Study plan

Name of study plan: Bachelor TET-ITS Full-Time from 2022/23

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: 162

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 Tomáš Třasák, Olga Vraštilová, Magdalena Hykšová, Bohumil Kovář, Ondřej Navrátil Bohumil Kovář Ondřej Navrátil (Gar.)	Z,ZK	7	2P+4C+22B	Z	Z
11LA	Linear Algebra Magdalena Hykšová, Lucie Kárná, Pavel Provinský, Martina Bečvářová Magdalena Hykšová Martina Bečvářová (Gar.)	Z,ZK	3	2P+1C+10B	Z	Z
12ZYDI	Introduction to Transportation Engineering Zuzana Čarská, Dagmar Kočárková	Z,ZK	2	1P+1C	Z	Z
18MTY	Materials Science and Engineering Tomáš Doktor, Jaromír Kylar, Veronika Drechslerová, Nela Krčmářová, Jitka Řezníčková, Jaroslav Valach, Vít Malinovský, Jaromír Kylar Jaroslav Valach Tomáš Doktor (Gar.)	Z,ZK	3	2P+1C+10B	Z	Z
11GIE	Geometry Pavel Provinský, Oldřich Hykš, Šárka Voráčová Oldřich Hykš Oldřich Hykš (Gar.)	KZ	3	2P+2C+12E	Z	Z
14ASD	Algorithm and Data Structures Tomáš Brandejský, Michal Jeřábek, Alena Kubáčová, Jan Procházka, Vít Fábera, Martin Fiala, Lukáš Svoboda, Tereza Panská Vít Fábera Vít Fábera (Gar.)	KZ	3	0P+2C+8B	Z	Z
14KSP	Constructing with Computer Aid Lukáš Svoboda	KZ	2	0P+2C+8B	Z	Z
18TED	Technical Documentation Jitka Řezníčková, Vít Malinovský Jitka Řezníčková Jitka Řezníčková (Gar.)	KZ	2	1P+1C+8B	Z	Z
15DPLG	Transportation Psychology	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

ITCALI	Calculus I	Z,ZN	, <i>,</i> ,						
Sequence of real numb	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-	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.

12ZYDI	Introduction to Transportation Engineering	Z,ZK	2
Role of transportatio	n in land-use planning. Basic terms in transportation engineering. Traffic survey and traffic prognosis. Introduction to topic of roa	ads, public mass tra	nsport. Negative
impacts of transporta	ation to environment and safety.		
18MTY	Materials Science and Engineering	Z,ZK	3
Basic course of mate	rials science and engineering explains mechanical properties of structural materials based on their bonding forces and microst	tructure. However th	e main attention
is paid to metals as t	he most important engineering materials, also other major classes of materials are presented, namely ceramics, polymers an	d composites. Atten	tion is also paid
to degradation proce	sses in materials, to defectoscopy and to main mechanical tests.		
11GIE	Geometry	KZ	3
Differential geometry	rof curves - parameterization, the arc of the curve, torsion and curvature, Frenet`s trihedron. Kinematics - a curve as a trajecto	ory of the motion, th	e velocity, and
acceleration of a par	ticle moving on a curved path.		
14ASD	Algorithm and Data Structures	KZ	3
Students will analyze	problems, design a theoretical solution to a given problem and write the resulting algorithm using flowcharts, practice reading	algorithms written i	using flowcharts,
	an algebra to construct constraints in algorithms. Students will be introduced to the basics of the Python programming language	ge - variable, branch	ning, loops, they
and use basic Boole	an algebra to construct constraints in algorithms. Students will be introduced to the basics of the Fython programming languag	g	3,, ,
	n variables of basic data types (integer, floating point and string) and the list data structure in their programs.		3,, -,
		KZ	2
will learn to work with 14KSP	n variables of basic data types (integer, floating point and string) and the list data structure in their programs.	KZ	2
will learn to work with 14KSP "CAD systems" term	n variables of basic data types (integer, floating point and string) and the list data structure in their programs. Constructing with Computer Aid	KZ n work rules in grap	2 hic applications
will learn to work with 14KSP "CAD systems" term and CA systems. Co	n variables of basic data types (integer, floating point and string) and the list data structure in their programs. Constructing with Computer Aid determination. CAD role in projecting system model. Existing CAD systems on Czech market. Project creation, basic commor	KZ n work rules in grap	2 hic applications
will learn to work with 14KSP "CAD systems" term and CA systems. Co	n variables of basic data types (integer, floating point and string) and the list data structure in their programs. Constructing with Computer Aid determination. CAD role in projecting system model. Existing CAD systems on Czech market. Project creation, basic commor ordinated systems, CAD environment skill (basics of constructing, dimensioning, modifications, user interfaces, projecting positions).	KZ n work rules in grap	2 hic applications
will learn to work with 14KSP "CAD systems" term and CA systems. Co profiles, drawings with 18TED	n variables of basic data types (integer, floating point and string) and the list data structure in their programs. Constructing with Computer Aid determination. CAD role in projecting system model. Existing CAD systems on Czech market. Project creation, basic commor ordinated systems, CAD environment skill (basics of constructing, dimensioning, modifications, user interfaces, projecting posts the raster foundaments).	KZ n work rules in grap ssibilites, AutoCAD	2 hic applications environment
will learn to work with 14KSP "CAD systems" term and CA systems. Co profiles, drawings with 18TED	n variables of basic data types (integer, floating point and string) and the list data structure in their programs. Constructing with Computer Aid determination. CAD role in projecting system model. Existing CAD systems on Czech market. Project creation, basic commor ordinated systems, CAD environment skill (basics of constructing, dimensioning, modifications, user interfaces, projecting posts the raster foundaments). Technical Documentation international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensions.	KZ n work rules in grap ssibilites, AutoCAD	2 hic applications environment
will learn to work with 14KSP "CAD systems" term and CA systems. Co profiles, drawings with 18TED Technical standards,	n variables of basic data types (integer, floating point and string) and the list data structure in their programs. Constructing with Computer Aid determination. CAD role in projecting system model. Existing CAD systems on Czech market. Project creation, basic commor ordinated systems, CAD environment skill (basics of constructing, dimensioning, modifications, user interfaces, projecting posts the raster foundaments). Technical Documentation international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensions.	KZ n work rules in grap ssibilites, AutoCAD	2 hic applications environment
will learn to work with 14KSP "CAD systems" term and CA systems. Co profiles, drawings with 18TED Technical standards, arrangement of draw 15DPLG	n variables of basic data types (integer, floating point and string) and the list data structure in their programs. Constructing with Computer Aid determination. CAD role in projecting system model. Existing CAD systems on Czech market. Project creation, basic commor ordinated systems, CAD environment skill (basics of constructing, dimensioning, modifications, user interfaces, projecting posts the raster foundaments). Technical Documentation international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensioning sheets.	KZ n work rules in grap ssibilites, AutoCAD KZ onal and geometric:	2 hic applications environment 2 al accuracy,
will learn to work with 14KSP "CAD systems" term and CA systems. Co profiles, drawings with 18TED Technical standards, arrangement of draw 15DPLG Subject of psycholog	n variables of basic data types (integer, floating point and string) and the list data structure in their programs. Constructing with Computer Aid determination. CAD role in projecting system model. Existing CAD systems on Czech market. Project creation, basic commor ordinated systems, CAD environment skill (basics of constructing, dimensioning, modifications, user interfaces, projecting posts tracter foundaments). Technical Documentation international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensioning sheets. Transportation Psychology	KZ n work rules in grap ssibilites, AutoCAD KZ onal and geometrica Z construction. Psych	2 hic applications environment 2 al accuracy,
will learn to work with 14KSP "CAD systems" term and CA systems. Co profiles, drawings with 18TED Technical standards, arrangement of draw 15DPLG Subject of psycholog	n variables of basic data types (integer, floating point and string) and the list data structure in their programs. Constructing with Computer Aid determination. CAD role in projecting system model. Existing CAD systems on Czech market. Project creation, basic commor ordinated systems, CAD environment skill (basics of constructing, dimensioning, modifications, user interfaces, projecting post the raster foundaments). Technical Documentation International standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensioning sheets. Transportation Psychology y and its basic concepts. Information intake, decision-making and behaviour. Performance. Engineering psychology and vehicle	KZ n work rules in grap ssibilites, AutoCAD KZ onal and geometrica Z construction. Psych	2 hic applications environment 2 al accuracy,
will learn to work with 14KSP "CAD systems" term and CA systems. Co profiles, drawings with 18TED Technical standards, arrangement of draw 15DPLG Subject of psycholog of travel route and trail 16UDOP	revariables of basic data types (integer, floating point and string) and the list data structure in their programs. Constructing with Computer Aid determination. CAD role in projecting system model. Existing CAD systems on Czech market. Project creation, basic common coordinated systems, CAD environment skill (basics of constructing, dimensioning, modifications, user interfaces, projecting position that raster foundaments). Technical Documentation international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensioning sheets. Transportation Psychology y and its basic concepts. Information intake, decision-making and behaviour. Performance. Engineering psychology and vehicle affic conditions, accidents and traffic incidents. Selection and training of the staff. Work and leisure. Age as a factor in transport	KZ n work rules in grap ssibilites, AutoCAD KZ onal and geometrica Z construction. Psych t operation.	2 hic applications environment 2 al accuracy, 2 ological aspects
will learn to work with 14KSP "CAD systems" term and CA systems. Co profiles, drawings with 18TED Technical standards, arrangement of draw 15DPLG Subject of psycholog of travel route and trail 16UDOP Vehicles and transport	n variables of basic data types (integer, floating point and string) and the list data structure in their programs. Constructing with Computer Aid determination. CAD role in projecting system model. Existing CAD systems on Czech market. Project creation, basic commor ordinated systems, CAD environment skill (basics of constructing, dimensioning, modifications, user interfaces, projecting position raster foundaments). Technical Documentation international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensional standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensional standardization. Transportation Psychology y and its basic concepts. Information intake, decision-making and behaviour. Performance. Engineering psychology and vehicle affic conditions, accidents and traffic incidents. Selection and training of the staff. Work and leisure. Age as a factor in transport. Introduction into Vehicles	KZ n work rules in grap ssibilites, AutoCAD KZ onal and geometrica Z construction. Psych t operation.	2 hic applications environment 2 al accuracy, 2 ological 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 grou	γ.					
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 Tomáš Třasák, Olga Vraštilová, Magdalena Hykšová, Ondřej Navrátil, Oldřich Hykš Magdalena Hykšová Ondřej Navrátil (Gar.)	Z,ZK	5	2P+3C+20B	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	L	Z
12ZTS	Railway Lines and Stations Lukáš Týfa, Martin Jacura, Petr Šatra, Tomáš Javořík, Ondřej Trešl Lukáš Týfa (Gar.)	Z,ZK	4	2P+2C+10B	L	Z
18SAT	Structural Analysis Tomáš Doktor, Jaromír Kylar, Veronika Drechslerová, Nela Krčmářová, Jitka Řezničková, Jan Falta, Daniel Kytýř, Jan Vyčichl, Jan Šleichrt Daniel Kytýř (Gar.)	Z,ZK	4	2P+2C+14B	L	Z
20SYSA	Systems Analysis Petr Bureš, Zuzana Bělinová, Jiří Růžička, Patrik Horažďovský Zuzana Bělinová (Gar.)	Z,ZK	5	2P+2C+14B	L	Z
14PRG	Programming Alena Kubáčová, Jan Procházka, Martin Fiala, Lukáš Svoboda, Jana Kaliková, Jan Krčál Jana Kaliková Jana Kaliková (Gar.)	KZ	2	0P+2C+8B	L	Z
17TEDL	Transport Technology and Logistics Vit Janoš, Michal Drábek, Zdeněk Michl, Rudolf Vávra, Stanislav Metelka Zdeněk Michl Vít Janoš (Gar.)	KZ	3	2P+1C	L	Z
21ZALD	Basics of Air Transport Jakub Hospodka, Tomáš Tlučhoř, Jiří Volt, Peter Olexa, Jan Slezáček, Jakub Trýb, Sébastien Lán, Bo Stloukal	KZ	2	0P+2C+8B	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	tograle	•

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 t	rack geometry parameters. Route layout of railway lines. Railway line construction - railway substructure and superstructure.	Spatial layout of r	ailway lines.
Railway control systems	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 determin	ate beams and sin	ple 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	isks, 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	or 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 progi	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 ti	me, regular expressions, functions and procedures, working with files (CSV, JSON, XML).		
17TEDL	Transport Technology and Logistics	KZ	3
Basic terms in transport	technology and logistics, particular steps of transport planning, line planning, timetabling, planning in pasanger and freight	ransport, organisa	tion of traffic in
each transport modus,	echnologic factors of the side of operator and client, organisation of city transport, logistic technologies and their aplication u	ısing 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	e, performance.
Flight planning, optimiza	ation of speed and heights, minimum fuel. Limitations of operation, maintenance, service life of aircraft. Traffic management, 🤉	ground 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	J.					
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 Oldřich Hykš, Jana Kuklová, Pavel Demo, Zuzana Malá, Tomáš Vítů Jana Kuklová Pavel Demo (Gar.)	Z,ZK	5	2P+2C+18B	Z	Z
12MDE	Transport Models and Transport Excesses Tomáš Padělek, Josef Kocourek	Z,ZK	3	2P+1C+8B	Z	Z
17TGA	Graph Theory and its Applications in Transport Alena Rybičková, Denisa Mocková, Dušan Teichmann	Z,ZK	4	2P+2C+12B	Z	Z
18PZP	Elasticity and Strength Tomáš Doktor, Jitka Řezničková, Daniel Kytýř, Jan Vyčichl, Jan Šleichrt, Josef Jíra, Ondřej Jiroušek Ondřej Jiroušek Ondřej Jiroušek (Gar.)	Z,ZK	3	2P+1C+10B	Z	Z
20UITS	Introduction to Intelligent Transport Systems Jiří Růžička, Patrik Horažďovský, Kristýna Navrátilová, Eva Hajčiarová, Martin Šrotýř, Martin Langr, Vladimír Faltus, Pavel Hrubeš Martin Langr	Z,ZK	7	3P+2C+20B	Z	Z
12PPOK	Designing Roads, Highways and Motorways Tomáš Padělek, Josef Kocourek, Petr Kumpošt Josef Kocourek (Gar.)	KZ	3	1P+2C+10B	Z	Z
14DATS	Database Systems Jana Kaliková, Jan Krčál Jana Kaliková Jana Kaliková (Gar.)	KZ	2	1P+1C+10B	Z	Z
15JZ1A	Foreign Language - English 1 Markéta Vojanová, Dana Boušová, Marie Michlová, Marek Tomeček, Jan Feit, Markéta Musilová, Peter Morpuss, Jitka Heřmanová, Eva Rezlerová Lenka Monková (Gar.)	Z	3	0P+4C+10B	Z	Z

Characteristics of the courses of this group of Study Plan: Code=3S-BP-TET-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 tra	fic flow and methods for their measurement. Models of the traffic flow, communications load, line and urban systems. Theory of	queues, shock w	vaves. Quality of		
transport and its assessment. Statistical characteristics of transport. 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	ner scientific disci	plines.		
18PZP	Elasticity and Strength	Z,ZK	3		
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 legislat	ive framework telematics systems and their architecture. Telematics systems in practice and their operation. Fundamentals of ir	nformation and tel	ecommunication			
systems for ITS. Princip	systems for ITS. Principles and technical support measurement of traffic data, localization and navigation. Practical work with traffic data. Real examples of possible applications of the					
principles of ITS.						
12PPOK	Designing Roads, Highways and Motorways	KZ	3			
Definition, types, owners	ship, maintenance, management and categorization of roads and highways. Curve and transition curve. Sinuosity and standa	ard speed. Route	n rural areas.			
Range of vision for stop	oing and overtaking. Road body - shapes and proportions, bottom and superstructure. Drainage and components of roads. S	afety device. Cros	sings, junctions,			
intersections.						
14DATS	Database Systems	KZ	2			
Basic concepts of datab	ase systems, conceptual model, relational data model, the principles of normal forms, relational database design, security a	nd integrity of dat	a, database			
queries, relational algeb	ra, SQL language, client / server, multilayer architectures, distributed database systems. Access to data via the WWW.					
15JZ1A	Foreign Language - English 1	Z	3			
Grammatical Structures and Style. Selection of conversation topics relating to transportation sciences. Extending vocabulary, developing perceptive and communicative skills. Elementary						
stylistics forms. Oral and	stics forms. Oral and written presentation of original research. Academic text principles and reading comprehension. Principles of rhetoric.					

