events and their solution management. Knowledge in the	
in liquidation work within the transport infrastructure.	
17Y1MD   Marketing in Transportation	KZ   2
General principles of marketing applied to transport issues, marketing tools suitable for transport as a service, specifics of public passenge the application of marketing.	ger transport and the resulting differences in
18Y1MT Engineering Materials	KZ 2
Systematic overview of main classes of materials used in technical design. In addition to main classes of materials, i. e. metals, ceramics,	
to biological materials and to biomimetics. Integral approach to material selection process is also demonstrated based on so called Ashby	
21Y1MP   Matlab for project-oriented study   The subject's syllabus is focused on the problem-solving during bachelor's thesis preparation and it is based on students' requests. Indivi-	KZ 2
particular examples, based on actual students' needs and suggestions. The subject will have a flexible form, which is expected to bring an	
14Y1MP Modeling Complex Assemblies and Models in Parametric Modeller	KZ 2
Assemblies programming - tools and methodology of working subassemblies and assemblies, sheet metal parts modelling, welded asser	mblies, pipelines, and distribution lines.
Photorealistic output rendering - physical and material properties, lighting sources. MKP - visual example.  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.	112   2
15Y1NE German in the Economy and Society	KZ 2
Recent economic and social issues of German speaking countries and of the EU. Reading and listening of texts. Lexical, grammatical and	d semantic analysis of texts. Discussion on
21Y1OH Airline Business and Operations	KZ 2
The course provides a comprehensive view of the commercial, operational and transportation activities of air transport companies. It focuses	l l
various aspects of their strategy, economic and operational indicators. It introduces students in detail to operational processes and the esse	entials of transportation processes. It provides
a basic view of the economic aspects of air transport.	V7   0
23Y1OK   Protection of Critical Objects and Infrastructures   Types of technological systems, critical item, risks and their courses, criticality, vulnerability, connectivity, dependability, resilience, failure, p	KZ 2
infrastructures.	
20Y1OI Fare Collection and Information Systems	KZ 2
Fare collection systems in public transport and their components (on-board units, validators, turnstiles,). Information systems and their	
panels) and operators (cycles, location or current delay of vehicles,). The issue of tariff systems. Other examples of clearance system	

14Y1OJ Object - oriente	ed programming in JAVA	KZ	2
	Attributes. Access modifiers. Methods and overloading. Special methods (constructors, getters / setters)	•	
	cs, constants, interfaces, abstract classes, enum, packages, exceptions, collections, generics, lambda e		
14Y1OP Operating Syst		KZ	2
	window system. Rights management - users and groups, ACL rights. Filesystems and attributes. Program	· ·	
· -	nds. Config files. SW management, package systems. Programs in graphic shell - text, spreadsheet, gra e and secure configuration of OS. Remote administration.	pnic editors, soun	a, video and
17Y1OF Personal Finan		KZ	2
	living needs), debt (loans and credits, payment instruments, interest and fees, debt trap), financing of h	1	
	estments (investment horizon, return, risk, investment strategy), insurance (insurance types, suitability a		
(retirement savings and insurance).	37),	,,,	g
20Y1OK Road Lighting		KZ	2
,	nting components (luminaires, control cabinets for street lighting, street lighting cables), characteristics of l	ı luminaires (lifetime	of light sources,
light distribution), standards, measurement of	of illuminance and luminance in road lighting, tunnels, conceptual approach to street lighting design, ligh	nting calculations in	n DIALux and
Relux, street lighting control systems.			
11Y1PV Parametrical ar	nd Multicriterial Programming	KZ	2
Solution to the problem of linear programming	g 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 Man	agement	KZ	2
Human sources, work group, man as person	nality, planning, choice, evaluation and education of human sources, work adaptation, teamwork, intercu	Itural communicat	on.
	Cycling Transport	KZ	2
_	s. Modifications for blind, dim-sighted and disabled people. Design of cycle routes network. Ways of cycle r	-	
	transport modes. Cycle tracks and its design - one way streets, reserved traffic lanes, bus stops, crossi	ngs with other trar	sport modes,
crossroads. Traffic signs and road marking fo		147	
14Y1PG   Computer Grap		KZ	2
= : :	their editing and mutual conversion. Use of individual types according to character of work. Work with ed s of digital photography, scanning and computer technology like monitors and graphics cards.	diting programs (w	itnin the user
		KZ	2
	of Transportation Projecting 2 on projecting aid. AutoCAD environment possibilities of basic tasks automatizing (programming, scripting,	1	
	s). Work in projecting group, external references. Basic tasks for cummunication projecting (clotoidic trans		
section). Basics of 3D modelling.	5). Work in projecting group, external relevances. Basic tasks for cuminalitication projecting (dictional trans	Sition curve, cross	and longitudinal
	ulations in Mechanics	KZ	2
	nalysis of structures. Numerical methods in mechanics, finite element method. Geometric model develop	1	<del>-</del>
· · · · · · · · · · · · · · · · · · ·	terial properties. The types of elements and their use. Discretization of solid model. Boundary conditions	=	
tasks of structural and modal analysis. Introd			
14Y1PI Corporate Infor	mation System	KZ	2
Data-information-knowledge, components of	f information system, syntatic and semantic sense of data, structure of corporate information system, pa	rticular informatio	n system
"	porate information politic and information control, risks of information system operation, legal environment	nt of information s	stem operation,
state information system, information system			
14Y1PZ Advanced Data	a Processing in Spreadsheets		
	• .	KZ	2
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12Y1RU Railway Lines Reconstruction	KZ	2
Keeping railway line operational, maintaining lines and stations, geometrical alignment of railway line, vehicles for railway superstructure an	d substructure maintenand	e, scheduling
and organising possesions, preparation of railway lines reconstruction and maintenance, process of railway line reconstruction.  16Y1RE Control and Electronic Vehicle Systems	KZ	2
Elementary concepts of regulation. Tools for analytical solution, linear system description. Basic types of a regulator (PID), properties, advanta		
and hybrid drive control. Electric drive. Vehicle communication bus (CAN, LIN, FlexRay, ISObus, KWP2000 protocole etc.). Vehicle electronic		
comfort systems.		
21Y1RZ Human Resources Management	KZ	2
The position of human resources in the organization and related disciplines file. Substance, importance and challenges of human resources environment of human resource management. Human resource planning. Search, recruitment and selection of employees. Motivation, evaluation, evalu	<del>-</del>	
dismissal and redundancies of employees. Education of employees. Planning career management.	ation and remuneration of s	stan. Fositioning,
17Y1ST Titan Simulation	KZ	2
Titan is a management game simulating the business decisions. Lets 2-8 student groups to produce and compete in the market with the sal	me product. Students set a	price and
determine the quantity and capacity of production, plan budgets for marketing, research and development. They become familiar with the co	onsequences of their decis	ions by the form
of financial corporate reports and they use this information for other business decisions.  21Y1SI ATC Simulator	1/7	2
21Y1SI   ATC Simulator Familiarization with the simulation environment, acquiring basic habits, aircraft identification procedures, vectoring, level changes, ATC clea	rance_use of RNAV points	2 Practical
exercises focusing on basic vectoring, early application of vertical separation, EST and REV message passing. Practical exercises in the Af	· ·	
departure management procedures, conflict resolution.		
20Y1SC Sensors and Actuators	KZ	2
Principles of sensors and actuators. Basics of measuring theory and actuating influence. The respective technologies and construction principle	s. Sensors of mechanical, e	electro-magnetic,
state (temperature, humidity), chemical and particle flow values. Electrical, pneumatic and hydraulic actuators and solid phase elements.	1/7	2
17Y1SL   Sociology of Human Resources Human resources and their importance, work group as a special kind of social group, communication, personal management, modern modern management, modern management, modern modern modern management, modern	mement human resources	
of the organization.	,oo.n,aa	piag, caita.c
11Y1SI Transportation Software Engineering	KZ	2
Basic concepts of software engineering, ranging from domain analysis, requirement analysis and software architectures to analyses, design a	nd implementation using fo	ormal techniques
and practical usuage.		
