Recomended pass through the study plan

Name of the pass: Bachelor Full-Time TET-LOG from 2024/25

Faculty/Institute/Others:
Department:
Pass through the study plan: Bachelor TET-LOG Full-Time from 2024/25
Branch of study guranteed by the department: Welcome page
Guarantor of the study branch:
Program of study: Technology in Transportation and Telecommunications
Type of study: Bachelor full-time
Note on the pass:

Coding of roles of courses and groups of courses:
P - compulsory courses of the program, PO - compulsory courses of the branch, Z - compulsory courses, S - compulsory elective courses, PV - compulsory elective courses, F - elective specialized courses, V - elective courses, T - physical training courses

Coding of ways of completion of courses (KZ/Z/ZK) and coding of semesters (Z/L):
KZ - graded assesment, Z - assesment, ZK - examination, L - summer semester, Z - winter semester

Number of semester: 1

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
14ASD	**Algorithm and Data Structures** *Tomáš Brandejský, Michal Jeřábek, Alena Kubáčová, Jan Procházka, Vít Fábera, Martin Fiala **Vít Fábera** Vít Fábera (Gar.)*	KZ	3	0P+2C+8B	Z	z
11CAL1	**Calculus 1** *Olga Vraštilová, Tomáš Třasák, Magdalena Hykšová, Bohumil Kovář, Ondřej Navrátil **Bohumil Kovář** Ondřej Navrátil (Gar.)*	Z,ZK	7	2P+4C+22B	Z	z
15DPLG	**Transportation Psychology** *Eva Rezlerová, Jana Štikarová*	Z	2	2P+0C+6B	Z	z
11GIE	**Geometry** *Oldřich Hykš, Pavel Provinský, Šárka Voráčová **Oldřich Hykš** Oldřich Hykš (Gar.)*	KZ	3	2P+2C+12B	Z	z
14KSP	**Constructing with Computer Aid** *Vít Fábera, Radek Kratochvíl **Lukáš Svoboda***	KZ	2	0P+2C+8B	Z	z
11LA	**Linear Algebra** *Pavel Provinský, Lucie Kárná, Martina Bečvářová **Martina Bečvářová** Martina Bečvářová (Gar.)*	Z,ZK	3	2P+1C+10B	Z	z
18MTY	**Materials Science and Engineering** *Jaromír Kylar, Veronika Drechslerová, Jaromír Kylar, Nela Krčmářová, Jitka Řezníčková, Jaroslav Valach, Vít Malinovský, Veronika Drechslerová, Jaromír Kylar **Jaroslav Valach** Jaroslav Valach (Gar.)*	Z,ZK	3	2P+1C+10B	Z	z
18TED	**Technical Documentation** *Jitka Řezníčková, Vít Malinovský **Jitka Řezníčková** Jitka Řezníčková (Gar.)*	KZ	2	1P+1C+8B	Z	z
TV-1	**Physical Education**	Z	1		Z	z
16UDOP	**Introduction into Vehicles** *Zuzana Radová, Petr Bouchner*	Z	2	2P+0C+8B	Z	z
12ZYDI	**Introduction to Transportation Engineering** *Zuzana Čarská, Dagmar Kočárková, Jan Kruntorád*	Z,ZK	2	1P+1C	Z	z
18STD	**Seminary from Technical Documentation**	Z	0	0P+2C	Z	v
TVKZV	**Physical Education Course**	Z	0	7dní	Z	v