Code of the group: 4S-BP-ITS-22/23

Name of the group: 4th Sem. Bachelor Full-Time TET-ITS from 2022/23 Requirement credits in the group: In this group you have to gain 22 credits

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

Credits in the group: 22 Note on the group:

11MAMY

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
11MAMY	Mathematical Methods Michal Matowicki, Jan Přikryl Jan Přikryl Jan Přikryl (Gar.)	Z,ZK	7	3P+3C	L	Z
14AM	Automation and Measurement Tomáš Brandejský, Vít Fábera Vít Fábera Tomáš Brandejský (Gar.)	Z,ZK	6	3P+3C	L	Z
16DOTE	Transport Technology Josef Mík, Michal Cenkner, Přemysl Toman, Josef Svoboda Josef Mík	Z,ZK	6	3P+3C	L	Z
15JZ2A	Foreign Language - English 2 Markéta Vojanová, Marie Michlová, Jan Feit, Markéta Musilová, Peter Morpuss, Jitka Heřmanová, Eva Rezlerová, Barbora Horáčková Marek Tomeček (Gar.)	Z,ZK	3	0P+4C+10B	L	Z

Characteristics of the courses of this group of Study Plan: Code=4S-BP-ITS-22/23 Name=4th Sem. Bachelor Full-Time TET-ITS from 2022/23

Z,ZK

. The system and its mathematical description. Types of signals. Basic system responses. Convolution. State models. Principl	e of general / stati	onary / linear
measurement. Uncertainty in measured data. Data normalization. Preparation of data for further processing. Linear state mod	del over noisy data	ı. Kalman filter
atistical learning methods. Regression, classification.		
Automation and Measurement	Z,ZK	6
agent, rational agent, their unification to elements of transportation systems, analogies in nature, regulation in openen loop a	nd control in close	d loop, reactive
finite state machines. Dynamic system identification. Measurement of basic electric and other physical quantities, principles c	f measurement in	struments, DC
actuators, measurement automation, measurement laboratories.		
Transport Technology	Z,ZK	6
features and principles. Construction and design elements, important legislation, testing. Drives and transmission, energy ac	cumulation and cl	nanges. Road
al, transversal, vertical, driveability, suspension, wheel-road contact), mathematic solution of dynamic systems. Design feature	s of passive, active	e and integrated
Foreign Language - English 2	Z,ZK	3
	l communicative el	kille Flamontan
1	measurement. Uncertainty in measured data. Data normalization. Preparation of data for further processing. Linear state mode tatistical learning methods. Regression, classification. Automation and Measurement agent, rational agent, their unification to elements of transportation systems, analogies in nature, regulation in openen loop a finite state machines. Dynamic system identification. Measurement of basic electric and other physical quantities, principles of actuators, measurement automation, measurement laboratories. Transport Technology In features and principles. Construction and design elements, important legislation, testing. Drives and transmission, energy and all, transversal, vertical, driveability, suspension, wheel-road contact), mathematic solution of dynamic systems. Design features Foreign Language - English 2	Automation and Measurement agent, rational agent, their unification to elements of transportation systems, analogies in nature, regulation in openen loop and control in close finite state machines. Dynamic system identification. Measurement of basic electric and other physical quantities, principles of measurement in actuators, measurement automation, measurement laboratories. Transport Technology Z,ZK n features and principles. Construction and design elements, important legislation, testing. Drives and transmission, energy accumulation and clar, transversal, vertical, driveability, suspension, wheel-road contact), mathematic solution of dynamic systems. Design features of passive, active

Code of the group: 4S-BP-ITS-V1-22/23

Mathematical Methods

Name of the group: 4th Sem. Bachelor Full-Time TET-ITS alternative subject from 2022/23

Requirement credits in the group: In this group you have to gain 4 credits

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

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

Credits in the group: 4 Note on the group:

Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their Code Completion Credits Scope Semester Role members) Tutors, authors and guarantors (gar.) **Electromagnetic Field and Optics** 11EMO Z,ZK 4 2P+1C L Oldřich Hykš, Jana Kuklová, Zuzana Malá, Tomáš Vítů Zuzana Malá Pavel Ζ Demo (Gar.) **Fundamentals of Electrical Engineering** Z,ZK 20ZEKT 2P+1C Jindřich Sadil, Daniel Beránek Jindřich Sadil (Gar.

Characteristics of the courses of this group of Study Plan: Code=4S-BP-ITS-V1-22/23 Name=4th Sem. Bachelor Full-Time TET-ITS alternative subject from 2022/23

11EMO	Electromagnetic Field and Optics	Z,ZK	4
Electric field. Electric	current. Magnetic field. Electromagnetic field. Optics. Basics of solid-state physics.		
20ZEKT	Fundamentals of Electrical Engineering	Z,ZK	4
Maxwell equations, e	ectrotechnical quantities (electrical current, voltage, resistance, conductivity, resistivity, conductivity, power, energy), Ohm's lav	v, Kirchhoff laws,	electrical circuits
(elements methods	DC and AC circuits, accumulators, photovoltaics), electric machines, transmission lines, reflections on transmission lines, basic	electrical measu	rements

Code of the group: 5S-BP-ITS-23/24

Name of the group: 5th Sem. Bachelor Full-Time TET-ITS from 2023/24 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 4 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
14ISYD	Information Systems in Transportation Jana Kaliková, Jan Krčál, Marek Kalika Marek Kalika Marek Kalika (Gar.)	Z,ZK	7	2P+4C	Z	Z
14TAMS	Telecommunications and Local Area Networks Martin Šrotýř, Zdeněk Lokaj, Tomáš Zelinka Tomáš Zelinka (Gar.)	Z,ZK	7	3P+3C	Z	Z
20RIZE	Railway Traffic Management Jindřich Sadil, Martin Leso, Dušan Kamenický, Petr Koutecký Dušan Kamenický	Z,ZK	7	3P+3C	Z	Z
20ELKA	Qualification in Electrical Engineering	KZ	2	2P+0C	Z	Z

Characteristics of the courses of this group of Study Plan: Code=5S-BP-ITS-23/24 Name=5th Sem. Bachelor Full-Time TET-ITS from 2023/24

14ISYD	Information Systems in Transportation	Z,ZK	7		
Architecture and cloud	services concept, eGovernment-structure. Electronic communication and signature. IS life cycle and IT projects. Types of info	rmation systems	and specific		
implementation in trans	oort. Roles, processes, management, optimization in IS. Oracle data types. SQL Developer, SQL queries. Comprehensive ex	ample and web a	pplication		
programming.					
14TAMS	Telecommunications and Local Area Networks	Z,ZK	7		
Summary of the current	state and introduction of the new trends in the development of telecommunication systems. The legal environment for the provi	sion and use of tel	ecommunication		
services is explained, b	asic telecommunication solutions in the hierarchical architecture of telecommunication networks are presented, and the links	between the para	ameters of the		
parts and the performar	nce of telecommunication systems.				
20RIZE	Railway Traffic Management	Z,ZK	7		
Historical development	of security technology, external elements (switches, signals, detection means), station, track and crossing security equipmen	t, existing train se	curity equipment		
and ETCS, traffic contro	ll structure, traffic control technology, automation and traffic control optimization, power supply systems, energy calculations	and train running	dynamics.		
20ELKA	Qualification in Electrical Engineering	KZ	2		
Practical experience wit	h measurements in laboratories, electrical equipment, power supply, electrical installation of low voltage, electric shock haza	rd, symbols and I	abeling, nominal		
voltage, maximum allowed currents, electrical equipment protection against short circuit and overload protection, control and revision, first aid, legislation, standards and regulations					
in relation to health and	safety and electrical engineering.				

Code of the group: 6S-BP-ITS-23/24

Name of the group: 6th Sem. Bachelor Full-Time TET-ITS from 2023/24

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 4 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
16SVIR	Vehicle Systems and Interaction with Driver Petr Bouchner, Stanislav Novotný Stanislav Novotný (Gar.)	Z,ZK	7	3P+3C	L	Z
20ATEL	Applied Telematics Petr Bureš, Jiří Růžička, Martin Langr, Pavel Hrubeš Pavel Hrubeš (Gar.)	Z,ZK	7	3P+3C	L	Z
20RISI	Road Traffic Control Jiří Růžička, Martin Langr, Vladimír Faltus, Tomáš Tichý Tomáš Tichý (Gar.)	Z,ZK	7	3P+3C	L	Z
20APEL	Applied Electronics Vit Fábera, Tomáš Musil	KZ	2	0P+2C	L	Z

Characteristics of the courses of this group of Study Plan: Code=6S-BP-ITS-23/24 Name=6th Sem. Bachelor Full-Time TET-ITS from 2023/24

16S\	VID	Vehicle Systems and Interaction with Driver	7 7K	7
100		Vehicle Systems and Interaction with Driver	<u>Z,</u> ZN	,

20ATEL Applied Telematics

Applied Telematics

Transport telematics - definition, benefits, ITS legislation, ITS organizations, ITS architecture and its practical use, data structures and data, geographic information systems, toll systems, e-call, fleet management, check-in and information systems, ITS connection to Smart City, ITS applications on specific examples.

20RISI Road Traffic Control Z,ZK 7

Traffic node management - basic concepts, SSZ design criteria, SSZ production project, dynamic SSZ management, public transport preferences, traffic area management, microscopic traffic models, macroscopic traffic models, traffic management on motorways, tunnel systems.

20APEL Applied Electronics KZ 2

Basic electronic semiconductor components, their principles, characteristics and typical connection diagrams. Semiconductor PN junction diodes. Transistors. Thyristor. Operational amplifiers, basic logic gates. Functions of basic electronic circuits and methods for their designs (rectifiers, voltage regulator with Zener diode, transistor as an amplifier, operational

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

The role of the block: ZP

amplifier as an inverting and noninverting amplifier).

Code of the group: X1-BP-ITS-22/23

Name of the group: Research Groups Bachelor Full-Time TET-ITS 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 3 courses

Credits in the group: 6

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
16X31S	Project 1 ITS Petr Bouchner, Milan Sliacky, Michal Cenkner	Z	2	0P+1C	L	ZP
15X31S	Project 1 ITS	Z	2	0P+1C	L	ZP
14X31S	Project 1 ITS Tomáš Brandejský, Vít Fábera, Jana Kaliková, Jan Krčál, Martin Šrotýř, Zdeněk Lokaj, Mária Jánešová	Z	2	0P+1C	L	ZP
12X31S	Project 1 ITS	Z	2	0P+1C	L	ZP
11X31S	Project 1 ITS Jan Přikryl Jan Přikryl (Gar.)	Z	2	0P+1C	L	ZP
23X31S	Project 1 ITS	Z	2	0P+1C	L	ZP
18X31S	Project 1 ITS	Z	2	0P+1C	L	ZP
20X31S	Project 1 ITS Jiří Růžička, Patrik Horažďovský, Milan Sliacky, Eva Hajčiarová, Vladimír Faltus, Martin Leso, Jiří Brož	Z	2	0P+1C	L	ZP
21X31S	Project 1 ITS	Z	2	0P+1C	L	ZP
22X31S	Project 1 ITS Michal Frydrýn, Tomáš Mičunek, Luboš Nouzovský, Tomáš Kohout, Zdeněk Svatý Luboš Nouzovský	Z	2	0P+1C	L	ZP
17X31S	Project 1 ITS	Z	2	0P+1C	L	ZP
16X32S	Project 2 ITS Milan Sliacky, Josef Mík, Michal Cenkner, Tereza Kunclová	Z	2	0P+1C	Z	ZP
15X32S	Project 2 ITS	Z	2	0P+1C	Z	ZP
14X32S	Project 2 ITS Jana Kaliková, Jan Krčál, Martin Šrotýř, Zdeněk Lokaj, Tomáš Zelinka	Z	2	0P+1C	Z	ZP
12X32S	Project 2 ITS	Z	2	0P+1C	Z	ZP
11X32S	Project 2 ITS Evženie Uglickich, Pavla Pecherková, Michal Matowicki, Ivan Nagy, Jana Kuklová, Jan Přikryl, Ondřej Přibyl Jana Kuklová Jana Kuklová (Gar.)	Z	2	0P+1C	Z	ZP
17X32S	Project 2 ITS	Z	2	0P+1C	Z	ZP
23X32S	Project 2 ITS	Z	2	0P+1C	Z	ZP
22X32S	Project 2 ITS Michal Frydrýn, Tomáš Mičunek, Luboš Nouzovský, Tomáš Kohout, Zdeněk Svatý Luboš Nouzovský	Z	2	0P+1C	z	ZP
21X32S	Project 2 ITS	Z	2	0P+1C	Z	ZP
20X32S	Project 2 ITS Jiří Růžička, Patrik Horažďovský, Milan Sliacky, Martin Leso	Z	2	0P+1C	Z	ZP
18X32S	Project 2 ITS	Z	2	0P+1C	Z	ZP
11X33S	Project 3 ITS Jan Přikryl Jan Přikryl (Gar.)	Z	2	0P+2C	L	ZP
12X33S	Project 3 ITS	Z	2	0P+2C	L	ZP

14X33S	Project 3 ITS Jana Kaliková, Jan Krčál, Martin Šrotýř, Zdeněk Lokaj, Tomáš Zelinka	Z	2	0P+2C	L	ZP
15X33S	Project 3 ITS	Z	2	0P+2C	L	ZP
16X33S	Project 3 ITS Milan Sliacky, Josef Mík, Michal Cenkner, Tereza Kunclová	Z	2	0P+2C	L	ZP
23X33S	Project 3 ITS	Z	2	0P+2C	L	ZP
21X33S	Project 3 ITS	Z	2	0P+2C	L	ZP
20X33S	Project 3 ITS	Z	2	0P+2C	L	ZP
18X33S	Project 3 ITS	Z	2	0P+2C	L	ZP
17X33S	Project 3 ITS	Z	2	0P+2C	L	ZP
22X33S	Project 3 ITS	Z	2	0P+2C	L	ZP