16Y1KS Quality and Reliability of Vehicles	KZ	2 MEA (Failure
Quality and reliability theory in design, development, production and operation of vehicles. Definition and possible approach to quality and reliability theory in design, development, production and operation of vehicles. Definition and possible approach to quality and reliability theory in design, development, production and operation of vehicles. Definition and possible approach to quality and reliability theory in design, development, production and operation of vehicles. Definition and possible approach to quality and reliability theory in design, development, production and operation of vehicles. Definition and possible approach to quality and reliability theory in design, development, production and operation of vehicles. Definition and possible approach to quality and reliability theory in design, development, production and operation of vehicles. Definition and possible approach to quality and reliability theory in design, development, production and operation of vehicles.	· · · ·	
Knowledge-based systems of quality and reliability, data collection.	moundad adda m maadine	арриоанопо
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	ed development of road ne	twork, short,
medium and long-term strategy of the Ministry of Transport. Maintenance of roads winter and summer, its requirements, specifics, possibilities	es and repair methods are	discussed in the
classroom as well as investment activity in highway engineering.  16Y1SO Strategy and innovation in mobility	KZ	2
16Y1SO   Strategy and innovation in mobility Introduction to innovation, definition. Innovation strategy. Innovation life cycle and ecosystem, main sources and funding opportunities. Succ	1	_
co-financing, evaluation. Sprint method and its use. Innovative business model - main patterns and examples, design, strategy, processes a		_
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 mana evaluation of the timetable. Vehicle circulation creation. Optimizing driver shifts and arranging them in turnus. Effects of barrier-free and pub		
marketing.	ile transport preferences. I	THE TOTE OF
11Y1TG Graph Theory	KZ	2
Basic concepts and terminology of graph theory, graph representation. Problems of graph theory, problem instance. Graph search algorithm		ng tree, shortest
path problem, Eulerian path, bipartite graph matching, flow networks, circulations, critical path method, traveling salesman problem. Problem o	f existence and optimizatio	n and algorithms
for their solving. Computational complexity, dealing with NP-complete problems, heuristic approach.	1/7	0
23Y1TP   Criminal Law in IT and Transportation Introduction of criminal law into legal order, conception of culpability and criminal delict, consequency of other legal standards. international	KZ	2
crime, specific indicia of criminal court cases, practical examples.	treaty and omminariaw, in	vestigation of
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 s	olutions. Your own applicat	ion programmed
in PHP language.		
21Y1UL Aircraft Maintenance	KZ	2
Aircraft operations and technical operations. Maintenance and work processes. Defects search methods, status check diagnostic tools. Select Basic documentation for maintenance. Optimization of time maintenance intervals. Regulation no. 1321/2014 Part 145. Human factors of air		
EASA for aircraft maintenance. Seminars will be focused on practical application.	oran maniforiance. Regule	alon or allocion
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 st	tyles, create tables of cont	ents, lists of
figures, tables, graphs, etc. Footnotes, captions, index. They practice corrections of finished documents. The goal is to prepare students for the stable to	seamless editing dissertat	ions and theses,
so that they are able to concentrate mainly on writing a thesis.	1/7	2
18Y1UK Introduction of Rail Vehicles Basic characteristics and parameters rail transport systems - railway and urban transport. Basis driving mechanics rail vehicles - equation of	KZ of motion train and unit train	2 ns Rolling and
track resistance. Total running resistance. Acceleration force. Analyzing driving cycle rail vehicle. Speed-power diagrams and characteristics in		=
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 demand management and directional coordin	· · · · · · · · · · · · · · · · · · ·	-
Basic operating parameters and transport variations. Types of lines according to their routing and basic operating parameters. Time coordin Organization of tram operation in Prague. Tram safety.	ation of lines. Operational	uattic control.
g		

23Y1VS   Negotiation and Cooperation	KZ	2
Code of conduct for negotiation. The influence of personality traits on the negotiations. Negotiation and commanding. Teamwork. Variants teams. Inf	ormal and formal r	ole in the team.
Principles of negotiation, the essence of negotiation, the differences in negotiation in business and in crisis situations, the principle of "win both", sp.	ecifications and bio	dding, the role of
trust.		
14Y1VM Development of Applications for Mobile Devices	KZ	2
Object oriented programming, Java programming language, development environment, operating system Android, development application - widge	ts, containers, thre	ads, menu,
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 tr	ansportation. Critic	cal situation
assesment. New materials in design. International standardization.		
14Y1WG Webdesign	KZ	2
Students will learn the basics of HTTP communication, URL and addressing, HTML5 markup language, advanced CSS3 techniques, accessible an	d usable web rules	s, responsive
webdesign, content management systems, web server installation + configuration directives. The subject matter will be trained on examples.		
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 access	ibility and usability	CSS properties
and selectors, the issue of web browsers, creating one to three column layout pages, sites validation, conditional comments. Topics will be practiced	d 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, web	server installation	n + configuration
directives. Topics will be practiced on practical examples.		
16Y1ZG Introduction into Applied Computer Graphics	KZ	2
Computer graphics, division and applications with emphasis on transport, including development and research. Colours, colour perception, colour s	chemes, models, p	rinciples of 2D
and 3D generation, elementary algorithms for graphic data workout. Visualisation principles and tasks, technics, graphics and visualisation HW bas	ics. Introduction to	2D and 3D
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 from	om 2D sketches. In	nport and export
from 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,	matrices and elem	ents operations,
control flow, inputs and outputs, graphics, optimization and program code debugging.		
14Y1ZJ Fundamentals of programming in JAVA	KZ	2
Introduction to the Java SE Platform. IDE Installation and First Project. Comments. Variables and Type System. Operators. User Input and Parsing.	hain and Chain C	onversion. Text
Chain and Mathematical Methods. Terms. Relational Operators and Switches. Cycles for, while, foreach. Field - declaration, initialization, methods for	or field work. ASCII	. Functions,
parameters, return value, recursion. Program creation.		
12Y1ZU Principles of Urbanism	KZ	2
Survey on history of city and settlement building. Functional components and their mutual relations (working, living, recreation, transportation). Spa-	cial arrangement o	f 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	KZ	2
Historical prologue, evolution of the "West" and "East" from the 1500s. Focus on the history in the period between 1850 nad 1950. Milestones and cor	tinuity of the interr	ational 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 co	nsequences.
Economic and financial history. Social changes. Discussions on texts, sources.		
16Y1ZL Vehicle Testing, Legislation and Construction	KZ	2
Vehicle, bus and motorbike costruction, aggregate computing, driving resistance, build and parameters of traction, constructional arrangement of person	nal cars, trucks, bu	ses, motorbikes,
legislation in the EU and in the world, technical legislation creation, testing methods, vehicle tests, accelerated tests, mathematical modelling in testing	ting.	

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 grou	p:					
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 Libor Žídek, Drahomír Schmidt Drahomír Schmidt Drahomír Schmidt (Gar.)	Z	0	0P+2C	Z	V
14DZT	Digital Support for Railway Lines Martin Brumovský Martin Brumovský (Gar.)	Z	0	0P+2C	L	V
11SCFZ	Seminar of Physics Old ich Hykš, Jana Kuklová, Zuzana Malá, Tomáš Vít <b>Zuzana Malá</b> Zuzana Malá (Gar.)	Z	0	0P+2C	Z	V
21SLD	Seminar of Air Transport Jakub Kraus, Natalia Guskova, Vladimír Plos Vladimír Plos	Z	0	0P+2C	L	V
18SPP	Seminary from Elasticity and Strength Jan Vy ichl, 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  Jan Vy ichi	Z	0	0P+2C	L	V
11SSF	Secondary School Physics Course Zuzana Malá Zuzana Malá Zuzana Malá (Gar.)	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	ities of technical processing problems focused on designing of roads and highways.	'	'
14DZT	Digital Support for Railway Lines	Z	0
Seminars possibili	ities 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, radi	o navigation. Weight,	balance,
performance. Fligh	ht planning, optimization of speed and heights, minimum fuel. Limitations of operation, maintenance, service life of aircraft. Tral	ffic management, gro	und handling,
security. Air crew.	Airlines and economics. Space technologies.		
18SPP	Seminary from Elasticity and Strength	Z	0
Excersise for prac	tice. Tension and compression. Bending of beam. Shear stress during bending of beam. Design and analysis of cross section	of beam. Analysis of	deflection curve
of hoom Toroion			
or beam. Torsion c	of circle cross section. Combined loading. Stability of compressed bar and buckling.		