Number of semester: 2

Code	Name of the course / Name of the group of courses *(in case of groups of courses the list of codes of their members)* *Tutors, **authors** and guarantors (gar.)*	Completion	Credits	Scope	Semester	Role
11CAL2	**Calculus 2** *Olga Vraštilová, Tomáš Třasák, Magdalena Hykšová, Ondřej Navrátil, Oldřich Hykš **Magdalena Hykšová** Ondřej Navrátil (Gar.)*	Z,ZK	5	2P+3C+20B	L	z
14PRG	**Programming** *Alena Kubáčová, Jan Procházka, Martin Fiala, Jana Kaliková, Jan Krčál, Lukáš Svoboda **Jana Kaliková** Jana Kaliková (Gar.)*	KZ	2	0P+2C+8B	L	z
18SAT	**Structural Analysis** *Jaromír Kylar, Veronika Drechslerová, Nela Krčmářová, Jitka Řezníčková, Daniel Kytýř, Jan Vyčichl, Tomáš Doktor, Jan Falta, Jan Šleichrt Daniel Kytýř (Gar.)*	Z,ZK	4	2P+2C+14B	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
20SYSA	**Systems Analysis** *Zuzana Bělinová, Jiří Růžička, Patrik Horažďovský, Petr Bureš Zuzana Bělinová (Gar.)*	Z,ZK	5	2P+2C+14B	L	Z
17TEDL	**Transport Technology and Logistics** *Vít Janoš, Michal Drábek, Zdeněk Michl, Rudolf Vávra, Stanislav Metelka* ***Zdeněk Michl*** *Vít Janoš (Gar.)*	KZ	3	2P+1C	L	Z
TV-2	**Physical Education**	Z	1		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
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
14DZT	**Digital Support for Railway Lines** *Martin Brumovský* ***Martin Brumovský*** *Martin Brumovský (Gar.)*	Z	0	0P+2C	L	V
21SLD	**Seminar of Air Transport** *Vladimír Plos, Jakub Kraus, Natalia Guskova* ***Vladimír Plos***	Z	0	0P+2C	L	V
18SS	**Seminary from Structural Analysis** *Jan Vyčichl*	Z	0	0P+2C	L	V
11SSF	**Secondary School Physics Course** *Zuzana Malá* ***Zuzana Malá*** *Zuzana Malá (Gar.)*	Z	0	0P+2C	L	V
TVKLV	**Physical Education Course**	Z	0	7dní	L	V

Number of semester: 3

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
15JZ1A	**Foreign Language - English 1** *Eva Rezlerová, Markéta Vojanová, Dana Boušová, Marie Michlová, Marek Tomeček, Jan Feit, Markéta Musilová, Peter Morpuss, Lenka Monková, ...*	Z	3	0P+4C+10B	Z	Z
14DATS	**Database Systems** *Jana Kaliková, Jan Krčál* ***Jana Kaliková*** *Jana Kaliková (Gar.)*	KZ	2	1P+1C+10B	Z	Z
11FYZ	**Physics** *Oldřich Hykš, Jana Kuklová, Zuzana Malá, Pavel Demo, Tomáš Vítů* ***Jana Kuklová*** *Pavel Demo (Gar.)*	Z,ZK	5	2P+2C+18B	Z	Z
12MDE	**Transport Models and Transport Excesses** *Josef Kocourek, Tomáš Padělek*	Z,ZK	3	2P+1C+8B	Z	Z
12PPOK	**Designing Roads, Highways and Motorways** *Josef Kocourek, Tomáš Padělek, Polina Zayats, Petr Kumpošt Josef Kocourek (Gar.)*	KZ	3	1P+2C+10B	Z	Z
18PZP	**Elasticity and Strength** *Jitka Řezníčková, Daniel Kytýř, Jan Vyčichl, Tomáš Doktor, Jan Šleichrt, Josef Jíra, Ondřej Jiroušek* ***Ondřej Jiroušek*** *Ondřej Jiroušek (Gar.)*	Z,ZK	3	2P+1C+10B	Z	Z
11TGA	**Graph Theory and its Applications in Transport** *Denisa Mocková, Dušan Teichmann* ***Denisa Mocková*** *Denisa Mocková (Gar.)*	Z,ZK	4	2P+2C+12B	Z	Z
20UITS	**Introduction to Intelligent Transport Systems** *Jiří Růžička, Patrik Horažďovský, Kristýna Navrátilová, Viktor Beneš, Eva Hajčiarová, Martin Langr, Vladimír Faltus, Pavel Hrubeš* ***Martin Langr***	Z,ZK	7	3P+2C+20B	Z	Z
14DPK	**Digital Support for Designing of Roads and Highways** *Libor Žídek, Drahomír Schmidt* ***Drahomír Schmidt*** *Drahomír Schmidt (Gar.)*	Z	0	0P+2C	Z	V
11SCFZ	**Seminar of Physics** *Oldřich Hykš, Jana Kuklová, Zuzana Malá, Tomáš Vítů* ***Zuzana Malá*** *Zuzana Malá (Gar.)*	Z	0	0P+2C	Z	V
18SPP	**Seminary from Elasticity and Strength** *Jan Vyčichl, Tomáš Doktor* ***Jan Vyčichl*** *Jan Vyčichl (Gar.)*	Z	0	0P+2C	Z	V