Characteristics of the courses of this group of Study Plan: Code=X1-BP-ITS-22/23 Name=Research Groups Bachelor Full-Time TET-ITS from 2022/23

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16X31S	Project 1 ITS	Z	2
15X31S	Project 1 ITS	Z	2
14X31S	Project 1 ITS	Z	2
12X31S	Project 1 ITS	Z	2
11X31S	Project 1 ITS	Z	2
23X31S	Project 1 ITS	Z	2
18X31S	Project 1 ITS	Z	2
20X31S	Project 1 ITS	Z	2
21X31S	Project 1 ITS	Z	2
22X31S	Project 1 ITS	Z	2
17X31S	Project 1 ITS	Z	2
16X32S	Project 2 ITS	Z	2
15X32S	Project 2 ITS	Z	2
14X32S	Project 2 ITS	Z	2
12X32S	Project 2 ITS	Z	2
11X32S	Project 2 ITS	Z	2
17X32S	Project 2 ITS	Z	2
23X32S	Project 2 ITS	Z	2
22X32S	Project 2 ITS	Z	2
21X32S	Project 2 ITS	Z	2
20X32S	Project 2 ITS	Z	2
18X32S	Project 2 ITS	Z	2
11X33S	Project 3 ITS	Z	2
12X33S	Project 3 ITS	Z	2
14X33S	Project 3 ITS	Z	2
15X33S	Project 3 ITS	Z	2
16X33S	Project 3 ITS	Z	2
23X33S	Project 3 ITS	Z	2
21X33S	Project 3 ITS	Z	2
20X33S	Project 3 ITS	Z	2
18X33S	Project 3 ITS	Z	2
17X33S	Project 3 ITS	Z	2
22X33S	Project 3 ITS	Z	2

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-ITS-22/23

Name of the group: Comp. Sel. Courses Bachelor Full-Time TET-ITS 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 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) Radek Hodač Radek Hodač Radek Hodač (Gar.)	KZ	2	2P+0C	Z	PV
00Y1XB	Active participation in a scientific project, workshop, short-term trip abroad Patrik Horažďovský Patrik Horažďovský Patrik Horažďovský (Gar.)	KZ	2	2P+0C		PV
20Y1AF	Alternative Forms of Transportation Project Financing Mária Jánešová Mária Jánešová (Gar.)	KZ	2	2P+0C	Z	PV
18Y1AM	Anatomy, Mobility and Safety of Man	KZ	2	2P+0C	Z	PV
14Y1AV	Animation and Visualization	KZ	2	2P+0C	L	PV
12Y1AE	Applied Ecology	KZ	2	2P+0C	Z	PV
20Y1AE	Applied Electronics	KZ	2	2P+0C	Z	PV
14Y1BE	Barrierless Transport Jan Krčál	KZ	2	2P+0C	L	PV
15Y1BO	Work Safety and Health Protection in Transportation	KZ	2	2P+0C	L,Z	PV
11Y1BK	Error Detection Codes for Interlocking Systems Lucie Kárná Lucie Kárná (Gar.)	KZ	2	2P+0C	Z	PV
21Y1BS	Unmanned aircraft systems 1	KZ	2	2P+0C	L	PV
14Y1BM	Biometric Methods	KZ	2	2P+0C	Z	PV
15Y1DZ	History of Railway	KZ	2	2P+0C	L	PV
12Y1DS	Project Documentation in Practice	KZ	2	2P+0C	Z	PV
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 Jan Feit (Gar.)	KZ	2	2P+0C	Z	PV
18Y1EM	Experimental Methods in Mechanics Daniel Kytýř Daniel Kytýř Daniel Kytýř (Gar.)	KZ	2	2P+0C	Z,L	PV
15Y1FD	French Area Studies and Transportation	KZ	2	2P+0C	L	PV
14Y1HW	Computer Hardware	KZ	2	2P+0C	L	PV
15Y1HL	History of Civil Aviation	KZ	2	2P+0C	L	PV
15Y1HD	History of City Mass Transport Milan Dont Milan Dont (Gar.)	KZ	2	2P+0C	Z	PV
12Y1HD	Traffic Noise	KZ	2	2P+0C	L	PV
15Y1HE	Work Hygiene and Ergonomics in Traffic Petr Musil (Petr Musil (Gar.)	KZ	2	2P+0C	Z	PV
16Y1IS	Interactive simulators and simulations	KZ	2	2P+0C	L,Z	PV
12Y1KN	Combined Transportation Petr Nejedlý Petr Nejedlý (Gar.)	KZ	2	2P+0C	z	PV
12Y1KP	Communication and Promotion of Transport Projects	KZ	2	2P+0C	L	PV
20Y1KP	Communication and presentation skills Jiří Růžička, Patrik Horažďovský, Kristýna Navrátilová Jiří Růžička Jiří Růžička (Gar.)	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	KZ	2	2P+0C	L,Z	PV
20Y1LN	Location and Navigation	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 Petr Koudelka (Gar.)	KZ	2	2P+0C	L,Z	PV

21Y1MP	Matlab for project-oriented study Lenka Hanáková, Vladimír Socha Lenka Hanáková Vladimír Socha (Gar.)	KZ	2	2P+0C	Z	PV
14Y1MP	Modeling Complex Assemblies and Models in Parametric Modeller	KZ	2	2P+0C	Z	PV
15Y1MK	Modern History in Context: Every Day Life and Transport	KZ	2	2P+0C	L	PV
15Y1NE	German in the Economy and Society	KZ	2	2P+0C	Z	PV
21Y1OH	Airline Business and Operations Peter Olexa, Ladislav Capoušek, Peter Vittek Peter Olexa Peter Vittek (Gar.)	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	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
17Y10F	Personal Finance	KZ	2	2P+0C	Z,L	PV
20Y1OK	Road Lighting	KZ	2	2P+0C	L	PV
11Y1PV	Parametrical and Multicriterial Programming Olga Vraštilová Olga Vraštilová Olga Vraštilová (Gar.)	KZ	2	2P+0C	Z	PV
17Y1PM	Personnel Management	KZ	2	2P+0C	L	PV
12Y1PC	Pedestrian and Cycling Transport	KZ	2	2P+0C	L,Z	PV
14Y1PG	Computer Graphics	KZ	2	2P+0C	L	PV
14Y1P2	Computer Aid of Transportation Projecting 2	KZ	2	2P+0C	Z	PV
18Y1PS	Computer Simulations in Mechanics	KZ	2	2P+0C	L	PV
14Y1PI	Corporate Information System	KZ	2	2P+0C	Z	PV
14Y1PZ	Advanced Data Processing in Spreadsheets	KZ	2	2P+0C	Z	PV
21Y1PC	ATC Procedures and Activities Stanislav Pleninger, Terézia Pilmannová Terézia Pilmannová Stanislav Pleninger (Gar.)	KZ	2	2P+0C	Z	PV
12Y1PD	Assessment of Transport Structures	KZ	2	2P+0C	Z	PV
20Y1PK	Product Quality Management Processes Martin Leso Martin Leso (Gar.)	KZ	2	2P+0C	Z	PV
14Y1PJ	C Programming Language	KZ	2	2P+0C	Z	PV
12Y1C1	Designing Roads in Civil 3D I	KZ	2	2P+0C	L,Z	PV
12Y1C2	Designing Roads in Civil 3D II Tomáš Honc Tomáš Honc (Gar.)	KZ	2	2P+0C	Z,L	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
21Y1PL	Operational Aspects of Aerodromes	KZ	2	2P+0C	L	PV
21Y1PA	Air Traffic Control Operating Procedures Terézia Pilmannová	KZ	2	2P+0C	Z	PV
12Y1PU	Organization Disposition of Railway Stations	KZ	2	2P+0C	L	PV
12Y1RU	Railway Lines Reconstruction	KZ	2	2P+0C	Z	PV
16Y1RE	Control and Electronic Vehicle Systems Josef Mik, Přemysl Toman Josef Mik (Gar.)	KZ	2	2P+0C	Z	PV
21Y1RZ	Human Resources Management	KZ	2	2P+0C	L	PV
17Y1ST	Titan Simulation	KZ	2	2P+0C	L	PV
21Y1SI	ATC Simulator	KZ	2	2P+0C	L	PV
20Y1SC	Sensors and Actuators	KZ	2	2P+0C	L	PV
17Y1SL	Sociology of Human Resources	KZ	2	2P+0C	Z	PV
11Y1SI	Transportation Software Engineering	KZ	2	2P+0C	Z	PV
16Y1KS	Quality and Reliability of Vehicles David Lehet, Jaroslav Machan Jaroslav Machan (Gar.)	KZ	2	2P+0C	Z	PV
12Y1SU	Road Management and Maintenance	KZ	2	2P+0C	L	PV
16Y1SO 17Y1SK	Strategy and innovation in mobility	KZ KZ	2	2P+0C 2P+0C	Z	PV
	Urban and Regional Rail Transport Systems Aircraft Technical Handling			1	L,Z	PV
21Y1TH	Peter Olexa	KZ	2	2P+0C	Z	PV
11Y1TG	Graph Theory Lucie Kárná	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	KZ	2	2P+0C	L	PV

14Y1UP	Editing of Theses in MS Word	KZ	2	2P+0C	L	PV
18Y1UK	Introduction of Rail Vehicles	KZ	2	2P+0C	L	PV
12Y1VR	Public Transport in Cities and Regions Vladimír Pušman Vladimír Pušman (Gar.)	KZ	2	2P+0C	Z	PV
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 Voráčová	KZ	2	2P+0C	L	PV
14Y1ZJ	Fundamentals of programming in JAVA	KZ	2	2P+0C	Z	PV
12Y1ZU	Principles of Urbanism Karel Hájek Karel Hájek (Gar.)	KZ	2	2P+0C	Z,L	PV
15Y1ZV	East-West dichotomy: Prelude to the Cold War Marie Michlová Marie Michlová (Gar.)	KZ	2	2P+0C	Z	PV
16Y1ZL	Vehicle Testing, Legislation and Construction Zuzana Radová Zuzana Radová (Gar.)	KZ	2	2P+0C	Z	PV

Characteristics of the courses of this group of Study Plan: Code=Y1-BP-ITS-22/23 Name=Comp. Sel. Courses Bachelor Full-Time TET-ITS from 2022/23

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12Y1DS	Project Documentation in Practice	KZ	2
=	reating. Project documentation types. Support materials for project documentation creating. Building permit obtaining proces	ss. Budget and pri	cing. Practical
creation of some project		1/7	
17Y1EV	Public Sector Economy theory of public sector, public choice theory, externalites, decisions about public finance allocation, economic assesment of public sector, public choice theory, externalites, decisions about public finance allocation, economic assessment of public sectors.	KZ	2
	ate budget, management of public projects a their economic efficiency assessment, way of elaboration of PPP projects, funding		
23Y1EH	Electronics and hardware in security of transportation	KZ	2
ļ	f signals. Passive circuits, properties, basic measurements. Passive filters, semiconductors. Operational amplifiers, basic circ		
Power supplies. Logic cir	cuits. AD converters. Connection of analog and digital parts. Basic blocks of digital signal processing. Measurement processing	g. Design and fab	rication methods
in electronics.			
20Y1EK	Qualification in Electrical Engineering	KZ	2
•	n measurements in laboratories, electrical equipment, power supply, electrical installation of low voltage, electric shock hazar	=	
_	ed currents, electrical equipment protection against short circuit and overload protection, control and revision, first aid, legisla safety and electrical engineering.	alion, standards a	ina regulations
16Y1EN	Energy Requirements of Vehicles	KZ	2
	g inertial of the vehicles. Types of energy - kinetic, static, heat, chemical and others. Ways of energy change into kinetic ener		
-	engine. Energy accumulation means, accumulator, flywheel, fuel cell. Energy recuperation. WTW analysis.		
20Y1EA	Environmental Aspects of Transport	KZ	2
•	weather observation network, weather in transportation, road meteorology. Weather forecasting, data assimilation, probabilist		
	ts and their effects, atmospheric chemistry, traffic emissions. Greenhouse gasses, carbon cycle, a role of energy and transport		
15Y1EH	European Integration within Historical Context	KZ	2
	tion of new states. Europe and the powers, League of Nations. European policy in the 1920s. Fascism, nacism, communism.		
- '	r's getting to power, system of bilateral agreements. Decline of the LN. Rearrangement of powers during WWII. Cold war and erman relationship - a driving power of starting European integration.	i its consequence	s ioi Europe.
18Y1EM	Experimental Methods in Mechanics	KZ	2
	experimental mechanics. Sensors for mechanical testing. Overview of experimental methods. Destructive and non-destructive		_
experimental procedure	s and sample preparation. Tensile and bending tests. Electrical resistance strain gages. Optical based strain measurement. F	atigue and lifetim	e prediction.
Instrumented hardness	testing. Introduction to electron microscopy. Errors in measurement.		
	French Area Studies and Transportation	KZ	2
	regions, transport infrastructure. Paris and its sights, city public transport. Road traffic, motorways, railway traffic, TGV, air tra	•	erminology.
	re. Current political system. System of education, studying in France. Selected authors of French literature. French gastronor		0
14Y1HW	Computer Hardware basics of logical circuits design and their realization using FPGA. In detail, description of computer architecture and separate	KZ	2 controllers
arithmetic and logical ur		parts designing	Controllers,
	History of Civil Aviation	KZ	2
	relopment of aircrafts lighter than air. Beginnings of aircrafts heavier than air. Czechoslovak aviation pioneers. Development of		
World airports. Famous	aviators. Helicopters. CSA airplanes. Development of aircrafts in Czechoslovakia between the years 1945-1989. Classic era	of aviation. Golde	n era of civil
	civil aviation. Airline companies. Supersonic flying.		
15Y1HD	History of City Mass Transport	KZ	2
	sport in the world, development of tram, bus and trolley-bus systems. History of transport networks in the world, current trend		
	yry of city transport in Prague and Prog. History of tram, bus and trolley bus operation systems in the Czach Popublic and SI	-	ents of tariff and
•	ory of city transport in Prague and Brno. History of tram, bus and trolley-bus operation systems in the Czech Republic and SI	lovakia.	
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21Y1LJ Aeronautical Radio and Flight Instruments	KZ 2
Basic definitions, history of aircraft instrumentation, aerometric instrumentation, Earth magnetism, airc	· · · · · · · · · · · · · · · · · · ·
other aircraft equipment, engine instrumentation, warning and recording systems, instrumentation op 21Y1LS Air Traffic Services	rerational requirements, radiocommunication and radionavigation.
Airspace structure in Czech Republic and other countries. Introduction and description of ATS units in	' -
at USA and Czechoslovakia. ATS - Model of financing. Training System of Air Traffic Controllers. Futur	
17Y1LL Logistics of Passenger and Freight Air Transport	KZ 2
Logistics airline passenger and cargo. Aircraft and airport terminals for passenger and cargo transport	rt. Airlines in terms of logistics systems. Aerial transport process passengers and
air cargo. Information systems in air transport. Global distribution systems.	
20Y1LN Location and Navigation	KZ 2
Description and examples of road networks, localization on the network. Routing algorithms, their protections transport connections, routing algorithms, their properties and implementation.	perties and implementation. Description and examples of datasets for finding
23Y1MK Crisis Situation Management in Critical Infrastructure	KZ 2
Determination of critical infrastructute elements on all levels, their protection systems, responsibilities	-
their responsibilities to anounce particular safety provisions. Physical and cyber protection of critical i	
23Y1MU Emergency Events Management Solution in Transport Infra	structure KZ 2
Basic solutions of emergency events with emphasis of the transport infrastructure events and their solu	ution management. Knowledge in the emergency planning and special procedures
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 the application of marketing.	a service, specifics of public passenger 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 classe	l l
to biological materials and to biomimetics. Integral approach to material selection process is also den	· ·
21Y1MP Matlab for project-oriented study	KZ 2
The subject's syllabus is focused on the problem-solving during bachelor's thesis preparation and it is	· · · · · · · · · · · · · · · · · · ·
particular examples, based on actual students' needs and suggestions. The subject will have a flexible	
14Y1MP Modeling Complex Assemblies and Models in Parametric N	
Assemblies programming - tools and methodology of working subassemblies and assemblies, sheet Photorealistic output rendering - physical and material properties, lighting sources. MKP - visual exar	• • • • • • • • • • • • • • • • • • • •
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 c	
15Y1NE German in the Economy and Society	KZ 2
Recent economic and social issues of German speaking countries and of the EU. Reading and listen	ing of texts. Lexical, grammatical and semantic analysis of texts. Discussion on
selected topics.	
21Y1OH Airline Business and Operations	KZ 2
The course provides a comprehensive view of the commercial, operational and transportation activities	
various aspects of their strategy, economic and operational indicators. It introduces students in detail to a basic view of the economic aspects of air transport.	operational processes and the essentials of transportation processes. It provides
23Y1OK Protection of Critical Objects and Infrastructures	KZ 2
Types of technological systems, critical item, risks and their courses, criticality, vulnerability, connectivi	l I
infrastructures.	
20Y10I Fare Collection and Information Systems	KZ 2
Fare collection systems in public transport and their components (on-board units, validators, turnstile	
panels) and operators (cycles, location or current delay of vehicles,). The issue of tariff systems.	
14Y1OJ Object - oriented programming in JAVA Objective thinking. Encapsulation. Classes. Attributes. Access modifiers. Methods and overloading. Sp.	KZ 2
data types. Inheritance. Polymorphism. Statics, constants, interfaces, abstract classes, enum, packag	
14Y1OP Operating System	KZ 2
Distributions. Installation GNU/Linux OS. X-window system. Rights management - users and groups,	l l
runlevels. Basic console programs / commands. Config files. SW management, package systems. Pro	
communication. Services management. Safe and secure configuration of OS. Remote administration.	
17Y10F Personal Finance	KZ 2
Personal finance (budget, financing of basic living needs), debt (loans and credits, payment instrume consumer loans, refinancing), savings and investments (investment horizon, return, risk, investment st	
(retirement savings and insurance).	rategy), insurance (insurance types, suitability and adequacy), securing the luttile
20Y1OK Road Lighting	KZ 2
Basic lighting quantities and terms, street lighting components (luminaires, control cabinets for street lighting	The state of the s
light distribution), standards, measurement of illuminance and luminance in road lighting, tunnels, cor	nceptual approach to street lighting design, lighting calculations in DIALux and
Relux, street lighting control systems.	
11Y1PV Parametrical and Multicriterial Programming	KZ 2
Solution to the problem of linear programming with a parameter in objective function, on right sides and	
17Y1PM	en sources, work adaptation, teamwork, intercultural communication
12Y1PC Pedestrian and Cycling Transport	KZ 2
Routes for pedestrians. Pedestrian crossings. Modifications for blind, dim-sighted and disabled people.	l l
for cyclists. Separation of cyclists from other transport modes. Cycle tracks and its design - one way s	
crossroads. Traffic signs and road marking for cyclists.	
14Y1PG Computer Graphics	KZ 2
Basic formats of graphic and possibilities of their editing and mutual conversion. Use of individual type	
level scope) using layers, DPI, colors. Basics of digital photography, scanning and computer technolo	gy like monitors and graphics cards.