18STD	of circle cross section. Combined loading. Stability of compressed bar and buckling.  Seminary from Technical Documentation	Z	0
18STD		_	
18STD	Seminary from Technical Documentation ds, international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimer	_	
18STD Technical standard	Seminary from Technical Documentation ds, international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimer	_	
18STD Technical standard arrangement of dr 18SS	Seminary from Technical Documentation ds, international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimer rawing sheets.	nsional and geometric	cal accuracy,
18STD Technical standard arrangement of dr 18SS Examples for prace	Seminary from Technical Documentation ds, international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimer rawing sheets.  Seminary from Structural Analysis	nsional and geometric  Z am and simple frame	cal accuracy,  0 ework. Applicatio
18STD Technical standard arrangement of dr 18SS Examples for pract of principle of virtuals	Seminary from Technical Documentation ds, international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimer rawing sheets.  Seminary from Structural Analysis tise. General system of forces. Reactions of mass objects and compound systems. Internal forces on statically determinate be	nsional and geometric  Z am and simple frame	cal accuracy,  0 ework. Applicatio
18STD Technical standard arrangement of dr 18SS Examples for pract of principle of virtuals	Seminary from Technical Documentation ds, international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimer rawing sheets.  Seminary from Structural Analysis citise. General system of forces. Reactions of mass objects and compound systems. Internal forces on statically determinate be usel works for calculation of reactions of statically determinate systems. Determination of axial forces in truss construction - met	nsional and geometric  Z am and simple frame	cal accuracy,  0 ework. Application
18STD Technical standard arrangement of dr 18SS Examples for pract of principle of virtu. Geometry of cross 11SSF	Seminary from Technical Documentation ds, international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimer rawing sheets.  Seminary from Structural Analysis citise. General system of forces. Reactions of mass objects and compound systems. Internal forces on statically determinate be ual works for calculation of reactions of statically determinate systems. Determination of axial forces in truss construction - meths sections. Plane fiber polygons.	nsional and geometric  Z am and simple frame	cal accuracy,  0 ework. Applicatio hod of sections.
18STD Technical standard arrangement of dr 18SS Examples for pract of principle of virtu. Geometry of cross 11SSF	Seminary from Technical Documentation ds, international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimer rawing sheets.  Seminary from Structural Analysis titise. General system of forces. Reactions of mass objects and compound systems. Internal forces on statically determinate be ual works for calculation of reactions of staticaly determinate systems. Determination of axial forces in truss construction - met is sections. Plane fiber polygons.  Secondary School Physics Course	nsional and geometric  Z am and simple frame	oal accuracy,  0 ework. Application hod of sections.

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:

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

15JZ3F	Foreign Language - French 3	Z	3
Grammar and stylisti	cs. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvemen	t of language struct	ure knowledge
and perceptive and o	ommunicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. W	ork with (profession	nal) text and its
features. Practice of	oral and written presentation.		
15JZ3I	Foreign Language - Italian 3	Z	3
Grammar and stylisti	cs. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvemen	t of language struct	ure knowledge
and perceptive and o	ommunicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. W	ork with (profession	nal) text and its
eatures. Practice of	oral and written presentation.		
15JZ3N	Foreign Language - German 3	Z	3
rammar and stylisti	cs. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvemen	t of language struct	ure knowledge
and perceptive and o	ommunicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. W	ork with (profession	nal) text and its
eatures. Practice of	oral and written presentation.		
15JZ3R	Foreign Language - Russian 3	Z	3
Grammar and stylisti	cs. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvemen	t of language struct	ure knowledge
nd perceptive and o	ommunicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. W	ork with (profession	nal) text and its
eatures. Practice of	oral and written presentation.		
5JZ3S	Foreign Language - Spanish 3	Z	3
3rammar and stylisti	cs. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvemen	t of language struct	ure knowledge
and perceptive and o	ommunicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. W	ork with (profession	nal) text and its
eatures. Practice of	oral and written presentation.		
I5JZ4F	Foreign Language - French 4	Z.ZK	2
Grammar and stylisti		Z,ZI	3
Tamina ana Stynsti	cs. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvemen	,	_
•	cs. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvemen ommunicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. W	t of language struct	ure knowledge
and perceptive and o		t of language struct	ure knowledge
and perceptive and ceatures. Practice of	ommunicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. W	t of language struct	ure knowledge
and perceptive and ceatures. Practice of	ommunicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. World and written presentation.	t of language struct fork with (profession	ure knowledge nal) text and its
and perceptive and ceatures. Practice of 15JZ4I Grammar and stylisti	ommunicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Woral and written presentation.  Foreign Language - Italian 4	t of language struct /ork with (profession  Z,ZK t of language struct	ure knowledge nal) text and its 3 ure knowledge
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and perceptive and of pattures. Practice of 5JZ4I Grammar and stylisting perceptive and of pattures. Practice of 5JZ4N	ommunicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Woral and written presentation.  Foreign Language - Italian 4 cs. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvemen ommunicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. W	t of language struct ork with (profession Z,ZK t of language struct ork with (profession Z,ZK	ure knowledg nal) text and it 3 ure knowledg nal) text and it
and perceptive and of eatures. Practice of 15JZ41  Grammar and stylisting perceptive and of eatures. Practice of 15JZ4N  Grammar and stylisting and of eatures are of 15JZ4N  Grammar and stylisting and of eatures and stylisting and stylisting eatures.	ommunicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Woral and written presentation.  Foreign Language - Italian 4 cs. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement ommunicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Woral and written presentation.  Foreign Language - German 4	t of language struct ork with (profession Z,ZK t of language struct ork with (profession Z,ZK t of language struct	ure knowledgenal) text and its 3 ure knowledgenal) text and its 3 ure knowledgenal) text and its
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### List of courses of this pass:

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.

Code	Name of the course	Completion	Credits
00Y1XB	Active participation in a scientific project, workshop, short-term trip abroad	KZ	2
11CAL1	Calculus 1	Z,ZK	7
Sequence of real n	umbers and its limit. Basic properties of mappings. Function of one real variable, its limit and derivative. Indefinite integral, Newton integ Riemann integral. First-order differential equations, linear differential equations.	ral, Riemann integr	al, improper
11CAL2	Calculus 2	Z,ZK	5
Linea	r differential equations and their systems, differential calculus of functions of several real variables. Riemann integral in Rn. Line and	surface integrals.	!
11FYZ	Physics	Z,ZK	5
	Kinematics, dynamics, Newton's laws, force fields, mechanics of continuum, thermodynamics, introduction to electrostatics and elec	tric current.	•
11GIE	Geometry	KZ	3
Differential geome	try of curves - parameterization, the arc of the curve, torsion and curvature, Frenet's trihedron. Kinematics - a curve as a trajectory of a curve on a curved path.	of the motion, the ve	elocity, and
11LA	Linear Algebra	Z,ZK	3
Vector spaces (line	ar combinations, linear independence, dimension, basis, coordinates). Matrices and operations. Systems of linear equations and the	ir solvability. Deterr	minants and
	their applications. Scalar product. Similarity of matrices (eigenvalues and eigenvectors). Quadratic forms and their classificat	ion.	
11LP	Linear Programming	KZ	3
Formulation of the	problem of linear programming, transcription of some practical problems to the linear programming problems. Simplex and convex posolutions, duality principle in linear programming, stability of solution of linear programming problem. Traffic problem.	olyedra. Simplex me	ethod, basic

11MSP	Modeling of Systems and Processes	Z,ZK	4
*	tem, external and internal system description, continuous and discrete system, mathematics as a tool, examples of formulation of differe		
Linear and nonl	linear system, stationary and non-stationary system, causality. Convolutional integral. Laplace and Z transformations. Transfer function	n. Stability of LTI	systems.