Number of semester: 4

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
15JZ2A	**Foreign Language - English 2** *Eva Rezlerová, Markéta Vojanová, Marie Michlová, Marek Tomeček, Jan Feit, Markéta Musilová, Peter Morpuss, Lenka Monková, Jitka Heřmanová, ...*	Z,ZK	3	0P+4C+10B	L	ZP
16DPO	**Vehicle Technology** *Josef Mík, Josef Svoboda, Přemysl Toman Josef Mík (Gar.)*	KZ	2	2P+0C+10B	L	P
17ESYS	**Transport Systems Economy** *Roman Štěrba, Rudolf Franz Heidu Rudolf Franz Heidu (Gar.)*	Z,ZK	6	3P+2C+18B	L	P

11LP	**Linear Programming** *Šárka Voráčová, Pavla Pecherková, Ivan Nagy* ***Pavla Pecherková*** *Ivan Nagy (Gar.)*	KZ	3	2P+1C+12B	L	P
17LGT	**Logistics** *Tomáš Horák, Eliška Glaserová Tomáš Horák (Gar.)*	Z,ZK	6	3P+2C+18B	L	P
11MDP	**Transport Prognostic Methods** *Alena Rybičková* ***Alena Rybičková*** *Denisa Mocková (Gar.)*	KZ	2	2P+0C+10B	L	P
11MSP	**Modeling of Systems and Processes** *Bohumil Kovář, Lucie Kárná* ***Bohumil Kovář*** *Bohumil Kovář (Gar.)*	Z,ZK	4	2P+2C+12B	L	P
X1-BP-LOG-21/22	**Projekty Bc. prezenční TET-LOG od 2021/22** *11X31,12X31,..... (see the list of groups below)*	Min. cours. 3 Max. cours. 3	Min/Max 6/6			ZP

Number of semester: 5

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
14DMG	**Datamining** *Radek Holý* ***Radek Holý*** *Radek Holý (Gar.)*	KZ	2	0P+2C+10B	Z	ZP
17EPOD	**Economics of Transport Company** *Václav Baroch, Alexandra Dvořáčková Alexandra Dvořáčková (Gar.)*	Z,ZK	6	4P+2C+18B	Z	J
17MAGD	**Marketing in Transport** *Petra Skolilová Petra Skolilová (Gar.)*	KZ	4	2P+1C+12B	Z	P
17TVD	**Technology of Public Transport** *Vít Janoš, Zdeněk Michl, Stanislav Metelka, Jiří Pospíšil Vít Janoš (Gar.)*	Z,ZK	5	2P+2C+18B	Z	P
17ZAP	**Fundamentals od law** *Martina Děvěrová Martina Děvěrová (Gar.)*	Z	2	2P+0C+10B	Z	P
12ZPV	**Railway Operation** *Jan Kruntorád, Martin Jacura*	Z,ZK	4	2P+1C+12B	Z	P
X1-BP-LOG-21/22	**Projekty Bc. prezenční TET-LOG od 2021/22** *11X31,12X31,..... (see the list of groups below)*	Min. cours. 3 Max. cours. 3	Min/Max 6/6			ZP
JZ-BP-TET-22/23	**Bc. TET (mimo LED) druhý jazyk od 2022/23** *15JZ3F,15JZ3I,..... (see the list of groups below)*	Min. cours. 2 Max. cours. 2	Min/Max 6/6			J