14Y1P2	Computer Aid of Transportation Projecting 2	KZ	2
Overview of CAx applica	ation for transportation projecting aid. AutoCAD environment possibilities of basic tasks automatizing (programming, scripting	, data exchange).	Advanced blocks
$modification\ (attributes,$	relation to databases). Work in projecting group, external references. Basic tasks for cummunication projecting (clotoidic trans	sition curve, cross	-and longitudinal
section). Basics of 3D m	odelling.		
18Y1PS	Computer Simulations in Mechanics	KZ	2
	of tools for stress analysis of structures. Numerical methods in mechanics, finite element method. Geometric model develop		
	s. Assignment of material properties. The types of elements and their use. Discretization of solid model. Boundary conditions	and application of	of the load. Basic
tasks of structural and n	nodal analysis. Introduction to complex nonlinear problems.		,
14Y1PI	Corporate Information System	KZ	2
	edge, components of information system, syntatic and semantic sense of data, structure of corporate information system, page		=
	n, storage, etc.), corporate information politic and information control, risks of information system operation, legal environme	nt of information s	ystem operation,
	n, information system security, data protection, safety politics.		,
	Advanced Data Processing in Spreadsheets	KZ	2
	with principles of working in a spreadsheet. Graphic layout of the table appearance, formatting of numbers, insertion of form		=
-	ion. Working with large spreadsheets, filters, advanced filters, database functions. Pivot tables and charts, conditional formatting	ng, solution finding	g, solver, macros,
	s and questions from various companies and training.		T
21Y1PC	ATC Procedures and Activities	KZ	2
•	ures, basics of communication and phraseology, aircraft identification, spacing and traffic coordination. In addition, the cours		affic control at
· ·	bility operational procedures. Students will during the course learn basic safety management applications applied across the	1	т
12Y1PD	Assessment of Transport Structures	KZ	2
·	structures, the EIA process. Multicriteria assessment methods, risk analysis, SWOT analysis. Landscape character, possibiliti	•	
•	he landscape. Rating fragmentation and landscape connectivity in the preparation of linear structures. Practical examples of	i assessment of tra	affic buildings on
the environment.			T
· ·	Product Quality Management Processes	KZ	2
	ganization management. Management systems and international standards; quality management systems. Quality products,	-	
	management, management principles. Principles of process management, monitoring and measurement systems management	nt. Uniform framev	vork of standards
	nt. Process management principles. Metrology and testing. Product certification.		
l l	C Programming Language	KZ	2
	e. Preprocessor, basics of the C language (data types, syntax, commands), functions, pointes, dynamical memory allocation,	string, files, struct	ures and unions.
	ract data types (FIFO, LIFO, list), programming techniques (sorting, searching, recursion), using bitwise oprerators.	1/7	
	Designing Roads in Civil 3D I	KZ	2
	to the traffic buildings design field, specifically the design of roads as such, by the means of a 3D software. Students go through the control of the contr	-	-
	, from the initial situation, over the longitudinal section, to the model and work sections and the cubic capacity calculation. T	ne course also inc	ciudes a basic
	building design in the real-life profession.	1/7	
	Designing Roads in Civil 3D II	KZ	2
	to the traffic buildings design field, specifically the design of roads as such, by the means of a 3D software. Students go through the initial control of the provided and the	-	-
	, from the initial situation, over the longitudinal section, to the model and work sections and the cubic capacity calculation. T	ne previously acq	uirea skiiis are
	d. Students learn to design intersections.	1/7	
	3D Modeling in AutoCAD	KZ	2
	tric modeller (AutoCAD) environment, scenes rendering, creation of planar and volumetric objects, user setup creation, objects and reflects and refl	ect data creation, v	work with data
	database. Basic definition of work with lights, materials and reflexes. Models presentation.	1/7	
16Y1PV	Operation, Construction and Maintenance of Vehicles	KZ	2
•	uction. Vehicle maintenance. Vehicle diagnostics. Maintenence and repair plans. Engine maintenance and emission measur	ement. Iransmissi	on mecnanism.
General principles of en		1/7	
	Operational Aspects of Aerodromes	KZ	2
•	aerodromes. Location of aerodrome and orientation of runways. Requirements for apron. Capacity of airports runways and to	erminals. Operatio	n under winter
	units. Protection against unlawful interference. Local transport connection. Environmental protection.	1/7	
21Y1PA	Air Traffic Control Operating Procedures	KZ	2
	ne ATC simulator with the following focus - getting familiar with the simulation environment, acquiring basic habits, aircraft ide	•	-
-	rance, use of RNAV points. Practical exercises focused on the basis of vectoring, timely application of vertical spacing, EST DACH airspace, arrivals, departures and conflict solutions.	and HEV messag	je transmission.
	• • • •	1/7	
12Y1PU	Organization Disposition of Railway Stations	KZ	2
-	senger transport equipment. Freight transport equipment. Branch lines and railway traffic inside industrial company areas. Z		nation yards.
	ology of work in railway station with regard to its disposition. Railway station documentations in the Czech Republic railway		
'	Railway Lines Reconstruction	KZ	2
	erational, maintaining lines and stations, geometrical alignment of railway line, vehicles for railway superstructure and substr	ucture maintenand	ce, scneauling
	ons, preparation of railway lines reconstruction and maintenance, process of railway line reconstruction.	1/7	
16Y1RE	Control and Electronic Vehicle Systems	KZ	2
	regulation. Tools for analytical solution, linear system description. Basic types of a regulator (PID), properties, advantages, dis-	-	
=	Electric drive. Vehicle communication bus (CAN, LIN, FlexRay, ISObus, KWP2000 protocole etc.). Vehicle electronic control	., Salety, Communi	CallOII and
comfort systems.	Human Dagguega Managamant	1/7	
,	Human Resources Management	KZ	2
•	esources in the organization and related disciplines file. Substance, importance and challenges of human resources manag esource management. Human resource planning. Search, recruitment and selection of employees. Motivation, evaluation and		
	esource management. Human resource planning. Search, recruitment and selection of employees, Motivation, evaluation and cies of employees. Education of employees. Planning career management.	a remuneration of t	stan. i UsitiUlling,
		V7	2
17Y1ST	Titan Simulation game simulating the business decisions. Lets 2-8 student groups to produce and compete in the market with the same prod	KZ	2
= .	and capacity of production, plan budgets for marketing, research and development. They become familiar with the conseque		-
	and capacity of production, plan budgets for marketing, research and development. They become familial with the conseque ports and they use this information for other business decisions.	noos of their decis	none by the lottl
21Y1SI	ATC Simulator	KZ	2
,	ATO SIMULATOR simulation environment, acquiring basic habits, aircraft identification procedures, vectoring, level changes, ATC clearance, u	1	Į.
	asic vectoring, early application of vertical separation, EST and REV message passing. Practical exercises in the APPROAC	=	
=	procedures, conflict resolution.	,	,
	•		

20Y1SC Sensors and Actuators Principles of sensors and actuators. Basics of measuring theory and actuating influence. The respective technologies and construction principles. Sensor	KZ	2 electro-magnetic
state (temperature, humidity), chemical and particle flow values. Electrical, pneumatic and hydraulic actuators and solid phase elements.		
17Y1SL Sociology of Human Resources Human resources and their importance, work group as a special kind of social group, communication, personal management, modern management,	KZ	planning culture
of the organization.	numan resources	planning, culture
11Y1SI Transportation Software Engineering	KZ	2
Basic concepts of software engineering, ranging from domain analysis, requirement analysis and software architectures to analyses, design and imple and practical usuage.	mentation using to	ormai techniques
16Y1KS Quality and Reliability of Vehicles	KZ	2
Quality and reliability theory in design, development, production and operation of vehicles. Definition and possible approach to quality and reliability. Mode and Effects Analysis), QFD (Quality Function Deployment), DFx (Design for Assamly, Manufacturying, Quality, Services) and other method		•
Knowledge-based systems of quality and reliability, data collection.	s asea iii iiiaasiiia	а арріюацогіз.
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 develor medium and long-term strategy of the Ministry of Transport. Maintenance of roads winter and summer, its requirements, specifics, possibilities and re-	-	
classroom as well as investment activity in highway engineering.		
16Y1SO Strategy and innovation in mobility	KZ	2
Introduction to innovation, definition. Innovation strategy. Innovation life cycle and ecosystem, main sources and funding opportunities. Successful in co-financing, evaluation. Sprint method and its use. Innovative business model - main patterns and examples, design, strategy, processes and outlo		
of use). Creating an innovation strategy. Customer and value map, design and testing.		
17Y1SK Urban and Regional Rail Transport Systems Factors affecting transport demand, modal-split, distribution of passenger flows on public regional transport lines. Optimization of line management,	line networking (2 Proating and
evaluation of the timetable. Vehicle circulation creation. Optimizing driver shifts and arranging them in turnus. Effects of barrier-free and public transport		•
marketing.		
21Y1TH Aircraft Technical Handling Aircraft towing and pushing tractors. GPU. Air conditioning and heating units. Aircraft fuel equipment. De-acing and anti-icing units. Loading and unloading units.	KZ	2 oment for
passangers onboarding and offboarding. Operational processes of aircraft technical handling and regulations. Modernization and technical progress		pinioni ioi
11Y1TG Graph Theory	KZ	2
Basic concepts and terminology of graph theory, graph representation. Problems of graph theory, problem instance. Graph search algorithms, trees, path problem, Eulerian path, bipartite graph matching, flow networks, circulations, critical path method, traveling salesman problem. Problem of existen	· ·	-
for their solving. Computational complexity, dealing with NP-complete problems, heuristic approach.	oo ana opiimizan	and algorithmo
23Y1TP Criminal Law in IT and Transportation	KZ	2
Introduction of criminal law into legal order, conception of culpability and criminal delict, consequency of other legal standards. international treaty a crime, specific indicia of criminal court cases, practical examples.	nd criminai iaw, 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 solutions.	Your own applicat	tion 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. Selection and	l	_
Basic documentation for maintenance. Optimization of time maintenance intervals. Regulation no. 1321/2014 Part 145. Human factors of aircraft ma EASA for aircraft maintenance. Seminars will be focused on practical application.	intenance. Regula	ation of director
14Y1UP Editing of Theses in MS Word	KZ	2
Students will be introduced to the principles of creating and editing large documents and basic typographic rules. They will properly apply styles, creating and editing large documents and basic typographic rules.	ate tables of cont	
figures, tables, graphs, etc. Footnotes, captions, index. They practice corrections of finished documents. The goal is to prepare students for seamles so that they are able to concentrate mainly on writing a thesis.	s editing dissertat	tions and theses,
18Y1UK Introduction of Rail Vehicles	KZ	2
Basic characteristics and parameters rail transport systems - railway and urban transport. Basis driving mechanics rail vehicles - equation of motion		-
track resistance. Total running resistance. Acceleration force. Analyzing driving cycle rail vehicle. Speed-power diagrams and characteristics rail vehicle and electric drive. Design concept rail vehicles and drive of wheel set.	ie - nyaromecnan	ic, nyaroaynamic
12Y1VR Public Transport in Cities and Regions	KZ	2
Professional and political pillars of public transport. Accessibility of public transport. Transport demand management and directional coordination of Basic operating parameters and transport variations. Types of lines according to their routing and basic operating parameters. Time coordination of	•	-
Organization of tram operation in Prague. Tram safety.	пос. ороганопа	tramo control.
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. Principles of negotiation, the essence of negotiation, the differences in negotiation in business and in crisis situations, the principle of "win both", spr		
trust.		
14Y1VM Development of Applications for Mobile Devices Object oriented programming, Java programming language, development environment, operating system Android, development application - widget	KZ	2
permissions, services, GUI.	s, containers, tille	aus, menu,
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 trassesment. New materials in design. International standardization.	ansportation. Criti	cal situation
14Y1WG Webdesign	KZ	2
Students will learn the basics of HTTP communication, URL and addressing, HTML5 markup language, advanced CSS3 techniques, accessible an webdesign, content management systems, web corrections and installation, a configuration directions. The subject matter will be trained on examples	d usable web rule	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		
14Y1W2 Webdesign 2 Students will learn advanced techniques CSS, responsive webdesign, CSS frontends, content management systems, JavaScript, jQuery, SEO, web	KZ server installatio	2 n + configuration
directives. Topics will be practiced on practical examples.		