440057	Discretization of continuous systems. System interconnection.	7	
11SCFZ	Seminar of Physics  Solving problems on kinematics, particle dynamics, dynamics of particle systems and rigid body. Continuum mechanics, thermody	Z	0
11SSF			0
1155F	Secondary School Physics Course  Basics of kinematics, dynamics, thermodynamics, electric field and magnetic field.	Z	0
11STAT	Statistics	Z,ZK	4
	ity Descriptive statistics Population and sample, limit theorem Point estimate, construction and properties Interval estimates Paramet		1
	Regression and correlation analysis	·	
11X31	Project 1	Z	2
11X32	Project 2	Z	2
11X33	Project 3	 Z	2
11Y1BK	Error Detection Codes for Interlocking Systems	KZ	2
	n and methods for its assuring. Safety codes linear codes, cyclic codes, BCH codes, Reed-Solomon codes. Transmission channels, de	· <del></del>	_
	probability of undetected error. Design and assessment of detection codes; requirements of the European standard EN 5015		,
11Y1PV	Parametrical and Multicriterial Programming	KZ	2
	lem of linear programming with a parameter in objective function, on right sides and in the matrix of coeficients of linear constraints. Co		1
11Y1SI	Transportation Software Engineering	KZ	2
Basic concepts of se	oftware engineering, ranging from domain analysis, requirement analysis and software architectures to analyses, design and implemen	tation using forma	al techniques
	and practical usuage.		
11Y1TG	Graph Theory	KZ	2
	terminology of graph theory, graph representation. Problems of graph theory, problem instance. Graph search algorithms, trees, min		
path problem, Euler	ian path, bipartite graph matching, flow networks, circulations, critical path method, traveling salesman problem. Problem of existence at	nd optimization ar	nd algorithms
	for their solving. Computational complexity, dealing with NP-complete problems, heuristic approach.		
11Y1ZM	Foundation of MATLAB Programming	KZ	2
To explain the princ	iple of algorithmization, flow charts, description of MATLAB environment and its settings, MATLAB help, mathematical operators, matr	ices and elements	s operations,
	control flow, inputs and outputs, graphics, optimization and program code debugging.		
12MDE	Transport Models and Transport Excesses	Z,ZK	3
	raffic flow and methods for their measurement. Models of the traffic flow, communications load, line and urban systems. Theory of qu		
transport and its a	issessment. Statistical characteristics of transport. Transport excesses, their analysis, the causes, identify and minimize the conseque safety and fluency.	ences. Improving	oi tiansport
12PPOK	Designing Roads, Highways and Motorways	KZ	3
1211 OK	Designing Roads, Flighways and Motorways		
Definition, types, o	ownership, maintenance, management and categorization of roads and highways. Curve and transition curve, Sinuosity and standard	speed. Route in	1
	ownership, maintenance, management and categorization of roads and highways. Curve and transition curve. Sinuosity and standard stopping and overtaking. Road body - shapes and proportions, bottom and superstructure. Drainage and components of roads. Safet	-	rural areas.
	ownership, maintenance, management and categorization of roads and highways. Curve and transition curve. Sinuosity and standard stopping and overtaking. Road body - shapes and proportions, bottom and superstructure. Drainage and components of roads. Safet intersections.	-	rural areas.
	stopping and overtaking. Road body - shapes and proportions, bottom and superstructure. Drainage and components of roads. Safet	-	rural areas.
Range of vision for 12X31	stopping and overtaking. Road body - shapes and proportions, bottom and superstructure. Drainage and components of roads. Safet intersections.  Project 1	y device. Crossino	rural areas. gs, junctions,
Range of vision for 12X31 12X32	stopping and overtaking. Road body - shapes and proportions, bottom and superstructure. Drainage and components of roads. Safet intersections.  Project 1  Project 2	y device. Crossing	rural areas. gs, junctions, 2 2
Range of vision for  12X31 12X32 12X33	stopping and overtaking. Road body - shapes and proportions, bottom and superstructure. Drainage and components of roads. Safet intersections.  Project 1  Project 2  Project 3	y device. Crossing  Z  Z  Z	rural areas. gs, junctions,  2 2 2
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12Y1PD	Assessment of Transport Structures	KZ	2
	sport structures, the EIA process. Multicriteria assessment methods, risk analysis, SWOT analysis. Landscape character, possibilities of	-	
transport structures	s on the landscape. Rating fragmentation and landscape connectivity in the preparation of linear structures. Practical examples of ass the environment.	essment of traffic I	buildings on
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 ve stations. Technology of work in railway station with regard to its disposition. Railway station documentations in the Czech Republic		ion yards.
12Y1RU	Railway Lines Reconstruction	KZ	2
	ne operational, maintaining lines and stations, geometrical alignment of railway line, vehicles for railway superstructure and substruct	ure maintenance,	
	and organising possesions, preparation of railway lines reconstruction and maintenance, process of railway line reconstruction		
12Y1SU	Road Management and Maintenance vith ownership of roads in the Czech Republic and the administration of the road at the state and county level. It is presented develop	KZ	2
· ·	and ownership of roads in the Czech Republic and the administration of the road at the state and county level. It is presented develop For strategy of the Ministry of Transport. Maintenance of roads winter and summer, its requirements, specifics, possibilities and repair		
	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 line arameters 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.	o. Operational trai	no control.
12Y1ZU	Principles of Urbanism	KZ	2
Survey on history	of city and settlement building. Functional components and their mutual relations (working, living, recreation, transportation). Spacial	arrangement of se	ettlements.
407AD	Types of towns or cities with a certain prevailing function, forms of their development. Brief overview of land-use planning.	7	
12ZAR Urbanism and	Introduction to Architectural Design architecture of traffic systems. Bus and trolley-bus transport. Tramway and town tracks. Design of vehicles. Subway. Railway transpor	Z rt. Railwav stations	3 Local
0.246 44	communications. International airports.	arramay stations	. 2004.
12ZPV	Railway Operation	Z,ZK	4
Legislation in raily	vay transport. Railway vehicles. Railway signals and signal devices. Railway traffic organisation and operation. Simplified railway traffi	c operation. Railwa	ay vehicles
12ZTS	brakes. Railway vehicles marking. Operation intervals. Theoretical graph of train running.  Railway Lines and Stations	Z,ZK	4
	ilway 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	· ·	
12ZYDI	Introduction to Transportation Engineering	Z,ZK	2
Role of transportati	on in land-use planning. Basic terms in transportation engineering. Traffic survey and traffic prognosis. Introduction to topic of roads, p impacts of transportation to environment and safety.	ublic mass transpo	ort. Negative
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 Bool	lean algebra to construct constraints in algorithms. Students will be introduced to the basics of the Python programming language - v	-	loops, they
14DATS	will learn to work with variables of basic data types (integer, floating point and string) and the list data structure in their progra  Database Systems	ms. KZ	2
	batabase Systems, conceptual model, relational data model, the principles of normal forms, relational database design, security an		
	queries, relational algebra, SQL language, client / server, multilayer architectures, distributed database systems. Access to data via		
14DMG	Datamining	KZ	2
	ces and knowledge, data warehouses and OLAP technology for data mining, data preprocessing in the process of knowledge acquis tics 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
14KSP	Seminars possibilities of technical processing problems solved in the field of railway lines.  Constructing with Computer Aid	KZ	2
	m determination. CAD role in projecting system model. Existing CAD systems on Czech market. Project creation, basic common wor		
and CA systems.	Co-ordinated systems, CAD environment skill (basics of constructing, dimensioning, modifications, user interfaces, projecting possible constructions).	ilites, AutoCAD en	vironment
4.41400	profiles, drawings with raster foundaments).	1/7	
14MPG Students will be rer	Modern Programming Approaches  minded of some aspects of Pythom programming, learn basic concepts and constructs from object-oriented programming and their ir	KZ	2 Outhon They
	ry 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
_	ramming builds on and fully extends the course 14ASD (Algorithmization and Data Structures). The knowledge of the Python program		
nere so mai me pai	rticipant gains skills and can apply them to solve various follow-up tasks. Main topics: lists, multidimensional arrays, sorting and searc working with date and time, regular expressions, functions and procedures, working with files (CSV, JSON, XML).	ımıy, tuples, sets, (	uiciioHaHes,
14X31	Project 1	Z	2
14X32	Project 2	Z	2
14X33	Project 3	Z	2
14Y1AV	Animation and Visualization	KZ	2
	tions and modeling of NURBS, Patch objects, selection of objects (according to filter and properties). 3D Studio MAX systems and Spa s, rendering filters, Motion blur, advanced animations, Motion panel. Modeling for morphing and animation, bone formation, animatior		
14Y1BE	Barrierless Transport	KZ	2
The issue of barrier	less 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 Basic biometric to		1/7	
	Biometric Methods  erms, authentication methods, principles and performance measurement of biometric systems, overview of biometric technologies, ha	KZ	2 recognition
	method, 2D and 3D face recognition, vein patterns on the wrist, ear biometrics, fingerprint recognition, skin spectroscopy, behavioral r	•	
	in transport applications, safety and risks of biometric technologies.		