Number of semester: 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
17FID	**Financing and Investment in Transport** *Alexandra Dvořáčková, Olga Mertlová Olga Mertlová (Gar.)*	Z,ZK	4	2P+1C+12B	L	ZP
17GEDS	**Geography of Transport Systems** *Miroslav Marada Miroslav Marada (Gar.)*	KZ	2	2P+0C+8B	L	J
17IVED	**Integration of Public Transport** *Roman Štěrba Roman Štěrba (Gar.)*	Z,ZK	3	2P+1C+10B	L	P
17KLID	**Quality in Transport Service** *Pavel Edvard Vančura Pavel Edvard Vančura (Gar.)*	Z,ZK	3	2P+1C+10B	L	P
17MRR	**Managerial Decision-making and Management** *Daniel Pilát, Petra Skolilová Petra Skolilová (Gar.)*	Z,ZK	4	2P+2C	L	P
14MPG	**Modern Programming Approaches** *Michal Jeřábek, Vít Fábera* ***Michal Jeřábek*** *Vít Fábera (Gar.)*	KZ	2	0P+2C+8B	L	P
17NAPR	**Freight Traffic** *Roman Štěrba Roman Štěrba (Gar.)*	Z	2	2P+0C+8B	L	P
12ZAR	**Introduction to Architectural Design** *Karel Hájek*	Z	3	2P+0C+8B	L	P
X1-BP-LOG-21/22	**Projekty Bc. prezenční TET-LOG od 2021/22** *11X31,12X31,..... (see the list of groups below)*	Min. cours. 3 Max. cours. 3	Min/Max 6/6			ZP

JZ-BP-TET-22/23	**Bc. TET (mimo LED) druhý jazyk od 2022/23** *15JZ3F,15JZ3I,..... (see the list of groups below)*	Min. cours. 2 Max. cours. 2	Min/Max 6/6			J

List of groups of courses of this pass with the complete content of members of individual groups

Kód	Name of the group of courses and codes of members of this group (for specification see here or below the list of courses)	Completion	Credits	Scope	Semester	Role
JZ-BP-TET-22/23	**Bc. TET (mimo LED) druhý jazyk od 2022/23**	**Min. cours. 2** **Max. cours. 2**	**Min/Max** 6/6			**J**

15JZ3F	Foreign Language - French 3	15JZ3I	Foreign Language - Italian 3	15JZ3N	Foreign Language - German 3
15JZ3R	Foreign Language - Russian 3	15JZ3S	Foreign Language - Spanish 3	15JZ4F	Foreign Language - French 4
15JZ4I	Foreign Language - Italian 4	15JZ4N	Foreign Language - German 4	15JZ4R	Foreign Language - Russian 4
15JZ4S	Foreign Language - Spanish 4				

X1-BP-LOG-21/22	**Projekty Bc. prezenční TET-LOG od 2021/22**	**Min. cours. 3** **Max. cours. 3**	**Min/Max** 6/6		**ZP**

11X31	Project 1	12X31	Project 1	14X31	Project 1
15X31	Project 1	16X31	Project 1	17X31	Project 1
18X31	Project 1	20X31	Project 1	21X31	Project 1
22X31	Project 1	23X31	Project 1	11X32	Project 2
12X32	Project 2	14X32	Project 2	15X32	Project 2
16X32	Project 2	17X32	Project 2	18X32	Project 2
20X32	Project 2	21X32	Project 2	22X32	Project 2
23X32	Project 2	11X33	Project 3	12X33	Project 3
14X33	Project 3	15X33	Project 3	16X33	Project 3
17X33	Project 3	18X33	Project 3	20X33	Project 3
21X33	Project 3	22X33	Project 3	23X33	Project 3

List of courses of this pass:

Code	Name of the course	Completion	Credits
11CAL1	Calculus 1	Z,ZK	7
Sequence of real numbers and its limit. Basic properties of mappings. Function of one real variable, its limit and derivative. Indefinite integral, Newton integral, Riemann integral, improper Riemann integral. First-order differential equations, linear differential equations.			
11CAL2	Calculus 2	Z,ZK	5
Linear differential equations and their systems, differential calculus of functions of several real variables. Riemann integral in Rn. Line and surface integrals.			
11FYZ	Physics	Z,ZK	5
Kinematics, dynamics, Newton's laws, force fields, mechanics of continuum, thermodynamics, introduction to electrostatics and electric current.			
11GIE	Geometry	KZ	3
Differential geometry of curves - parameterization, the arc of the curve, torsion and curvature, Frenet`s trihedron. Kinematics - a curve as a trajectory of the motion, the velocity, and acceleration of a particle moving on a curved path.			
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.			
11LP	Linear Programming	KZ	3
Formulation of the problem of linear programming, transcription of some practical problems to the linear programming problems. Simplex and convex polyedra. Simplex method, basic solutions, duality principle in linear programming, stability of solution of linear programming problem. Traffic problem.			
11MDP	Transport Prognostic Methods	KZ	2
The techniques of economical analysis in the domain of analysis of dependencies, analysis and construction of time series and comparsion of statistical values using differencies and indices.			
11MSP	Modeling of Systems and Processes	Z,ZK	4
System and subsystem, external and internal system description, continuous and discrete system, mathematics as a tool, examples of formulation of differential and differential equations. Linear and nonlinear system, stationary and non-stationary system, causality. Convolutional integral. Laplace and Z transformations. Transfer function. Stability of LTI systems. Discretization of continuous systems. System interconnection.			