16Y1ZG	Introduction into Applied Computer Graphics	KZ	2
Computer graphics, div	vision and applications with emphasis on transport, including development and research. Colours, colour perception, colour sch	emes, models, p	rinciples of 2D
and 3D generation, ele graphics software.	ementary algorithms for graphic data workout. Visualisation principles and tasks, technics, graphics and visualisation HW basics	s. Introduction to	2D and 3D
14Y1ZM	Fundamentals of parametric and adaptive modeling	KZ	2
Basics of work at produ	ucts and parts creation. Sketch drawing by help of geometric relations, parametric dimensions, creation of adaptive models from	n 2D sketches. In	nport and export
from and to another sy	stems. Fundamentals of assemblies creation.		
11Y1ZM	Foundation of MATLAB Programming	KZ	2
	e of algorithmization, flow charts, description of MATLAB environment and its settings, MATLAB help, mathematical operators, made outputs, graphics, optimization and program code debugging.	atrices and elem	ents operations
14Y1ZJ	Fundamentals of programming in JAVA	KZ	2
-	Fundamentals of programming in JAVA a SE Platform. IDE Installation and First Project. Comments. Variables and Type System. Operators. User Input and Parsing. Ch		-
Introduction to the Java		ain and Chain C	onversion. Text
Introduction to the Java Chain and Mathematic	a SE Platform. IDE Installation and First Project. Comments. Variables and Type System. Operators. User Input and Parsing. Ch	ain and Chain C	onversion. Text
Introduction to the Java Chain and Mathematic	a SE Platform. IDE Installation and First Project. Comments. Variables and Type System. Operators. User Input and Parsing. Cheal Methods. Terms. Relational Operators and Switches. Cycles for, while, foreach. Field - declaration, initialization, methods for the same of t	ain and Chain C	onversion. Text
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Introduction to the Java Chain and Mathematic parameters, return valu 12Y1ZU Survey on history of ci Types of towns or cities	a SE Platform. IDE Installation and First Project. Comments. Variables and Type System. Operators. User Input and Parsing. Cheal Methods. Terms. Relational Operators and Switches. Cycles for, while, foreach. Field - declaration, initialization, methods for fue, recursion. Program creation. Principles of Urbanism ty and settlement building. Functional components and their mutual relations (working, living, recreation, transportation). Spacia	ain and Chain C field work. ASCII KZ al arrangement o	onversion. Text . Functions, 2 f settlements.
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Name of the block: Elective courses Minimal number of credits of the block: 0

The role of the block: V

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

Name of the group: Bachelor Full-Time TET voluntary

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

Credits in the group: 0

note on the	group.					
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 Židek, 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	٧
11SCFZ	Seminar of Physics Oldřich Hykš, Jana Kuklová, Zuzana Malá, Tomáš Vítů Zuzana Malá Zuzana Malá (Gar.)	Z	0	0P+2C	Z	٧
21SLD	Seminar of Air Transport Vladimír Plos, Jakub Kraus, Natalia Guskova Vladimír Plos	Z	0	0P+2C	L	V
18SPP	Seminary from Elasticity and Strength Tomáš Doktor, Jan Vyčichl Jan Vyčichl (Gar.)	Z	0	0P+2C	Z	٧
18STD	Seminary from Technical Documentation	Z	0	0P+2C	Z	V
18SS	Seminary from Structural Analysis Jan Vyčichi	Z	0	0P+2C	L	٧
11SSF	Secondary School Physics Course Zuzana Malá Zuzana Malá Zuzana Malá (Gar.)	Z	0	0P+2C	L	٧
TVKLV	Physical Education Course	Z	0	7dní	L	V
TVKZV	Physical Education Course	Z	0	7dní	Z	V

Characteristics of the courses of this group of Study Plan: Code=VP-BP-TET-20/21 Name=Bachelor Full-Time TET voluntary

	U 1 ,		
14DPK	Digital Support for Designing of Roads and Highways	Z	0
Seminars possibilities of	f technical processing problems focused on designing of roads and highways.	<u> </u>	
14DZT	Digital Support for Railway Lines	Z	0
Seminars possibilities of	f technical processing problems solved in the field of railway lines.	·	·
11SCFZ	Seminar of Physics	Z	0
Solving problems on kir	nematics, particle dynamics, dynamics of particle systems and rigid body. Continuum mechanics, thermodynamics.	<u> </u>	<u> </u>
21SLD	Seminar of Air Transport	Z	0
History, definitions, tern	ninology, basic rules. VFR / IFR. Basics of aerodynamics. Propulsion of aircraft. Aircraft design. Basics of navigation, radio na	avigation. Weight,	balance,
performance Flight plan	oning optimization of speed and heights, minimum fuel, Limitations of operation, maintenance, service life of aircraft Traffic I	management gro	und handling

security. Air crew. Airlines and economics. Space technologies.

18SPP	Seminary from Elasticity and Strength	Z	0	
Excersise for practice.	xcersise for practice. 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 beam. Torsion of cir	cle cross section. Combined loading. Stability of compressed bar and buckling.			
18STD	Seminary from Technical Documentation	Z	0	
Technical standards, in	nternational standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimension	nal and geometric	al accuracy,	
arrangement of drawir	g sheets.			
18SS	Seminary from Structural Analysis	Z	0	
Examples for practise.	General system of forces. Reactions of mass objects and compound systems. Internal forces on statically determinate beam	and simple frame	work. Application	
of principle of virtual w	orks for calculation of reactions of staticaly determinate systems. Determination of axial forces in truss construction - method	of joints and meth	nod of sections.	
Geometry of cross sec	tions. Plane fiber polygons.			
11SSF	Secondary School Physics Course	Z	0	
Basics of kinematics, dynamics, thermodynamics, electric field and magnetic field.				
TVKLV	Physical Education Course	Z	0	
TVKZV	Physical Education Course	Z	0	

Code of the group: VP-BP-TET-ITS

Name of the group: Bachelor Full-Time TET-ITS voluntary

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

Credits in the group: 0 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
11SEMO	Seminar of Electromagnetic Field and Optics Oldřich Hykš, Zuzana Malá, Tomáš Vítů Zuzana Malá Zuzana Malá (Gar.)	Z	0	0P+2C	L	V

Characteristics of the courses of this group of Study Plan: Code=VP-BP-TET-ITS Name=Bachelor Full-Time TET-ITS voluntary

11SEMO	Seminar of Electromagnetic Field and Optics	Z	0
Solving problems on e	lectric and magnetic field, electromagnetic field, optics and basics of solid-state physics.		

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:

Note on the grot	ap.					
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 Markéta Vojanová, Eva Rezlerová, Martina Navrátilová, Jana Štikarová	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 Zuzana Krinková	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 L	J
15JZ4N	Foreign Language - German 4 Eva Rezlerová, Martina Navrátilová, Jana Štikarová	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

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

15.JZ3F Foreign Language - French 3 Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation. Foreign Language - Italian 3 Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation. 15JZ3N Foreign Language - German 3 Ζ Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation. 15JZ3R Foreign Language - Russian 3 7 3 Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation. 15JZ3S Foreign Language - Spanish 3 Ζ 3 Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation. 15JZ4F Foreign Language - French 4 Z.ZK Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation. 15JZ4I Foreign Language - Italian 4 Z.ZK Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation. Foreign Language - German 4 15JZ4N 7.7K Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation Foreign Language - Russian 4 Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation. Foreign Language - Spanish 4 Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its

List of courses of this pass:

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	gral, Riemann integr	al, imprope
	Riemann integral. First-order differential equations, linear differential equations.		
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.	
11EMO	Electromagnetic Field and Optics	Z,ZK	4
	Electric field. Electric current. Magnetic field. Electromagnetic field. Optics. Basics of solid-state physics.		
11FYZ	Physics	Z,ZK	5
	Kinematics, dynamics, Newton's laws, force fields, mechanics of continuum, thermodynamics, introduction to electrostatics and electrostatics	ctric 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 the motion, the v	elocity, and
	acceleration of a particle moving on a curved path.		
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	eir solvability. Deteri	minants and
	their applications. Scalar product. Similarity of matrices (eigenvalues and eigenvectors). Quadratic forms and their classifica	tion.	
11MAMY	Mathematical Methods	Z,ZK	7
	deling. The system and its mathematical description. Types of signals. Basic system responses. Convolution. State models. Principle	•	•
state description.	Data measurement. Uncertainty in measured data. Data normalization. Preparation of data for further processing. Linear state mode	l over noisy data. K	alman filter
	condition estimation. Statistical learning methods. Regression, classification.		