14Y1HW	Computer Hardware	KZ	2
Computer archit	tecture, basics of logical circuits design and their realization using FPGA. In detail, description of computer architecture and separate   arithmetic and logical units, I/O subsystem.	parts designing -	controllers,
14Y1MP	Modeling Complex Assemblies and Models in Parametric Modeller	KZ	2
	ogramming - tools and methodology of working subassemblies and assemblies, sheet metal parts modelling, welded assemblies, pipe	l .	1
447/401	Photorealistic output rendering - physical and material properties, lighting sources. MKP - visual example.	1/7	
14Y1OJ	Object - oriented programming in JAVA . Encapsulation. Classes. Attributes. Access modifiers. Methods and overloading. Special methods (constructors, getters / setters). Ba	KZ	2
	i. Encapsulation. Classes. Attributes. Access mounters, interfoces and overloading. Special methods (constructors, getters / setters). Batance. Polymorphism. Statics, constants, interfaces, abstract classes, enum, packages, exceptions, collections, generics, lambda expre	-	
14Y10P	Operating System	KZ	2
Distributions. In	stallation GNU/Linux OS. X-window system. Rights management - users and groups, ACL rights. Filesystems and attributes. Program console programs / commands. Config files. SW management, package systems. Programs in graphic shell - text, spreadsheet, graph	•	
14Y1P2	communication. Services management. Safe and secure configuration of OS. Remote administration.  Computer Aid of Transportation Projecting 2	KZ	2
	application for transportation projecting aid. AutoCAD environment possibilities of basic tasks automatizing (programming, scripting, dat	l	1
	butes, relation to databases). Work in projecting group, external references. Basic tasks for cummunication projecting (clotoidic transitio		
	section). Basics of 3D modelling.		
14Y1PA	3D Modeling in AutoCAD	KZ	2
Vork in 3D non-	parametric modeller (AutoCAD) environment, scenes rendering, creation of planar and volumetric objects, user setup creation, object	data creation, wo	ork with data
14Y1PG	connected with external database. Basic definition of work with lights, materials and reflexes. Models presentation.	1/7	
	Computer Graphics  f graphic and possibilities of their editing and mutual conversion. Use of individual types according to character of work. Work with editi	KZ	2
Dasic ionnais of	level scope) using layers, DPI, colors. Basics of digital photography, scanning and computer technology like monitors and graphic		illii tiie use
14Y1PI	Corporate Information System	KZ	2
	ion-knowledge, components of information system, syntatic and semantic sense of data, structure of corporate information system, pa	1	1
ersonalistic, pro	duction, storage, etc.), corporate information politic and information control, risks of information system operation, legal environment of	information system	em operatio
	state information system, information system security, data protection, safety politics.		
14Y1PJ	C Programming Language	KZ	2
programming la	nguage. Preprocessor, basics of the C language (data types, syntax, commands), functions, pointes, dynamical memory allocation, string limplementations of abstract data types (FIFO, LIFO, list), programming techniques (sorting, searching, recursion), using bitwise of	_	s and unior
441/407	Advanced Data Processing in Spreadsheets	KZ	
			, ,
14Y1PZ Students will be		l .	2 s including
Students will be	familiar with principles of working in a spreadsheet. Graphic layout of the table appearance, formatting of numbers, insertion of formula familiar with principles of working in a spreadsheet. Graphic layout of the table appearance, formatting of numbers, insertion of formula familiar with principles of working in a spreadsheet.	ı ılas and functions	s, including
Students will be		ı ılas and functions	s, including
Students will be	e familiar with principles of working in a spreadsheet. Graphic layout of the table appearance, formatting of numbers, insertion of formulatection. Working with large spreadsheets, filters, advanced filters, database functions. Pivot tables and charts, conditional formatting, s	ı ılas and functions	s, including
Students will be ddressing, error of 14Y1TI	e familiar with principles of working in a spreadsheet. Graphic layout of the table appearance, formatting of numbers, insertion of formulate detection. Working with large spreadsheets, filters, advanced filters, database functions. Pivot tables and charts, conditional formatting, sometimes and training.  Creating Interactive Internet Applications  ipting language PHP. Overview of PHP language syntax, and functions. Analysis of finished scripts and demonstration of solutions. You	ulas and functions solution finding, so	s, including olver, macro
Students will be ddressing, error of 14Y1TI possibilities of scr	e familiar with principles of working in a spreadsheet. Graphic layout of the table appearance, formatting of numbers, insertion of formulatetection. Working with large spreadsheets, filters, advanced filters, database functions. Pivot tables and charts, conditional formatting, sometimes and training.  Creating Interactive Internet Applications  ipting language PHP. Overview of PHP language syntax, and functions. Analysis of finished scripts and demonstration of solutions. You in PHP language.	las and functions solution finding, so KZ r own application	s, including olver, macro
Students will be ddressing, error of 14Y1TI possibilities of scr	e familiar with principles of working in a spreadsheet. Graphic layout of the table appearance, formatting of numbers, insertion of formulate detection. Working with large spreadsheets, filters, advanced filters, database functions. Pivot tables and charts, conditional formatting, so data analysis. Examples and questions from various companies and training.  Creating Interactive Internet Applications  ipting language PHP. Overview of PHP language syntax, and functions. Analysis of finished scripts and demonstration of solutions. You in PHP language.  Editing of Theses in MS Word	las and functions solution finding, so KZ r own application	s, including olver, macro
Students will be ddressing, error of 14Y1TI possibilities of scr 14Y1UP Students will be	e familiar with principles of working in a spreadsheet. Graphic layout of the table appearance, formatting of numbers, insertion of formulate detection. Working with large spreadsheets, filters, advanced filters, database functions. Pivot tables and charts, conditional formatting, so data analysis. Examples and questions from various companies and training.  Creating Interactive Internet Applications  ipting language PHP. Overview of PHP language syntax, and functions. Analysis of finished scripts and demonstration of solutions. You in PHP language.  Editing of Theses in MS Word  introduced to the principles of creating and editing large documents and basic typographic rules. They will properly apply styles, creating and editing large documents and basic typographic rules.	las and functions solution finding, so KZ r own application KZ te tables of conte	s, including blver, macro  2 programm  2 ents, lists of
Students will be didressing, error of 14Y1TI possibilities of scr 14Y1UP Students will be	e familiar with principles of working in a spreadsheet. Graphic layout of the table appearance, formatting of numbers, insertion of formulate detection. Working with large spreadsheets, filters, advanced filters, database functions. Pivot tables and charts, conditional formatting, so data analysis. Examples and questions from various companies and training.  Creating Interactive Internet Applications  ipting language PHP. Overview of PHP language syntax, and functions. Analysis of finished scripts and demonstration of solutions. You in PHP language.  Editing of Theses in MS Word  introduced to the principles of creating and editing large documents and basic typographic rules. They will properly apply styles, creataphs, etc. Footnotes, captions, index. They practice corrections of finished documents. The goal is to prepare students for seamless educations.	las and functions solution finding, so KZ r own application KZ te tables of conte	s, including blver, macro  2 programm  2 ents, lists of
Students will be didressing, error of the didressing, error of the didressing, error of the didressing, error of the didressing didressing the didressing	e familiar with principles of working in a spreadsheet. Graphic layout of the table appearance, formatting of numbers, insertion of format detection. Working with large spreadsheets, filters, advanced filters, database functions. Pivot tables and charts, conditional formatting, so data analysis. Examples and questions from various companies and training.  Creating Interactive Internet Applications ipting language PHP. Overview of PHP language syntax, and functions. Analysis of finished scripts and demonstration of solutions. You in PHP language.  Editing of Theses in MS Word interview of the principles of creating and editing large documents and basic typographic rules. They will properly apply styles, creataphs, etc. Footnotes, captions, index. They practice corrections of finished documents. The goal is to prepare students for seamless educated to the principle of the principles of creating and editing large documents and basic typographic rules. They will properly apply styles, creataphs, etc. Footnotes, captions, index. They practice corrections of finished documents. The goal is to prepare students for seamless educated to the principle of	las and functions solution finding, so KZ r own application KZ te tables of contelliting dissertation	2 programm 2 ents, lists of s and these
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15Y1MK	Modern History in Context: Every Day Life and Transport	KZ	2
151 IVIK	Historical overview of modern history of every day life, science, technology and transport in a wider context.	KZ	2
15Y1NE Recent economic a	German in the Economy and Society  nd social issues of German speaking countries and of the EU. Reading and listening of texts. Lexical, grammatical and semantic a  selected topics.	KZ nalysis of texts. Di	2 scussion on
15Y1ZV	East-West dichotomy: Prelude to the Cold War	KZ	2
	evolution of the "West" and "East" from the 1500s. Focus on the history in the period between 1850 nad 1950. Milestones and continu	-	
in the end of 19th c	entury and the beginning of the 20th century. Revolutions, the causes and consequences. Scientific and technological progress, the	e causes and con	sequences.