11SCFZ	Seminar of Physics	Z	0
	Solving problems on kinematics, particle dynamics, dynamics of particle systems and rigid body. Continuum mechanics, thermodynamics.		
11SSF	Secondary School Physics Course	Z	0
	Basics of kinematics, dynamics, thermodynamics, electric field and magnetic field.		
11STAT	Statistics	Z,ZK	4
	Basics of probability Descriptive statistics Population and sample, limit theorem Point estimate, construction and properties Interval estimates Parametric tests Nonparametric tests Regression and correlation analysis		
11TGA	Graph Theory and its Applications in Transport	Z,ZK	4
	Basic terms of graph theory, paths in graphs, flows in networks, location problems, design problems on graphs, optimum routing, use of graphs in other scientific disciplines.		
11X31	Project 1	Z	2
11X32	Project 2	Z	2
11X33	Project 3	Z	2
12MDE	Transport Models and Transport Excesses	Z,ZK	3
	Parameters of the traffic flow and methods for their measurement. Models of the traffic flow, communications load, line and urban systems. Theory of queues, shock waves. Quality of transport and its assessment. Statistical characteristics of transport. Transport excesses, their analysis, the causes, identify and minimize the consequences. Improving of transport safety and fluency.		
12PPOK	Designing Roads, Highways and Motorways	KZ	3
	Definition, types, ownership, maintenance, management and categorization of roads and highways. Curve and transition curve. Sinuosity and standard speed. Route in rural areas. Range of vision for stopping and overtaking. Road body - shapes and proportions, bottom and superstructure. Drainage and components of roads. Safety device. Crossings, junctions, intersections.		
12X31	Project 1	Z	2
12X32	Project 2	Z	2
12X33	Project 3	Z	2
12ZAR	Introduction to Architectural Design	Z	3
	Urbanism and architecture of traffic systems. Bus and trolley-bus transport. Tramway and town tracks. Design of vehicles. Subway. Railway transport. Railway stations. Local communications. International airports.		
12ZPV	Railway Operation	Z,ZK	4
	Legislation in railway transport. Railway vehicles. Railway signals and signal devices. Railway traffic organisation and operation. Simplified railway traffic operation. Railway vehicles brakes. Railway vehicles marking. Operation intervals. Theoretical graph of train running.		
12ZTS	Railway Lines and Stations	Z,ZK	4
	Rail transport. Railway track geometry parameters. Route layout of railway lines. Railway line construction - railway substructure and superstructure. Spatial layout of railway lines. Railway control systems in relation to infrastructure. Operating and carriage points. Railway lines net and category. Traction in rail transport.		
12ZYDI	Introduction to Transportation Engineering	Z,ZK	2
	Role of transportation in land-use planning. Basic terms in transportation engineering. Traffic survey and traffic prognosis. Introduction to topic of roads, public mass transport. Negative impacts of transportation to environment and safety.		
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 using flowcharts, and use basic Boolean algebra to construct constraints in algorithms. Students will be introduced to the basics of the Python programming language - variable, branching, loops, they will learn to work with variables of basic data types (integer, floating point and string) and the list data structure in their programs.		
14DATS	Database Systems	KZ	2
	Basic concepts of database systems, conceptual model, relational data model, the principles of normal forms, relational database design, security and integrity of data, database queries, relational algebra, SQL language, client / server, multilayer architectures, distributed database systems. Access to data via the WWW.		
14DMG	Datamining	KZ	2
	Types of data sources and knowledge, data warehouses and OLAP technology for data mining, data preprocessing in the process of knowledge acquisition systems for data mining, mining characteristics of concepts (classes), mining association rules from relational db. and data warehousing, classification (decisions tree, Bayesian cob., using neural networks). Prediction. Cluster analysis. Mining in complex structured data, multimedia dbf., www.		
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.		
14KSP	Constructing with Computer Aid	KZ	2
	"CAD systems" term determination. CAD role in projecting system model. Existing CAD systems on Czech market. Project creation, basic common work rules in graphic applications and CA systems. Co-ordinated systems, CAD environment skill (basics of constructing, dimensioning, modifications, user interfaces, projecting possibilites, AutoCAD environment profiles, drawings with raster foundaments).		
14MPG	Modern Programming Approaches	KZ	2
	Students will be reminded of some aspects of Pythom programming, learn basic concepts and constructs from object-oriented programming and their implementation in Python. They will also try out the basics of working with data libraries in Python, namely NumPy, Pandas, Matplotlib, and practice with examples of smaller and larger data sizes.		
14PRG	Programming	KZ	2
	The Course Programming builds on and fully extends the course 14ASD (Algorithmization and Data Structures). The knowledge of the Python programming language is expanded here so that the participant gains skills and can apply them to solve various follow-up tasks. Main topics: lists, multidimensional arrays, sorting and searching, tuples, sets, dictionaries, working with date and time, regular expressions, functions and procedures, working with files (CSV, JSON, XML).		
14X31	Project 1	Z	2
14X32	Project 2	Z	2
14X33	Project 3	Z	2
15DPLG	Transportation Psychology	Z	2
	Subject of psychology and its basic concepts. Information intake, decision-making and behaviour. Performance. Engineering psychology and vehicle construction. Psychological aspects of travel route and traffic conditions, accidents and traffic incidents. Selection and training of the staff. Work and leisure. Age as a factor in transport operation.		
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 written presentation of original research. Academic text principles and reading comprehension. Principles of rhetoric.		