Installation Sominar characteric particle dynamics, dynamics of particle systems and rigid took; Continuum mechanics, Particles Z 0	440057	Orașia su of Dhresia		
Seminar of Electromagnetic Field and Optics Solving problems to electric and magnetic field entergraphic Field and Optics 11SFF Secondary School Physics Course Statistics Statistics Statistics Seminarios, dynamis, therefore, from testimate, construction and properties interval estimates Parameter is tests Nonparametic feel and magnetic field. 11STAT Statistics Statistics Parameter of the Course of the Cou	11SCFZ	Seminar of Physics Solving problems on kinematics, particle dynamics, dynamics of particle systems and rigid body. Continuum mechanics, thermody	Z	0
11SSF Basics of intensions, syvamins, hereins, field and magnetic feld at feld and supplies feld at feld at feld and supplies feld at	11SEMO	Seminar of Electromagnetic Field and Optics	_	0
11STAT Busics of protability Descriptive statistics Population and sample. Initit theorem Prince indicate, construction and properties Interval estimates Parametric tests Rorpamarento; lest Rorpamarent	11SSF	Secondary School Physics Course	Z	0
Basic or optobability Descriptive statistics Population and sample. Intil thereom Point estimate, construction and proporties interval estimates Parametric tests Nonparametric test Regression and correlation analysis 11X31S	11STAT		7 7K	1
111/31S Project 1ITS Z 2 2 111/32S Project 2ITS Z 2 2 111/32S Project 3ITS Z 2 2 111/32S Project 3ITS Z 2 2 111/31S Project 3ITS Z 3 2 111/31S Project 3ITS Z 2 2 111/31S Project 3ITS		ity Descriptive statistics Population and sample, limit theorem Point estimate, construction and properties Interval estimates Parame	1 '	
111X32S Project 2 ITS Z 2 11Y1FBK Error Detection Codes for Interfocking Systems Z 2 11Y1FBK Error Detection Codes for Interfocking Systems Z 2 11Y1FBK Error Detection Codes for Interfocking Systems Z 2 11Y1FBK Error Detection Codes for Interfocking Systems X 2 12 Extractional and methods for its assuring Safety orders keep racts, optic costs, 80H tools, Responsibility of underected error. Design and assessment of detection codes: requirements of the European danatard EN 50159. 11Y1FBY Permetrical and Multicritisal Programming X 2 2 Solutions to the problem of linear programming with a parameter in objective function on right ladas and in the matrix of coeficients of linear constraints. Computation of difficient solutions of solutions engineering, angling from domain analysis, requirements of properties of all participations of difficient solutions of solutions engineering, angling from domain analysis, requirements of properties of all participations of solutions and interfocking of graph theory, graph representation. Problems of graph theory, properties and formitology of graph honory, graph representation. Problems of graph theory problems, bearing saterome problem. Problems of graph matching, flow networks, circulations, critical path method, to evaluate analysis of the problems. Published of graph photopy, problem instance. Graph search algorithms, trees, minimum sparsing from, which path problems, bearing saterome problem. Problems of existence and optimization and algorithms and the problems. Problems of graph theory problems, bearing saterome, problems, problems, properties of algorithms factors, of the problems. Problems of programming X Z 2 2 To applian the principle of algorithms factors, of the problems, promoters of the sate of the properties of the	11X31S		Z	2
11Y18K			Z	2
11Y1BK Sale communication and methods for its assurins. Seletive codes insert codes, and/codes, BCH codes, Red dokumon codes, Transmission charmels, delection of transmission may be considered and the code of the European standard EN 5015. 11Y1PV Parametrical and fluidification of the European standard EN 5015. Solution to the proteom of finear programming with a parameter in objective function, on right sides and in the matrix of conficients of linear constraints. Computation of efficients of 11Y1SI Transportation of Software Engineering (1974). 11Y1SI Transportation Software Engineering (1974). Basic concepts of software engineering, ranging from domain analysis, requirement analysis and software architectures to analyses, design and implementation using formal techniq and parameter in the protection of parameters of parameters of the protection of the prote		•	Z	2
IntyIPV Parametrical and MultiCriterial Programming Solution to the proteom of linear programming with a parameter in objective function, on right sides and in the matrix of coefficients of linear constraints. Compution of efficient solution in the proteom of linear programming with a parameter in objective function, on right sides and in the matrix of coefficients of linear constraints. Compution of efficient solution in the proteom of linear programming with a parameter in objective function, on right sides and in the matrix of coefficients of linear constraints. Compution of efficient solution of programming or constraints of the proteom o		·		
11Y1PV Parametrical and Multicriterial Programming	Safe communication	n and methods for its assuring. Safety codes linear codes, cyclic codes, BCH codes, Reed-Solomon codes. Transmission channels, de	etection of transm	ission errors
Solution to the problem of linear programming with a parameter in objective function, on right sides and in the matrix of coeficients of linear constraints. Computation of efficient solution 1115 Transportation Software architectures to analyses, design and implementation using formal techniq and practical transports. Basic concepts of software engineering, ranging from domain analysis, requirement analysis, and software architectures to analyses, design and implementation using formal techniq and practical transport and terminology of graph theory, graph representation, Problems of graph theory, problem instance, Graph search algorithms, trees, minimum appaning tree, short part of the problem, Eulerian path, bipartite graph matching, from relevorks, circulations, critical path method, travelling salesman problem. Problem of evidence and optimization and algorithms for their solving. Computational complexity, dealing with NP-complete problems, houristic approach. 11YIZM Foundation of MATLAB Programming KZ 2 12 fo explain the principle of algorithmization, flow charts, description of MATLAB environment and its settlings, MATLAB help, mathematical operators, matrices and elements control folis, implicat and optings, supprises, opinization and program code debugging. 12MDE Transport Models and Transport Excesses Series analysis, the causes, identify and minimize the consequences. Improving of transport transport and its assessment. Statistical characteristics of transport. Transport excesses, their arraysis, the causes, identify and minimize the consequences. Improving of transport transport and excesses, their arraysis, the causes, identify and minimize the consequences. Improving of transport transport excesses, their arraysis, the causes, identify and minimize the consequences. Improving of transport and the assessment. Statistical characteristics of transport. Transport excesses, their arraysis, the causes, identify and minimize the consequences. Improving of transport transport and transport and overta				,
11Y1SI Transportation Software Engineering Sales concepts of software engineering, ranging from domain analysis requirement analysis and software architectures to analyses, design and implementation using formal techniques and practical usuage. 11Y1TG Sales concepts and terminology of graph theory, graph representation. Problems of graph theory problem instance. Graph search algorithms, trees, minimum spanning tree, short ashir problem. Everimp path, bepariting graph matching, flow networks, circulations, critical path method, treveling salesman problem. Problem of existence and optimization and algorithms and problems. Problem of existence and optimization and algorithms, trees, minimum spanning tree, short safetying. Compatitional completely, dealing with N2—complete problems. Retriefs appraisance on the problem of the static flow of the stoking Compatitional Completely, dealing with N2—complete problems. Retriefs appraisance on the problem of the static flow of the static flow of the static flow of the static flow, communications load, in the and urban systems. Theory of queues, shock waves. Quality and standard spanning and the safe static flow and methods for their measurement. Models of the traffic flow, communications load, line and urban systems. Theory of queues, shock waves. Quality and standard spaced flowers and the sassessment. Statistical characteristics of transport Transport and theory. 12PPOK Designing Roads, Highways and Motorways 12PPOK Designing Roads, Highways and Motorways 12PPOK Designing Roads, Highways and Motorways 12PPOK Designing and overlaking. Road body - shapes and proportions, bothom and superstructure. Drinage and components of roads. Safety device. Crossings, juricit intersections. 12Y31S Project 2 ITS 2 2 2 12Y32S Project 3 ITS 2 2 2 12Y34S Project 4 ITS 2 2 2 12Y34S Project 4 ITS 2 2 2 12Y34S Project 5 Its of the static buildings design field, specifically the design of roads as such, by th			1	1
Basic concepts of software engineering, ranging from domain analysis, requirement analysis and software architectures to analyses, design and implementation using formal techniq and practical usage. 11Y1TG Graph Theory				_
11YITG Basic concepts and terminology of graph theory, graph representation. Problems of graph theory, problem instance. Graph search algorithms, trees, minimum spanning tree, short concepts and terminology of graph theory, graph representation. Problems of graph theory, problem instance. Graph search algorithms, trees, minimum spanning tree, short concepts and terminology of graph theory, graph representation. Problems of graph theory, problems instance. Graph search algorithms, trees, minimum spanning tree, short concepts and principle of algorithmization and adjorithm for their solving. Computation of MATLAB Programming Foundation of MATLAB Programming KZ 2 2 To explain the principle of algorithmization, flow charts, description of MATLAB environment and its settings. MATLAB help, mathematical operators, matrices and elements operator control flow, inputs and outputs, graphics, optimization and program code debugging. 12MDE Tamport Models and Transport Excesses, the irransport and seasons and advanced and programming and seasons and explaints and programming and seasons and explaints. The control of the static flow, communications load, line and urban systems. Theory of usues, shock waves. Quality transport and its assessment. Statistical characteristics of transport. Transport Models and Transport Excesses, the irransport and seasons and programming and transport transport and seasons and programming. The control of the statistic flow, communication transport transport and seasons. Highways and Multimory. 12PPOK Designing Roads, Highways and Multimory. 12PPOK Designing Roads, Highways and Motorways Froject 1 ITIS Project 1 ITIS Project 1 ITIS Project 2 2 12X31S Project 2 ITIS Project 3 2 12X31S Project 3 1TIS Project 3 1TIS Project 3 2 12Y1AE Designing Roads in Civil 3D II Project 3 ITIS Project 3 ITIS Project 3 ITIS Project 4 ITIS Project 4 ITIS Project 4 ITIS Project 5 ITIS Project	- 1	i o o	1	_
11Y1TG Basic corcepts and terminology of graph theory, graph representation, Problems of graph theory, problem instance. Graph search algorithms, frees, minimum spanning tree, schools be problem. Eulerian path, bipartitle graph matching, flow networks, circulators, critical path method, traveling salesman problem. Problem of existence and optimization and algorithms. The problem of their solving. Computational complexity, dealing with NP-complete problems, heuristic approach. 11Y1ZM Foundation of MATLAB Programming Founda	Basic concepts of s		ntation using forma	ai tecnnique
Basic concepts and terminology of graph theory, graph representation. Problems of graph theory, problem instance. Graph search algorithms, trees, minimum spanning tires, short pash problems, Eulerian path, bipartite graph matching, flow networks, circulations, critical path methods. The developed in the problems of the problems of the problems of the problems of the problems. Problem of existence and optimization and adjorith for their solving. Computational complexity, dealing with NP-complete problems, heuristic approach. 11YIZM Foundation of MATLAB Programming	11V1TG		K7	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		
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12Y1PU	Organization Disposition of Railway Stations	KZ	2
	on. Passenger transport equipment. Freight transport equipment. Branch lines and railway traffic inside industrial company areas. Zo The stations. Technology of work in railway station with regard to its disposition. Railway station documentations in the Czech Republi		
		T	1
12Y1RU	Railway Lines Reconstruction	KZ	2
Keeping railway iii	ne operational, maintaining lines and stations, geometrical alignment of railway line, vehicles for railway superstructure and substruc		, scneauling
10//1011	and organising possesions, preparation of railway lines reconstruction and maintenance, process of railway line reconstruction		
12Y1SU	Road Management and Maintenance	KZ	2
J	rith ownership of roads in the Czech Republic and the administration of the road at the state and county level. It is presented develop erm strategy of the Ministry of Transport. Maintenance of roads winter and summer, its requirements, specifics, possibilities and repai		
ledium and long-te	classroom as well as investment activity in highway engineering.	ii memous are dis	cussea iii iii
12Y1VR		KZ	2
	Public Transport in Cities and Regions	1	1
	political pillars of public transport. Accessibility of public transport. Transport demand management and directional coordination of lin arameters and transport variations. Types of lines according to their routing and basic operating parameters. Time coordination of lin	•	_
basic operating pa	arameters and transport variations, types of lines according to their routing and basic operating parameters. Time coordination of lin Organization of tram operation in Prague, Tram safety.	es. Operational tra	anic control.
40)/4711		1/7	
12Y1ZU	Principles of Urbanism	KZ	2
survey on nistory	of city and settlement building. Functional components and their mutual relations (working, living, recreation, transportation). Spacia	_	settiements.
10770	Types of towns or cities with a certain prevailing function, forms of their development. Brief overview of land-use planning		
12ZTS	Railway Lines and Stations	Z,ZK	4
Hail transport. Ha	ailway track geometry parameters. Route layout of railway lines. Railway line construction - railway substructure and superstructure.		ıılway lines.
	Railway control systems in relation to infrastructure. Operating and carriage points. Railway lines net and category. Traction in rail		
12ZYDI	Introduction to Transportation Engineering	Z,ZK	2
ole of transportati	on in land-use planning. Basic terms in transportation engineering. Traffic survey and traffic prognosis. Introduction to topic of roads, p	public mass transp	ort. Negative
	impacts of transportation to environment and safety.		
14AM	Automation and Measurement	Z,ZK	6
	rms agent, rational agent, their unification to elements of transportation systems, analogies in nature, regulation in openen loop and		
ystems, control u	sing finite state machines. Dynamic system identification. Measurement of basic electric and other physical quantities, principles of r	neasurement instr	ruments, DC
	and AC measurement, actuators, measurement automation, measurement laboratories.		1
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 algo		
ind use basic Bool	lean algebra to construct constraints in algorithms. Students will be introduced to the basics of the Python programming language -		g, loops, they
	will learn to work with variables of basic data types (integer, floating point and string) and the list data structure in their progra		
14DATS	Database Systems	KZ	2
Basic concepts of	of database systems, conceptual model, relational data model, the principles of normal forms, relational database design, security are		, database
	queries, relational algebra, SQL language, client / server, multilayer architectures, distributed database systems. Access to data via		1 -
14DPK	Digital Support for Designing of Roads and Highways	Z	0
	Seminars possibilities of technical processing problems focused on designing of roads and highways.		
14DZT	Digital Support for Railway Lines	Z	0
	Seminars possibilities of technical processing problems solved in the field of railway lines.		
14ISYD	Information Systems in Transportation	Z,ZK	7
Architecture and	cloud services concept, eGovernment-structure. Electronic communication and signature. IS life cycle and IT projects. Types of infor	mation systems a	nd specific
implementation	in transport. Roles, processes, management, optimization in IS. Oracle data types. SQL Developer, SQL queries. Comprehensive experience of the comprehensive e	xample and web a	pplication
	programming.		
14KSP	Constructing with Computer Aid	KZ	2
CAD systems" ter	m determination. CAD role in projecting system model. Existing CAD systems on Czech market. Project creation, basic common wo	rk rules in graphic	applications
and CA systems.	Co-ordinated systems, CAD environment skill (basics of constructing, dimensioning, modifications, user interfaces, projecting possil	bilites, AutoCAD e	nvironment
	profiles, drawings with raster foundaments).		
14PRG	Programming	KZ	2
The Course Progi	ramming builds on and fully extends the course 14ASD (Algorithmization and Data Structures). The knowledge of the Python progra	mming language i	s expanded
ere so that the par	rticipant gains skills and can apply them to solve various follow-up tasks. Main topics: lists, multidimensional arrays, sorting and searc	ching, tuples, sets	, dictionaries
	working with date and time, regular expressions, functions and procedures, working with files (CSV, JSON, XML).		
14TAMS	Telecommunications and Local Area Networks	Z,ZK	7
	r rrent state and introduction of the new trends in the development of telecommunication systems. The legal environment for the provision		1
services is explair	ned, basic telecommunication solutions in the hierarchical architecture of telecommunication networks are presented, and the links b	etween the param	neters of the
•	parts and the performance of telecommunication systems.	•	
14X31S	Project 1 ITS	Z	2
14X32S	Project 2 ITS	Z	2
		Z	_
14X33S	Project 3 ITS		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 Sp		-
	s, rendering filters, Motion blur, advanced animations, Motion panel. Modeling for morphing and animation, bone formation, animation		
14Y1BE	Barrierless Transport	KZ	2
	rless accessible public transportation in terms of architectural barriers and also for transportation-technological point of view. Students		
barrierless enviro	onment roads, railway stations, public transport stops, terminal buildings, vehicles, public transport, information and orientation systems	and transportatio	n technology
	Theoretical knowledge will be supplemented by practical examples.		

14Y1BM	Biometric Methods	KZ	2
	erms, authentication methods, principles and performance measurement of biometric systems, overview of biometric technologies, ha method, 2D and 3D face recognition, vein patterns on the wrist, ear biometrics, fingerprint recognition, skin spectroscopy, behavioral r	J ,	0 ,
	in transport applications, safety and risks of biometric technologies.		2.00100
14Y1HW	Computer Hardware	KZ	2
Computer archite	ecture, basics of logical circuits design and their realization using FPGA. In detail, description of computer architecture and separate p	parts designing - c	ontrollers,
	arithmetic and logical units, I/O subsystem.		
14Y1MP	Modeling Complex Assemblies and Models in Parametric Modeller	KZ	2
Assemblies pro	gramming - tools and methodology of working subassemblies and assemblies, sheet metal parts modelling, welded assemblies, pipe	lines, and distribut	ion lines.
	Photorealistic output rendering - physical and material properties, lighting sources. MKP - visual example.	147	
14Y1OJ	Object - oriented programming in JAVA	KZ	2
	Encapsulation. Classes. Attributes. Access modifiers. Methods and overloading. Special methods (constructors, getters / setters). Ba ance. Polymorphism. Statics, constants, interfaces, abstract classes, enum, packages, exceptions, collections, generics, lambda expre		
14Y1OP	Operating System	KZ	2
	stallation GNU/Linux OS. X-window system. Rights management - users and groups, ACL rights. Filesystems and attributes. Program	l	l .
	console programs / commands. Config files. SW management, package systems. Programs in graphic shell - text, spreadsheet, graph	-	
	communication. Services management. Safe and secure configuration of OS. Remote administration.		
14Y1P2	Computer Aid of Transportation Projecting 2	KZ	2
	pplication for transportation projecting aid. AutoCAD environment possibilities of basic tasks automatizing (programming, scripting, dat		
modification (attrib	utes, relation to databases). Work in projecting group, external references. Basic tasks for cummunication projecting (clotoidic transition	n curve, cross-and	longitudinal
4 4V4 DA	section). Basics of 3D modelling.	V7	_
14Y1PA	3D Modeling in AutoCAD parametric modeller (AutoCAD) environment, scenes rendering, creation of planar and volumetric objects, user setup creation, object	data greation, work	2 k with data
רוטור שט ווו אוטור-ף	connected with external database. Basic definition of work with lights, materials and reflexes. Models presentation.	data creation, won	K Willi dala
14Y1PG	Computer Graphics	KZ	2
	graphic and possibilities of their editing and mutual conversion. Use of individual types according to character of work. Work with editi		_
	level scope) using layers, DPI, colors. Basics of digital photography, scanning and computer technology like monitors and graphic		
14Y1PI	Corporate Information System	KZ	2
Data-information	on-knowledge, components of information system, syntatic and semantic sense of data, structure of corporate information system, pa	rticular information	system
(personalistic, prod	duction, storage, etc.), corporate information politic and information control, risks of information system operation, legal environment of	information syster	m operation,
4 AV4 D I	state information system, information system security, data protection, safety politics.	1/7	
14Y1PJ	C Programming Language guage. Preprocessor, basics of the C language (data types, syntax, commands), functions, pointes, dynamical memory allocation, strir	KZ	2
C programming lan	Implementations of abstract data types (FIFO, LIFO, list), programming techniques (sorting, searching, recursion), using bitwise of	-	and unions.
14Y1PZ	Advanced Data Processing in Spreadsheets	KZ	2
	familiar with principles of working in a spreadsheet. Graphic layout of the table appearance, formatting of numbers, insertion of formula familiar with principles of working in a spreadsheet.	l	1
addressing, error d	letection. Working with large spreadsheets, filters, advanced filters, database functions. Pivot tables and charts, conditional formatting, s	olution finding, sol	ver, macros,
	data analysis. Examples and questions from various companies and training.		ı
14Y1TI	Creating Interactive Internet Applications	KZ	2
Possibilities of scrip	pting language PHP. Overview of PHP language syntax, and functions. Analysis of finished scripts and demonstration of solutions. You	r own application p	programmed
14Y1UP	in PHP language. Editing of Theses in MS Word	KZ	2
	introduced to the principles of creating and editing large documents and basic typographic rules. They will properly apply styles, crea		1
	phs, etc. Footnotes, captions, index. They practice corrections of finished documents. The goal is to prepare students for seamless ed		
	so that they are able to concentrate mainly on writing a thesis.	· ·	
14Y1VM	Development of Applications for Mobile Devices	KZ	2
Object oriented	programming, Java programming language, development environment, operating system Android, development application - widgets,	, containers, thread	ds, menu,
	permissions, services, GUI.		1
14Y1W1	Webdesign 1	KZ	2
	the basics of communication HTTP, URL and addressing, markup languages HTML and XHTML, HTML tags, rules of web accessibility	-	
	s, the issue of web browsers, creating one to three column layout pages, sites validation, conditional comments. Topics will be practice Webdesign 2		
14Y1W2 Students will learn	advanced techniques CSS, responsive webdesign, CSS frontends, content management systems, JavaScript, jQuery, SEO, web ser	KZ ver installation + c	2 configuration
	directives. Topics will be practiced on practical examples.		garadon
14Y1WG	Webdesign	KZ	2
	rn the basics of HTTP communication, URL and addressing, HTML5 markup language, advanced CSS3 techniques, accessible and u	ı	
	webdesign, content management systems, web server installation + configuration directives. The subject matter will be trained on e	xamples.	
14Y1ZJ	Fundamentals of programming in JAVA	KZ	2
	Java SE Platform. IDE Installation and First Project. Comments. Variables and Type System. Operators. User Input and Parsing. Chair		
Chain and Mathe	ematical Methods. Terms. Relational Operators and Switches. Cycles for, while, foreach. Field - declaration, initialization, methods for	ileld work. ASCII. F	-unctions,
14Y1ZM	parameters, return value, recursion. Program creation.	KZ	2
	Fundamentals of parametric and adaptive modeling products and parts creation. Sketch drawing by help of geometric relations, parametric dimensions, creation of adaptive models from 2	l	I
_aoioo oi work at p	from and to another systems. Fundamentals of assemblies creation.	_ onoronos. impor	. and expert
15DPLG	Transportation Psychology	Z	2
	pgy and its basic concepts. Information intake, decision-making and behaviour. Performance. Engineering psychology and vehicle const	_	ı
	el route and traffic conditions, accidents and traffic incidents. Selection and training of the staff. Work and leisure. Age as a factor in tra		
15JZ1A	Foreign Language - English 1	Z	3
Grammatical Struc	tures and Style. Selection of conversation topics relating to transportation sciences. Extending vocabulary, developing perceptive and co		Elementary
	stylistics forms. Oral and written presentation of original research. Academic text principles and reading comprehension. Principles of	or rhetoric.	