40000	Economic and financial history. Social changes. Discussions on texts, sources.	1/7	
16DPO	Vehicle Technology  principles. Drive, vehicle construction. Road transport, safety, heavy duty vehicle desing, dynamics. Rail transport, safety, carriage	KZ	2
verlicie. i unctions, p	Transshipment. Technological components of various modes of transport. Management and control of various means of transport	•	unc traction.
16UDOP	Introduction into Vehicles	Z	2
I I	ortation systems. Functionality and setup. Movement and drive principles. Engines and their characteristics. Rail, road, air and water	1	1
	of transport. Lifting equipment and conveyors. Legislation.		
16X31	Project 1	Z	2
16X32	Project 2	Z	2
16X33	Project 3	Z	2
16Y1EN	Energy Requirements of Vehicles	KZ	2
Dynamics and the d	Iriving inertial of the vehicles. Types of energy - kinetic, static, heat, chemical and others. Ways of energy change into kinetic energ	y. Combustion end	jine, electric
	drive, steam engine, air engine. Energy accumulation means, accumulator, flywheel, fuel cell. Energy recuperation. WTW ana	<del>.</del>	
16Y1IS	Interactive simulators and simulations	KZ	2
•	and application of computing equipment. Creating computing models. Mechanical and dynamic systems and their mathematical m		methods.
	tion of vehicle dynamics, on-land carriage in particular. Virtual reality systems. Practical exercise with simulation software and inter		
16Y1KS	Quality and Reliability of Vehicles ity theory in design, development, production and operation of vehicles. Definition and possible approach to quality and reliability. It	KZ	2
	nalysis), QFD (Quality Function Deployment), DFx (Design for Assamly, Manufacturying, Quality, Services) and other methods i		
Wood and Encots A	Knowledge-based systems of quality and reliability, data collection.		applications.
16Y1PV	Operation, Construction and Maintenance of Vehicles	KZ	2
	production. Vehicle maintenance. Vehicle diagnostics. Maintenence and repair plans. Engine maintenance and emission measurem	1	1
	General principles of engine diagnostics.		
16Y1RE	Control and Electronic Vehicle Systems	KZ	2
Elementary concepts	of regulation. Tools for analytical solution, linear system description. Basic types of a regulator (PID), properties, advantages, disadv	antages, function.	Conventiona
and hybrid drive o	control. Electric drive. Vehicle communication bus (CAN, LIN, FlexRay, ISObus, KWP2000 protocole etc.). Vehicle electronic control comfort systems.	, safety, communic	cation and
16Y1SO	Strategy and innovation in mobility	KZ	2
Introduction to inno	vation, definition. Innovation strategy. Innovation life cycle and ecosystem, main sources and funding opportunities. Successful inn	। ovation project, Kl	Pls, budget;
o-financing, evaluat	ion. Sprint method and its use. Innovative business model - main patterns and examples, design, strategy, processes and outlook	(business plan and	d possibilities
	of use). Creating an innovation strategy. Customer and value map, design and testing.		
16Y1VT	Development in Railroad Vehicles	KZ	2
Railroad vehicles t	raction. Railroad vehicle parametres regulation. Control and driving of railroad vehicles. Importance in heavy duty and personal tra	nsportation. Critic	al situation
40)/470	assesment. New materials in design. International standardization.	1/7	
16Y1ZG	Introduction into Applied Computer Graphics division and applications with emphasis on transport, including development and research. Colours, colour perception, colour sche	KZ	2
	i, elementary algorithms for graphic data workout. Visualisation principles and tasks, technics, graphics and visualisation HW basic		•
and the generalist	graphics software.		
16Y1ZL	Vehicle Testing, Legislation and Construction	KZ	2
ehicle, bus and moto	orbike costruction, aggregate computing, driving resistance, build and parameters of traction, constructional arrangement of personal	cars, trucks, buses	, motorbikes
legisla	ation in the EU and in the world, technical legislation creation, testing methods, vehicle tests, accelerated tests, mathematical mod	elling in testing.	
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. Tr	•	et, transport
	company, it's environment, balance sheet, costs, revenue, profit and maximalization of profit. Business plan, taxation in trans	·	
17ESYS	Transport Systems Economy	Z,ZK	6
/lacroeconomics, ma	acroeconomic indicators, transport system, transport externalities, energy in transport, shared economy, state transport system and	its quantification, r	ationalizatioi
17FID	of transport system.	7.71/	4
	Financing and Investment in Transport of transport infrastructure, the role of public administration in the financing and realization of investment in transport, the investment	Z,ZK	-
	ograms and their rules, competition, effectiveness and efficiency of spending public funds, evaluation systems of public projects ar		, oro, oabolu
17GEDS	Geography of Transport Systems	KZ	2
	iation of the transport system. Sociogeographic regionalization and its relation to transport. Transport and local and regional development	1	ı
-	odological framework. Mobility research - travel behavior, mode choice and the influence onto "modal-split." Modal competition. Practic		
4711/55	analysis in transportation planning.	7 71/	
17IVED	Integration of Public Transport	Z,ZK	3
	oth EU and CR, transport sectoral strategies, land use planning and evolution of space organization, integration of public service in izational structures of integrated public transport systems, internal and external bindings, contracting, carriage relations, conditions		
aduvidos and Organi	operations, grading and quality, IS, marketing.	, or both fail and D	ασ παπομυπ
17KLID	Quality in Transport Service	Z,ZK	3
· ·	on of quality, standards and international standardization, integrated management systems, modern attitudes of quality management	1	_
="	s of quality measurement, quality management, risks and opportunities, public transport quality, view of costumers, carriers and P	· ·	-
	quality costs, marketing and costumer satisfaction.		

17LGT	Logistics	Z,ZK	6
Logistics definition	n, basic concepts, store, warehouse, transport and handling equipment, logistics technology, logistics centers, information and intelligi	ent logistics system	ns, logistics
	city.		
17MAGD	Marketing in Transport	KZ	4
Development of	strategic marketing plans. Implementation of marketing campaigns. Branding and brand promotion. Public relations industry, business	and vertical marke	t. Website
development, sea	arch engine optimization. Government relations and industry organization lobbying. Advertising and strategic sponsorships. Multimedia	a presentations and	l corporate
	videos. Direct marketing and related lead generation campaigns.		
17MDP	Transport Prognostic Methods	KZ	2
The techniques of	economical analysis in the domain of analysis of dependencies, analysis and construction of time series and comparsion of statistica	l values using diffe	rencies and
	indices.		
17MRR	Managerial Decision-making and Management	Z,ZK	4
Decision-makin	g process; identifying exactly what the problem is; evaluating the issue; solving the issue; using multiple perspective analysis to make	a decision; usual m	nethod of
	thinking.		