15JZ2A	Foreign Language - English 2	Z,ZK	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 written presentation of original research. Academic text principles and reading comprehension. Principles of rhetoric.			
15JZ3F	Foreign Language - French 3	Z	3
Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation.			
15JZ3I	Foreign Language - Italian 3	Z	3
Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation.			
15JZ3N	Foreign Language - German 3	Z	3
Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation.			
15JZ3R	Foreign Language - Russian 3	Z	3
Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation.			
15JZ3S	Foreign Language - Spanish 3	Z	3
Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation.			
15JZ4F	Foreign Language - French 4	Z,ZK	3
Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation.			
15JZ4I	Foreign Language - Italian 4	Z,ZK	3
Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation.			
15JZ4N	Foreign Language - German 4	Z,ZK	3
Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation.			
15JZ4R	Foreign Language - Russian 4	Z,ZK	3
Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of 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.			
15JZ4S	Foreign Language - Spanish 4	Z,ZK	3
Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of 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.			
15X31	Project 1	Z	2
15X32	Project 2	Z	2
15X33	Project 3	Z	2
16DPO	Vehicle Technology	KZ	2
Vehicle. Functions, principles. Drive, vehicle construction. Road transport, safety, heavy duty vehicle desing, dynamics. Rail transport, safety, carriage design. Drive. Electric traction. Transshipment. Technological components of various modes of transport. Management and control of various means of transport. Safety.			
16UDOP	Introduction into Vehicles	Z	2
Vehicles and transportation systems. Functionality and setup. Movement and drive principles. Engines and their characteristics. Rail, road, air and water transport. Alternative means of transport. Lifting equipment and conveyors. Legislation.			
16X31	Project 1	Z	2
16X32	Project 2	Z	2
16X33	Project 3	Z	2
17EPOD	Economics of Transport Company	Z,ZK	6
Economy, marginal utility, marginal costs, function of supply and demand, market equilibrium, perfect competition and types of market arrangement. Transportation market, transport company, it´s environment, balance sheet, costs, revenue, profit and maximalization of profit. Business plan, taxation in transport.			
17ESYS	Transport Systems Economy	Z,ZK	6
Macroeconomics, macroeconomic indicators, transport system, transport externalities, energy in transport, shared economy, state transport system and its quantification, rationalization of transport system.			
17FID	Financing and Investment in Transport	Z,ZK	4
Sources of financing of transport infrastructure, the role of public administration in the financing and realization of investment in transport, the investment project project cycle, subsidy programs and their rules, competition, effectiveness and efficiency of spending public funds, evaluation systems of public projects and programs.			
17GEDS	Geography of Transport Systems	KZ	2
Regional differentiation of the transport system. Sociogeographic regionalization and its relation to transport. Transport and local and regional development. Spatial interaction - theoretical and methodological framework. Mobility research - travel behavior, mode choice and the influence onto "modal-split." Modal competition. Practical use of transport-geographical analysis in transportation planning.			