15JZ2A	Foreign Language - English 2	Z,ZK	3
	r or eight Earngalage English 2 ures and style. Selection of conversation topics relating to transportation sciences. Extending vocabulary, developing perceptive and co		_
	stylistics forms. Oral and written presentation of original research. Academic text principles and reading comprehension. Principles of		
15JZ3F	Foreign Language - French 3	Z	3
-	istics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of lad communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work was a communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work was a communicative skills, vocabulary development.		
na perceptive and	features. Practice of oral and written presentation.	with (professional)	text and
15JZ3I	Foreign Language - Italian 3	Z	3
irammar and styli	istics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of la	anguage structure	knowled
nd perceptive and	d communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work v	vith (professional)	text and
45 17011	features. Practice of oral and written presentation.		
15JZ3N	Foreign Language - German 3 istics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of la	Z	knowledge
-	d communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work v		-
	features. Practice of oral and written presentation.	(
15JZ3R	Foreign Language - Russian 3	Z	3
-	istics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of la		
nd perceptive and	d communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work v	vith (professional)	text and
45 IZOC	features. Practice of oral and written presentation.	Z	3
15JZ3S Frammar and styli	Foreign Language - Spanish 3 istics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of la	-	_
-	d communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work v		
	features. Practice of oral and written presentation.	,	
15JZ4F	Foreign Language - French 4	Z,ZK	3
	istics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of la		
nd perceptive and	d communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work v	vith (professional)	text and
15JZ4I	features. Practice of oral and written presentation. Foreign Language - Italian 4	Z,ZK	3
	Istics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of la		_
-	d communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work v		
	features. Practice of oral and written presentation.		
15JZ4N	Foreign Language - German 4	Z,ZK	3
-	istics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of la		
nd nercentive and	d communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work v		tovt and
ina perceptive and		vitn (professional)	iexi and
	features. Practice of oral and written presentation.		
15JZ4R	features. Practice of oral and written presentation. Foreign Language - Russian 4	Z,ZK	3
15JZ4R Grammar and styli	features. Practice of oral and written presentation. Foreign Language - Russian 4 istics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of la	Z,ZK anguage structure	3 knowledg
15JZ4R Grammar and styli	features. Practice of oral and written presentation. Foreign Language - Russian 4	Z,ZK anguage structure	3 knowledg
15JZ4R Grammar and styli and perceptive and	features. Practice of oral and written presentation. Foreign Language - Russian 4 istics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of lad communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work values features. Practice of oral and written presentation. Foreign Language - Spanish 4	Z,ZK anguage structure vith (professional) Z,ZK	3 knowledgetext and
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the application of marketing.	General principles		and the resulting 0	merences II
		tne application of marketing.		

17Y10F	Personal Finance	KZ	2
	udget, financing of basic living needs), debt (loans and credits, payment instruments, interest and fees, debt trap), financing of hous	sing (rent, mortgag	e, savings,
consumer loans, refir	nancing), savings and investments (investment horizon, return, risk, investment strategy), insurance (insurance types, suitability and	adequacy), securir	g the future
	(retirement savings and insurance).		
17Y1PM	Personnel Management	KZ	2
Human source	es, work group, man as personality, planning, choice, evaluation and education of human sources, work adaptation, teamwork, inter	cultural communic	ation.
17Y1SK	Urban and Regional Rail Transport Systems	KZ	2
	ansport demand, modal-split, distribution of passenger flows on public regional transport lines. Optimization of line management, lines are considered to the control of th	_	- 1
evaluation of the t	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
477/401	marketing.	1/7	
17Y1SL	Sociology of Human Resources	KZ	2
numan resources an	d their importance, work group as a special kind of social group, communication, personal management, modern management, hum of the organization.	an resources plant	iirig, cuiture
17Y1ST	Titan Simulation	KZ	2
	ment game simulating the business decisions. Lets 2-8 student groups to produce and compete in the market with the same produ		
_	ty and capacity of production, plan budgets for marketing, research and development. They become familiar with the consequences	-	
	of financial corporate reports and they use this information for other business decisions.		.,
18MTY	Materials Science and Engineering	Z,ZK	3
Basic course of mate	rials science and engineering explains mechanical properties of structural materials based on their bonding forces and microstructu		ain attention
is paid to metals as t	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 compres	ssion. 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 o	f structures.
	Analysis of deflection curve of beams. Torsion of circular cross sections. Combined loading. Stability.		
18SAT	Structural Analysis	Z,ZK	. 4
=	forces in plane and space. Calculation of reactions of bodies and structures. Assessment of internal forces on statically determinate	-	- 1
Principle of virtual wo	rk. Kinematic method for calculation of reactions of statically determinate systems. Determination of axial forces in truss constructions. of planar shapes. Fiber polygons and chains.	Cross-sectional cn	aracteristics
18SPP	Seminary from Elasticity and Strength	7	0
	e. Tension and compression. Bending of beam. Shear stress during bending of beam. Design and analysis of cross section of bean	│ ∠ n. Analysis of defle	-
Exectore for practic	of beam. Torsion of circle cross section. Combined loading. Stability of compressed bar and buckling.	ni. 7 inalyolo of dollo	
18SS	Seminary from Structural Analysis	7	0
	e. General system of forces. Reactions of mass objects and compound systems. Internal forces on statically determinate beam and	simple framework.	- 1
of principle of virtual	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 standard	ds, international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensional	al and geometrical	accuracy,
	arrangement of drawing sheets.		
18TED	Technical Documentation	KZ	2
Technical standard	ds, international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensional	al and geometrical	accuracy,
107010	arrangement of drawing sheets.	7	
18X31S	Project 1 ITS	Z	2
18X32S	Project 2 ITS	Z	2
18X33S	Project 3 ITS	Z	2
18Y1AM	Anatomy, Mobility and Safety of Man	KZ	2
-	atomical structure and growth of bones. Articular joint. Remodelling of bone tissue. Anatomical structure of muscles. Blood circulation	-	
and biomechanics of	f 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.	nan and nis treatm	ent. Human
18Y1EM	Experimental Methods in Mechanics	KZ	2
	le of experimental mechanics. Sensors for mechanical testing. Overview of experimental methods. Destructive and non-destructive		
	edures and sample preparation. Tensile and bending tests. Electrical resistance strain gages. Optical based strain measurement. Fa	•	, i
	Instrumented hardness testing. Introduction to electron microscopy. Errors in measurement.	9 ,	
18Y1MT	Engineering Materials	KZ	2
· ·	of main classes of materials used in technical design. In addition to main classes of materials, i. e. metals, ceramics, polymers and		
to biolog	gical materials and to biomimetics. Integral approach to material selection process is also demonstrated based on so called Ashby's	selection charts.	
18Y1PS	Computer Simulations in Mechanics	KZ	2
Principles and overvi	iew of tools for stress analysis of structures. Numerical methods in mechanics, finite element method. Geometric model developme	nt and adaptation o	of geometry
from other CAE syste	ems. Assignment of material properties. The types of elements and their use. Discretization of solid model. Boundary conditions and	d application of the	load. Basic
	tasks of structural and modal analysis. Introduction to complex nonlinear problems.		
18Y1UK	Introduction of Rail Vehicles	KZ	2
	s and parameters rail transport systems - railway and urban transport. Basis driving mechanics rail vehicles - equation of motion tra		- 1
ırack resistance. Iota	Il running resistance. Acceleration force. Analyzing driving cycle rail vehicle. Speed-power diagrams and characteristics rail vehicle - l and electric drive. Design concept rail vehicles and drive of wheel set.	nyaromecnanic, hy	uroaynamic
20APEL	- · · · · · · · · · · · · · · · · · · ·	KZ	2
	Applied Electronics miconductor components, their principles, characteristics and typical connection diagrams. Semiconductor PN junction diodes. Tran-		
	pic gates. Functions of basic electronic circuits and methods for their designs (rectifiers, voltage regulator with Zener diode, transisto	=	•
, 1.1, 240,0109	amplifier as an inverting and noninverting amplifier).		,
20ATEL	Applied Telematics	Z,ZK	7
	- definition, benefits, ITS legislation, ITS organizations, ITS architecture and its practical use, data structures and data, geographic info		
	e-call, fleet management, check-in and information systems, ITS connection to Smart City, ITS applications on specific examp	-	
	o daily noot management, enough in and membration by come; in a demination of approximation		