17NAPR	Freight Traffic	Z	2
	Freight traffic and transportation system, conditions of implementation, forwarding.	1	
17TEDL	Transport Technology and Logistics	KZ	3
	nsport technology and logistics, particular steps of transport planning, line planning, timetabling, planning in pasanger and freight tran	I I	-
	nodus, technologic factors of the side of operator and client, organisation of city transport, logistic technologies and their aplication usi		
17TGA	Graph Theory and its Applications in Transport	Z,ZK	4
	of graph theory, paths in graphs, flows in networks, location problems, design problems on graphs, optimum routing, use of graphs in c	, ,	
17TVD	Technology of Public Transport	Z,ZK	5
	ents a detailed description of new knowledge and basic principles of hierarchical planning of public transport system accenting the ge		-
The course contr	quantified transport demand. The course would be oriented on multiple and multi-level optimisation of passenger public transport		ig and
17X31	Project 1	Z	2
	,		
17X32	Project 2	Z	2
17X33	Project 3	Z	2
17Y1EV	Public Sector Economy	KZ	2
	ancial theory of public sector, public choice theory, externalites, decisions about public finance allocation, economic assesment of pub		
tax system of the C	CR, state budget, management of public projects a their economic efficiency assessment, way of elaboration of PPP projects, funding fro	om EU funds, progr	am HDM-4.
17Y1LL	Logistics of Passenger and Freight Air Transport	KZ	2
Logistics airline pa	assenger and cargo. Aircraft and airport terminals for passenger and cargo transport. Airlines in terms of logistics systems. Aerial trans	sport process pass	engers and
	air cargo. Information systems in air transport. Global distribution systems.		
17Y1MD	Marketing in Transportation	KZ	2
General principles	s of marketing applied to transport issues, marketing tools suitable for transport as a service, specifics of public passenger transport a	and the resulting dif	ferences in
	the application of marketing.		
17Y10F	Personal Finance	KZ	2
Personal finance	(budget, financing of basic living needs), debt (loans and credits, payment instruments, interest and fees, debt trap), financing of hous	sing (rent, mortgage	e, savings,
consumer loans, re	efinancing), savings and investments (investment horizon, return, risk, investment strategy), insurance (insurance types, suitability and	adequacy), securin	g the future
	(retirement savings and insurance).		
17Y1PM	Personnel Management	KZ	2
Human sou	rces, work group, man as personality, planning, choice, evaluation and education of human sources, work adaptation, teamwork, inter-	cultural communica	ation.
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, li	ne networking. Cre	ating and
evaluation of th	e timetable. Vehicle circulation creation. Optimizing driver shifts and arranging them in turnus. Effects of barrier-free and public transp	ort preferences. Th	e role of
	marketing.		
17Y1SL	Sociology of Human Resources	KZ	2
Human resources	and their importance, work group as a special kind of social group, communication, personal management, modern management, hum	an resources plann	ning, culture
	of the organization.		
17Y1ST	Titan Simulation	KZ	2
Titan is a mana	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 p	orice and
determine the qua	ntity 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
Basic course of ma	aterials science and engineering explains mechanical properties of structural materials based on their bonding forces and microstructu	re. However the ma	ain attention
is paid to metals a	is 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
Tension and comp	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	f structures.
	Analysis of deflection curve of beams. Torsion of circular cross sections. Combined loading. Stability.		
18SAT	Structural Analysis	Z,ZK	4
	of forces in plane and space. Calculation of reactions of bodies and structures. Assessment of internal forces on statically determinate		e girders.
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
	ctice. Tension and compression. Bending of beam. Shear stress during bending of beam. Design and analysis of cross section of bean	n. Analysis of defle	ction curve
	of beam. Torsion of circle cross section. Combined loading. Stability of compressed bar and buckling.		

18SS	Seminary from Structural Analysis	Z	0
Examples for practi	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	oints and method	of sections.
	Geometry of cross sections. Plane fiber polygons.		
18STD	Seminary from Technical Documentation	Z	0
Technical standa	ards, international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensional	l and geometrical	accuracy,
	arrangement of drawing sheets.		
18TED	Technical Documentation	. KZ	2
lechnical standa	rds, international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensiona	and geometrical	accuracy,
10V21	arrangement of drawing sheets.	7	
18X31	Project 1	Z	2
18X32	Project 2	Z	2
18X33	Project 3	Z	2
18Y1AM	Anatomy, Mobility and Safety of Man	KZ	2
	natomical structure and growth of bones. Articular joint. Remodelling of bone tissue. Anatomical structure of muscles. Blood circulation		
and biomechanics	of muscular-skeletal system. Injury of human organs and musculo-skeletal system during traffic accidents. Mobility of ill and injured n joint prostheses. Protective means and traffic safety regulations.	ian and his treatm	ent. Human
18Y1EM	Experimental Methods in Mechanics	KZ	2
	Experimental Methods in Mechanics ole of experimental mechanics. Sensors for mechanical testing. Overview of experimental methods. Destructive and non-destructive		
	cedures and sample preparation. Tensile and bending tests. Electrical resistance strain gages. Optical based strain measurement. Fa	-	- 1
	Instrumented hardness testing. Introduction to electron microscopy. Errors in measurement.		
18Y1MT	Engineering Materials	KZ	2
	ew of main classes of materials used in technical design. In addition to main classes of materials, i. e. metals, ceramics, polymers and		
•	ogical materials and to biomimetics. Integral approach to material selection process is also demonstrated based on so called Ashby's		.
18Y1PS	Computer Simulations in Mechanics	KZ	2
Principles and over	rview of tools for stress analysis of structures. Numerical methods in mechanics, finite element method. Geometric model developmen	nt and adaptation o	of geometry
from other CAE sys	stems. Assignment of material properties. The types of elements and their use. Discretization of solid model. Boundary conditions and	application of the	load. Basic
	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		- 1
track resistance. To	tal running resistance. Acceleration force. Analyzing driving cycle rail vehicle. Speed-power diagrams and characteristics rail vehicle - I	nydromechanic, hy	drodynamic
0001/04	and electric drive. Design concept rail vehicles and drive of wheel set.	7.71	
20SYSA	Systems Analysis	Z,ZK	5
	em sciences, system viewpoint, terminology, typical system analysis tasks, system identification, system interface and interface tasks, strong functions and processes, genetic code, system identity, system architecture. Tools for system analysis - Petri nets, decision tab	-	
and its analysis,	tasks. Soft and hard systems, methods for soft system analysis.	ics, aigorianns ior	Structural
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 inform		nmunication
	inciples and technical support measurement of traffic data, localization and navigation. Practical work with traffic data. Real examples		
	principles of ITS.		
20X31	Project 1	Z	2
20X32	Project 2	Z	2
20X33	Project 3	Z	2
20Y1AE	Applied Electronics	KZ	2
	semiconductor components, their principles, characteristics and typical connection diagrams. Semiconductor PN junction diodes, tran		perational
amplifiers, basic lo	ogic gates. Functions of basic electronic circuits and methods for their designs (rectifiers, voltage regulator with Zener diode, transisto	r as an amplifier, o	operational
	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		٠ ١
the final debtor is n	ot a direct participant of the transaction and it is not the counterparty of the financial institute which provides the funding. Issue of sections of the financial institute which provides the funding.	ırities as an alterna	ative source
00)/454	of transportation and telecomunication projects.	1/7	
20Y1EA	Environmental Aspects of Transport	KZ	2
-	phere, weather observation network, weather in transportation, road meteorology. Weather forecasting, data assimilation, probabilistic In pollutants and their effects, atmospheric chemistry, traffic emissions. Greenhouse gasses, carbon cycle, a role of energy and transp		
20Y1EK			2
	Qualification in Electrical Engineering e with measurements in laboratories, electrical equipment, power supply, electrical installation of low voltage, electric shock hazard, s	KZ	_
	allowed currents, electrical equipment protection against short circuit and overload protection, control and revision, first aid, legislatic	-	- 1
3.,	in relation to health and safety and electrical engineering.	,	
20Y1KP	Communication and presentation skills	KZ	2
	es and their fulfillment, current communication networks, work with various sources, formal requirements of emails and final theses, b		' !
•	tional intelligence, manipulation and way of working with it, coping with stressful situations, formal requirements of presentations, way		
	presentation, presentation skills, presentation skills in online environment.		