20ELKA	Qualification in Electrical Engineering	KZ	2
Practical experience	e with measurements in laboratories, electrical equipment, power supply, electrical installation of low voltage, electric shock hazard,	symbols and labeli	ng, nominal
voltage, maximum	allowed currents, electrical equipment protection against short circuit and overload protection, control and revision, first aid, legislati	on, standards and	regulations
	in relation to health and safety and electrical engineering.		
20RISI	Road Traffic Control	Z,ZK	7
Traffic node manag	ement - basic concepts, SSZ design criteria, SSZ production project, dynamic SSZ management, public transport preferences, traffic a	ırea management,	microscopic
	traffic models, macroscopic traffic models, traffic management on motorways, tunnel systems.		
20RIZE	Railway Traffic Management	Z,ZK	7
	nent of security technology, external elements (switches, signals, detection means), station, track and crossing security equipment, ex		
and ETCS, traffi	ic control structure, traffic control technology, automation and traffic control optimization, power supply systems, energy calculations	and train running d	ynamics.
20SYSA	Systems Analysis	Z,ZK	5
Introduction to syst	em sciences, system viewpoint, terminology, typical system analysis tasks, system identification, system interface and interface tasks	, processes, syster	m behaviour
and its analysis,	strong functions and processes, genetic code, system identity, system architecture. Tools for system analysis - Petri nets, decision tal	oles, algorithms for	structural
	tasks. Soft and hard systems, methods for soft system analysis.		
20UITS	Introduction to Intelligent Transport Systems	Z,ZK	7
Terminology and le	gislative framework telematics systems and their architecture. Telematics systems in practice and their operation. Fundamentals of infor	mation and telecon	nmunication
systems for ITS. Pr	inciples and technical support measurement of traffic data, localization and navigation. Practical work with traffic data. Real examples	of possible applica	ations of the
	principles of ITS.		
20X31S	Project 1 ITS	Z	2
20X32S	Project 2 ITS	Z	2
20X33S	Project 3 ITS	Z	2
20Y1AE	Applied Electronics	KZ	2
-	Applied Electronics semiconductor components, their principles, characteristics and typical connection diagrams. Semiconductor PN junction diodes, trar		
	ogic gates. Functions of basic electronic circuits and methods for their designs (rectifiers, voltage regulator with Zener diode, transisto	=	
ampliners, basic it	amplifier as an inverting and noninverting amplifier).	n as an ampiner, c	pperational
20Y1AF	Alternative Forms of Transportation Project Financing	KZ	2
-	such forms of financing in transportation and telecomunications, where the public sector body perform the final debtor, i. e. debt paym		
· ·	ot a direct participant of the transaction and it is not the counterparty of the financial institute which provides the funding. Issue of sec		-
the ilital debior is fi	of transportation and telecomunication projects.	unities as an alterna	alive source
20Y1EA		KZ	2
-	Environmental Aspects of Transport bere, weather observation network, weather in transportation, road meteorology. Weather forecasting, data assimilation, probabilistic	1	
-	n pollutants and their effects, atmospheric chemistry, traffic emissions. Greenhouse gasses, carbon cycle, a role of energy and transp		
20Y1EK	Qualification in Electrical Engineering	KZ	2
	the with measurements in laboratories, electrical equipment, power supply, electrical installation of low voltage, electric shock hazard,	=	-
voitage, maximum	allowed currents, electrical equipment protection against short circuit and overload protection, control and revision, first aid, legislati in relation to health and safety and electrical engineering.	on, standards and	regulations
00V4KD		V7	_
20Y1KP	Communication and presentation skills and their fulfillment, current communication networks, work with various sources, formal requirements of emails and final theses, be	KZ	2
	tional intelligence, manipulation and way of working with it, coping with stressful situations, formal requirements of emails and final treses, it	,, ,, ,	
teaniwork, emo	presentation, presentation skills, presentation skills in online environment.	75 Of Communication	in during
20Y1LN		KZ	2
	Location and Navigation	1	
Description and e	examples of road networks, localization on the network. Routing algorithms, their properties and implementation. Description and exa transport connections, routing algorithms, their properties and implementation.	imples of datasets	ior illiding
201/101		V7	
20Y10I	Fare Collection and Information Systems	KZ	2
-	stems in public transport and their components (on-board units, validators, turnstiles,). Information systems and their components, nels) and operators (cycles, location or current delay of vehicles,). The issue of tariff systems. Other examples of clearance syst		ies, maps,
20Y1OK	Road Lighting	KZ	2
	tities and terms, street lighting components (luminaires, control cabinets for street lighting, street lighting cables), characteristics of lumi	,	٠,۱
light distribution),	standards, measurement of illuminance and luminance in road lighting, tunnels, conceptual approach to street lighting design, lighting Relux, street lighting control systems.	ig calculations in D	TALUX and
00\/4 DI/		V7	
20Y1PK	Product Quality Management Processes	KZ	2
• •	of organization management. Management systems and international standards; quality management systems. Quality products, pro		
of Staridards for Sys	stems management, management principles. Principles of process management, monitoring and measurement systems management. Uters for systems management. Process management principles. Metrology and testing. Product certification.	Jillom Hamework	oi staridards
00)/4.00		1/7	
20Y1SC	Sensors and Actuators	KZ	2
Principles of sensor	rs and actuators. Basics of measuring theory and actuating influence. The respective technologies and construction principles. Sensors o		o-magnetic,
00751/5	state (temperature, humidity), chemical and particle flow values. Electrical, pneumatic and hydraulic actuators and solid phase el		
20ZEKT	Fundamentals of Electrical Engineering	Z,ZK	4
	, electrotechnical quantities (electrical current, voltage, resistance, conductivity, resistivity, conductivity, power, energy), Ohm's law, K		
	hods, DC and AC circuits, accumulators, photovoltaics), electric machines, transmission lines, reflections on transmission lines, basic		
21SLD	Seminar of Air Transport	Z	0
	ons, terminology, basic rules. VFR / IFR. Basics of aerodynamics. Propulsion of aircraft. Aircraft design. Basics of navigation, radio na	-	
performance. Flig	th planning, optimization of speed and heights, minimum fuel. Limitations of operation, maintenance, service life of aircraft. Traffic ma	inagement, ground	I handling,
041/0:0	security. Air crew. Airlines and economics. Space technologies.		
21X31S	Project 1 ITS	Z	2
21X32S	Project 2 ITS	Z	2
21X33S	Project 3 ITS	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		' '
	IRAC 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 Aviatio	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, h	story of aircraft instrumentation, aerometric instrumentation, Earth magnetism, aircraft electric equipment, gyroscopic instrumentation	, airframe instrume	entation and
other aircra	oft equipment, engine instrumentation, warning and recording systems, instrumentation operational requirements, radiocommunicatio	n and radionavigat	ion.
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 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		ccording to
particular examp	les, based on actual students' needs and suggestions. The subject will have a flexible form, which is expected to bring an improveme	nt of students' Mat	lab 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 organiz		
· ·	their strategy, economic and operational indicators. It introduces students in detail to operational processes and the essentials of transp		
	a basic view of the economic aspects of air transport.		
21Y1PA	Air Traffic Control Operating Procedures	KZ	2
	on the ATC simulator with the following focus - getting familiar with the simulation environment, acquiring basic habits, aircraft identif		
	C clearance, use of RNAV points. Practical exercises focused on the basis of vectoring, timely application of vertical spacing, EST and		- 1
icver changes, 7th	Exercises in the APPROACH airspace, arrivals, departures and conflict solutions.	TTEV message at	
21Y1PC	ATC Procedures and Activities	KZ	2
	procedures, basics of communication and phraseology, aircraft identification, spacing and traffic coordination. In addition, the course of the		
·			
21Y1PL	Operational Aspects of Aerodromes	KZ	2
Operational aspec	ets of aerodromes. Location of aerodrome and orientation of runways. Requirements for apron. Capacity of airports runways and term	•	nder winter
	conditions. Firefighting units. Protection against unlawful interference. Local transport connection. Environmental protection		
21Y1RZ	Human Resources Management	KZ	2
	human resources in the organization and related disciplines file. Substance, importance and challenges of human resources manage		
environment of hun	nan resource management. Human resource planning. Search, recruitment and selection of employees. Motivation, evaluation and ren	nuneration of staff.	Positioning,
	dismissal and redundancies of employees. Education of employees. Planning career management.		
21Y1SI	ATC Simulator	KZ	2
	with the simulation environment, acquiring basic habits, aircraft identification procedures, vectoring, level changes, ATC clearance, us	•	
exercises focusing	ng on basic vectoring, early application of vertical separation, EST and REV message passing. Practical exercises in the APPROACH	area, practicing a	rrival and
	departure management procedures, conflict resolution.		
21Y1TH	Aircraft Technical Handling	KZ	2
_	and pushing tractors. GPU. Air conditioning and heating units. Aircraft fuel equipment. De-acing and anti-icing units. Loading and unlo		ment for
pa	issangers onboarding and offboarding. Operational processes of aircraft technical handling and regulations. Modernization and techn	ical progress.	
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	personnel.
Basic documentat	ion for maintenance. Optimization of time maintenance intervals. Regulation no. 1321/2014 Part 145. Human factors of aircraft mainte	nance. Regulation	of director
	EASA for aircraft maintenance. Seminars will be focused on practical application.		
21ZALD	Basics of Air Transport	KZ	2
History, definitions,	terminology, basic rules. VFR/IFR. Basics of aerodynamics. Propulsion of aircraft. Aircraft design. Basics of navigation, radio navigation.	Weight, balance, p	erformance.
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.
	Airlines and economics. Space technologies.		
22X31S	Project 1 ITS	Z	2
22X32S	Project 2 ITS	Z	2
22X33S	Project 3 ITS	Z	
	·		2
23X31S	Project 1 ITS	Z	2
23X32S	Project 2 ITS	Z	2
23X33S	Project 3 ITS	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	te naramatare Ac	tive filters.
		is, parameters. Ac	
rower supplies. Lo	gic circuits. AD converters. Connection of analog and digital parts. Basic blocks of digital signal processing. Measurement processing. D		on memous p
rower supplies. Lo			onnemous
	gic circuits. AD converters. Connection of analog and digital parts. Basic blocks of digital signal processing. Measurement processing. D in electronics.	esign and fabricati	2
23Y1KB	gic circuits. AD converters. Connection of analog and digital parts. Basic blocks of digital signal processing. Measurement processing. D	esign and fabricati	2
23Y1KB Basic concepts of	gic circuits. AD converters. Connection of analog and digital parts. Basic blocks of digital signal processing. Measurement processing. Din electronics. Cyber security in transportation	esign and fabricati KZ erspace, social imp	2 acts, social
23Y1KB Basic concepts of engineerin	gic circuits. AD converters. Connection of analog and digital parts. Basic blocks of digital signal processing. Measurement processing. Din electronics. Cyber security in transportation security and cyber security, legal status in the field of cyber security, virtual cyberspace and communities, taxonomy of crimes in cybers, cyber attack technology, information security, cyber attacks on telematics systems, security of systems with artificial intelligence, r	esign and fabricati KZ erspace, social imporms and standar	2 acts, social ds.
23Y1KB Basic concepts of engineerin	gic circuits. AD converters. Connection of analog and digital parts. Basic blocks of digital signal processing. Measurement processing. Din electronics. Cyber security in transportation security and cyber security, legal status in the field of cyber security, virtual cyberspace and communities, taxonomy of crimes in cybers, cyber attack technology, information security, cyber attacks on telematics systems, security of systems with artificial intelligence, r Crisis Management	KZ erspace, social imporms and standar KZ	2 acts, social ds.
23Y1KB Basic concepts of engineerin 23Y1KM Theory and legal fr	gic circuits. AD converters. Connection of analog and digital parts. Basic blocks of digital signal processing. Measurement processing. Din electronics. Cyber security in transportation security and cyber security, legal status in the field of cyber security, virtual cyberspace and communities, taxonomy of crimes in cyber, cyber attack technology, information security, cyber attacks on telematics systems, security of systems with artificial intelligence, r Crisis Management ame of crisis management with direction to Rescue system (IZS). After introduction to safety domain, there are terms and knowledge of	KZ erspace, social imporrms and standar KZ enstands tandar	2 acts, social ds.
23Y1KB Basic concepts of engineerin 23Y1KM Theory and legal from mana	circuits. AD converters. Connection of analog and digital parts. Basic blocks of digital signal processing. Measurement processing. Din electronics. Cyber security in transportation security and cyber security, legal status in the field of cyber security, virtual cyberspace and communities, taxonomy of crimes in cybers, cyber attack technology, information security, cyber attacks on telematics systems, security of systems with artificial intelligence, recrisis Management Crisis Management ame of crisis management with direction to Rescue system (IZS). After introduction to safety domain, there are terms and knowledge of gement and its targets; IZS-crisis management-crisis planning; and basic legislation. Practical part is concentrated to responsibility management.	KZ erspace, social imporms and standar KZ en: theory and positatrix compilation.	2 acts, social ds. 2 tion of crisis
23Y1KB Basic concepts of engineerin 23Y1KM Theory and legal fr	circuits. AD converters. Connection of analog and digital parts. Basic blocks of digital signal processing. Measurement processing. Din electronics. Cyber security in transportation Security and cyber security, legal status in the field of cyber security, virtual cyberspace and communities, taxonomy of crimes in cybers, cyber attack technology, information security, cyber attacks on telematics systems, security of systems with artificial intelligence, recrisis Management Crisis Management ame of crisis management with direction to Rescue system (IZS). After introduction to safety domain, there are terms and knowledge of gement and its targets; IZS-crisis management-crisis planning; and basic legislation. Practical part is concentrated to responsibility management and its targets; IZS-crisis management-crisis planning; and Dptoelectronics	KZ erspace, social imporms and standard KZ en: theory and positatrix compilation. KZ	2 acts, social ds.
23Y1KB Basic concepts of engineerin 23Y1KM Theory and legal fr mana 23Y1KO	Cyber security in transportation security and cyber security, legal status in the field of cyber security, virtual cyberspace and communities, taxonomy of crimes in cybers, cyber attack technology, information security, cyber attacks on telematics systems, security of systems with artificial intelligence, recrisis Management ame of crisis management with direction to Rescue system (IZS). After introduction to safety domain, there are terms and knowledge of gement and its targets; IZS-crisis management-crisis planning; and basic legislation. Practical part is concentrated to responsibility management of quantum physics. Application of quantum physics in practice. Optoelectronics. Production of optoelectronics components.	KZ erspace, social imporms and standard KZ en: theory and positatrix compilation. KZ ents.	2 acts, social ds. 2 tion of crisis
23Y1KB Basic concepts of engineerin 23Y1KM Theory and legal fr mana 23Y1KO	circuits. AD converters. Connection of analog and digital parts. Basic blocks of digital signal processing. Measurement processing. Din electronics. Cyber security in transportation security and cyber security, legal status in the field of cyber security, virtual cyberspace and communities, taxonomy of crimes in cybers, cyber attack technology, information security, cyber attacks on telematics systems, security of systems with artificial intelligence, recrisis Management ame of crisis management with direction to Rescue system (IZS). After introduction to safety domain, there are terms and knowledge of gement and its targets; IZS-crisis management-crisis planning; and basic legislation. Practical part is concentrated to responsibility management of quantum physics. Application of quantum physics in practice. Optoelectronics. Production of optoelectronics comport	KZ erspace, social imporms and standard KZ en: theory and positatrix compilation. KZ ents. KZ	2 acts, social ds. 2 tion of crisis 2
23Y1KB Basic concepts of engineerin 23Y1KM Theory and legal from mana 23Y1KO 23Y1KY Juridical aspects of	Cyber security in transportation security and cyber security, legal status in the field of cyber security, virtual cyberspace and communities, taxonomy of crimes in cyberg, cyber attack technology, information security, cyber attacks on telematics systems, security of systems with artificial intelligence, responsibility management with direction to Rescue system (IZS). After introduction to safety domain, there are terms and knowledge of gement and its targets; IZS-crisis management-crisis planning; and basic legislation. Practical part is concentrated to responsibility management of quantum physics. Application of quantum physics in practice. Optoelectronics. Production of optoelectronics compored Cybernality behavior on the computer network and computer systems. Cybernetic crime technology. Theory basis and models. Cyberterrorism. Information in electronics and computer systems. Cybernetic crime technology. Theory basis and models. Cyberterrorism. Information in electronics.	KZ erspace, social imporms and standard KZ enspace, social imporms and standard KZ ens: theory and positatrix compilation. KZ ents. KZ ents. KZ ents.	2 acts, social ds. 2 tion of crisis 2 2 ed aspects.
23Y1KB Basic concepts of engineering 23Y1KM Theory and legal from mana 23Y1KO 23Y1KY Juridical aspects of 23Y1MK	Cyber security in transportation security and cyber security, legal status in the field of cyber security, virtual cyberspace and communities, taxonomy of crimes in cyber g, cyber attack technology, information security, cyber attacks on telematics systems, security of systems with artificial intelligence, r Crisis Management ame of crisis management with direction to Rescue system (IZS). After introduction to safety domain, there are terms and knowledge of gement and its targets; IZS-crisis management-crisis planning; and basic legislation. Practical part is concentrated to responsibility m Quantum Physics and Optoelectronics Ground of quantum physics. Application of quantum physics in practice. Optoelectronics. Production of optoelectronics compor Cybernality behavior on the computer network and computer systems. Cybernetic crime technology. Theory basis and models. Cyberterrorism. Information of Crisis Situation Management in Critical Infrastructure	KZ erspace, social imporms and standard KZ enspace, social imporms and standard KZ ens: theory and positatrix compilation. KZ ents. KZ ents. KZ ents. KZ ents. KZ	2 acts, social ds. 2 tion of crisis 2 2 ed aspects. 2
23Y1KB Basic concepts of engineerin 23Y1KM Theory and legal from mana 23Y1KO 23Y1KY Juridical aspects of 23Y1MK Determination of of	Cyber security in transportation security and cyber security, legal status in the field of cyber security, virtual cyberspace and communities, taxonomy of crimes in cyberg, cyber attack technology, information security, cyber attacks on telematics systems, security of systems with artificial intelligence, responsibility management with direction to Rescue system (IZS). After introduction to safety domain, there are terms and knowledge of gement and its targets; IZS-crisis management-crisis planning; and basic legislation. Practical part is concentrated to responsibility management of quantum physics. Application of quantum physics in practice. Optoelectronics. Production of optoelectronics compored Cybernality behavior on the computer network and computer systems. Cybernetic crime technology. Theory basis and models. Cyberterrorism. Information in electronics and computer systems. Cybernetic crime technology. Theory basis and models. Cyberterrorism. Information in electronics.	KZ erspace, social imporms and standard KZ enspace, social imporms and standard KZ ens: theory and positatrix compilation. KZ ents. Additional connections of the self-govern	2 acts, social ds. 2 tion of crisis 2 2 ed aspects. 2

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 pl	anning and special	procedures
	in liquidation work within the transport infrastructure.		
23Y1OK	Protection of Critical Objects and Infrastructures	KZ	2
Types of technolog	ical systems, critical item, risks and their courses, criticality, vulnerability, connectivity, dependability, resilience, failure, protection, safe	ty of critical objects	and critical
	infrastructures.		
23Y1TP	Criminal Law in IT and Transportation	KZ	2
Introduction of cri	minal law into legal order, conception of culpability and criminal delict, consequency of other legal standards. international treaty and	criminal law, inves	tigation of
	crime, specific indicia of criminal court cases, practical examples.		
23Y1VS	Negotiation and Cooperation	KZ	2
Code of conduct for	r negotiation. The influence of personality traits on the negotiations. Negotiation and commanding. Teamwork. Variants teams. Inform	al and formal role	in the team.
Principles of negoti	iation, the essence of negotiation, the differences in negotiation in business and in crisis situations, the principle of "win both", specific	cations and bidding	g, 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 http://bilakniha.cvut.cz/en/FF.html Generated: day 2025-12-07, time 22:56.