20Y1LN	Location and Navigation	KZ	2
Description and e	examples 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
Fare collection sy		for users (timetabl	' '

20Y1OK	Road Lighting	KZ	2
	ities and terms, street lighting components (luminaires, control cabinets for street lighting, street lighting cables), characteristics of lumi	·	- 1
light distribution),	standards, measurement of illuminance and luminance in road lighting, tunnels, conceptual approach to street lighting design, lighting	g calculations in D	IALux and
00)/4.DI/	Relux, street lighting control systems.	1/7	
20Y1PK	Product Quality Management Processes	KZ	2
	of organization management. Management systems and international standards; quality management systems. Quality products, pro tems management, management principles. Principles of process management, monitoring and measurement systems management. U		
or startaards for sys	for systems management. Process management principles. Metrology and testing. Product certification.	millorm namework	oi staridards
20Y1SC	Sensors and Actuators	KZ	2
	s and actuators. Basics of measuring theory and actuating influence. The respective technologies and construction principles. Sensors o		
·	state (temperature, humidity), chemical and particle flow values. Electrical, pneumatic and hydraulic actuators and solid phase electrical, pneumatic and hydraulic actuators and solid phase electrical.		
21SLD	Seminar of Air Transport	Z	0
History, definition	ons, terminology, basic rules. VFR / IFR. Basics of aerodynamics. Propulsion of aircraft. Aircraft design. Basics of navigation, radio na	vigation. Weight, b	alance,
performance. Flig	ht planning, optimization of speed and heights, minimum fuel. Limitations of operation, maintenance, service life of aircraft. Traffic ma	nagement, ground	l handling,
	security. Air crew. Airlines and economics. Space technologies.		
21X31	Project 1	Z	2
21X32	Project 2	Z	2
21X33	Project 3	Z	2
21Y1AM	Aeronautical Information Management (AIM)	KZ	2
	c overview of AIS and AIM. Transition from AIS to AIM. Regulatory base. Provision of AIS/AIM in the Czech Rep. AIP (Aeronautical Ir		
	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).		
21Y1BS	Unmanned aircraft systems 1	KZ	2
Unmanned Aviation	n Development. Aircraft design. Legislation in force in the Czech Republic. Planning and execution of the flight. Airspace division. Ope	erational risks and	operational
	procedures. Practical flights.		
21Y1LJ	Aeronautical Radio and Flight Instruments	KZ	2
Basic definitions, hi	story of aircraft instrumentation, aerometric instrumentation, Earth magnetism, aircraft electric equipment, gyroscopic instrumentation	, airframe instrume	entation and
other aircra	ft equipment, engine instrumentation, warning and recording systems, instrumentation operational requirements, radiocommunication	n and radionaviga	tion.
21Y1LS	Air Traffic Services	KZ	2
Airspace structure i	n Czech Republic and other countries. Introduction and description of ATS units in Czech Republic. Practical examples of TWR, APP	a ACC control. His	story of ATS
	at USA and Czechoslovakia. ATS - Model of financing. Training System of Air Traffic Controllers. Future development of ATS	S	
21Y1MP	Matlab for project-oriented study	KZ	2
	bus is focused on the problem-solving during bachelor's thesis preparation and it is based on students' requests. Individual exercises		
	les, based on actual students' needs and suggestions. The subject will have a flexible form, which is expected to bring an improvement		tlab skills.
21Y1OH	Airline Business and Operations	KZ	2
	s a comprehensive view of the commercial, operational and transportation activities of air transport companies. It focuses on the organization		
various aspects of t	heir strategy, economic and operational indicators. It introduces students in detail to operational processes and the essentials of transp	ortation processes	s. It provides
04)/400	a basic view of the economic aspects of air transport.	1/7	
21Y1PC	ATC Procedures and Activities	KZ	2
	procedures, basics of communication and phraseology, aircraft identification, spacing and traffic coordination. In addition, the course its and low visibility operational procedures. Students will during the course learn basic safety management applications applied acro		
21Y1RZ	Human Resources Management	KZ	2
	numan resources in the organization and related disciplines file. Substance, importance and challenges of human resources manage		
	nan resource management. Human resource planning. Search, recruitment and selection of employees. Motivation, evaluation and rer		
	dismissal and redundancies of employees. Education of employees. Planning career management.	indirection of oldin	. comog,
21Y1SI	ATC Simulator	KZ	2
	vith the simulation environment, acquiring basic habits, aircraft identification procedures, vectoring, level changes, ATC clearance, us		!
	g on basic vectoring, early application of vertical separation, EST and REV message passing. Practical exercises in the APPROACH	=	
	departure management procedures, conflict resolution.		
21Y1UL	Aircraft Maintenance	KZ	2
Aircraft operations	and technical operations. Maintenance and work processes. Defects search methods, status check diagnostic tools. Selection and qua	lification of aviation	n personnel.
Basic documentati	on for maintenance. Optimization of time maintenance intervals. Regulation no. 1321/2014 Part 145. Human factors of aircraft maintenance.	enance. Regulation	of director
	EASA for aircraft maintenance. Seminars will be focused on practical application.		
21ZALD	Basics of Air Transport	KZ	2
· · · · · · · · · · · · · · · · · · ·	terminology, basic rules. VFR/IFR. Basics of aerodynamics. Propulsion of aircraft. Aircraft design. Basics of navigation, radio navigation.		
Flight planning, opt	imization of speed and heights, minimum fuel. Limitations of operation, maintenance, service life of aircraft. Traffic management, grou	nd handling, secur	ity. Air crew.
201/04	Airlines and economics. Space technologies.	_	
22X31	Project 1	Z	2
22X32	Project 2	Z	2
22X33	Project 3	Z	2
23X31	Project 1	Z	2
23X32	Project 2	Z	2
23X33	Project 3	Z	2
23Y1EH	Electronics and hardware in security of transportation	KZ	2
	eters of signals. Passive circuits, properties, basic measurements. Passive filters, semiconductors. Operational amplifiers, basic circu		!
	gic circuits. AD converters. Connection of analog and digital parts. Basic blocks of digital signal processing. Measurement processing. D	•	
	in electronics.		
23Y1KB	Cyber security in transportation	KZ	2
	security and cyber security, legal status in the field of cyber security, virtual cyberspace and communities, taxonomy of crimes in cyberspace		
engineerin	g, cyber attack technology, information security, cyber attacks on telematics systems, security of systems with artificial intelligence, r	norms and standar	ds.

23Y1KM	Crisis Management	KZ	2
Theory and legal fra	me of crisis management with direction to Rescue system (IZS). After introduction to safety domain, there are terms and knowledge c	n: theory and po	sition of crisis
manag	ement and its targets; IZS-crisis management-crisis planning; and basic legislation. Practical part is concentrated to responsibility m	atrix compilation.	
23Y1KO	Quantum Physics and Optoelectronics	KZ	2
·	Ground of quantum physics. Application of quantum physics in practice. Optoelectronics. Production of optoelectronics compon	ents.	
23Y1KY	Cybernality	KZ	2
Juridical aspects of	behavior on the computer network and computer systems. Cybernetic crime technology. Theory basis and models. Cyberterrorism. Inf	oware and conne	cted aspects.
23Y1MK	Crisis Situation Management in Critical Infrastructure	KZ	2
Determination of c	ritical infrastructute elements on all levels, their protection systems, responsibilities of particular agencies of the state administration	and the self-gove	rnment, and
their r	esponsibilities to anounce particular safety provisions. Physical and cyber protection of critical infrastructure with special attention to	the soft targets.	
23Y1MU	Emergency Events Management Solution in Transport Infrastructure	KZ	2
Basic solutions of e	mergency events with emphasis of the transport infrastructure events and their solution management. Knowledge in the emergency pla	anning and specia	al procedures
	in liquidation work within the transport infrastructure.		
23Y1OK	Protection of Critical Objects and Infrastructures	KZ	2
Types of technologi	cal systems, critical item, risks and their courses, criticality, vulnerability, connectivity, dependability, resilience, failure, protection, safei	ty of critical objec	ts and critical
	infrastructures.		
23Y1TP	Criminal Law in IT and Transportation	KZ	2
Introduction of cri	ninal law into legal order, conception of culpability and criminal delict, consequency of other legal standards. international treaty and	criminal law, inve	estigation of
	crime, specific indicia of criminal court cases, practical examples.		
23Y1VS	Negotiation and Cooperation	KZ	2
Code of conduct fo	r negotiation. The influence of personality traits on the negotiations. Negotiation and commanding. Teamwork. Variants teams. Information	al and formal role	in the team.
Principles of negotia	ation, the essence of negotiation, the differences in negotiation in business and in crisis situations, the principle of "win both", specific	cations and biddir	ng, the role of
	trust.		
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 2025-06-27, time 17:33.