17IVED	Integration of Public Transport	Z,ZK	3
Transport policy of both EU and CR, transport sectoral strategies, land use planning and evolution of space organization, integration of public service in territory, forms and content of activities and organizational structures of integrated public transport systems, internal and external bindings, contracting, carriage relations, conditions of both rail and bus transport operations, grading and quality, IS, marketing.			
17KLID	Quality in Transport Service	Z,ZK	3
General interpretation of quality, standards and international standardization, integrated management systems, modern attitudes of quality management, quality in transport service and logistics, methods of quality measurement, quality management, risks and opportunities, public transport quality, view of costumers, carriers and PT-organizers, quality standards, quality costs, marketing and costumer satisfaction.			
17LGT	Logistics	Z,ZK	6
Logistics definition, basic concepts, store, warehouse, transport and handling equipment, logistics technology, logistics centers, information and intelligent logistics systems, logistics city.			
17MAGD	Marketing in Transport	KZ	4
Development of strategic marketing plans. Implementation of marketing campaigns. Branding and brand promotion. Public relations industry, business and vertical market. Website development, search engine optimization. Government relations and industry organization lobbying. Advertising and strategic sponsorships. Multimedia presentations and corporate videos. Direct marketing and related lead generation campaigns.			
17MRR	Managerial Decision-making and Management	Z,ZK	4
Decision-making process; identifying exactly what the problem is; evaluating the issue; solving the issue; using multiple perspective analysis to make a decision; usual method of thinking.			
17NAPR	Freight Traffic	Z	2
Freight traffic and transportation system, conditions of implementation, forwarding.			
17TEDL	Transport Technology and Logistics	KZ	3
Basic terms in transport technology and logistics, particular steps of transport planning, line planning, timetabling, planning in pasanger and freight transport, organisation of traffic in each transport modus, technologic factors of the side of operator and client, organisation of city transport, logistic technologies and their aplication using various transport modus.			
17TVD	Technology of Public Transport	Z,ZK	5
The course contents a detailed description of new knowledge and basic principles of hierarchical planning of public transport system accenting the general transport planning and quantified transport demand. The course would be oriented on multiple and multi-level optimisation of passenger public transport system.			
17X31	Project 1	Z	2
17X32	Project 2	Z	2
17X33	Project 3	Z	2
17ZAP	Fundamentals od law	Z	2
18MTY	Materials Science and Engineering	Z,ZK	3
Basic course of materials science and engineering explains mechanical properties of structural materials based on their bonding forces and microstructure. However the main attention is paid to metals as the most important engineering materials, also other major classes of materials are presented, namely ceramics, polymers and composites. 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 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.			
18SAT	Structural Analysis	Z,ZK	4
General system of forces in plane and space. Calculation of reactions of bodies and structures. Assessment of internal forces on statically determinate beams and simple girders. Principle of virtual work. Kinematic method for calculation of reactions of statically determinate systems. Determination of axial forces in truss constructions. Cross-sectional characteristics of planar shapes. Fiber polygons and chains.			
18SPP	Seminary from Elasticity and Strength	Z	0
Excersise 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 circle cross section. Combined loading. Stability of compressed bar and buckling.			
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 framework. Application of principle of virtual works for calculation of reactions of staticaly determinate systems. Determination of axial forces in truss construction - method of joints and method of sections. Geometry of cross sections. Plane fiber polygons.			
18STD	Seminary from Technical Documentation	Z	0
Technical standards, international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensional and geometrical accuracy, arrangement of drawing sheets.			
18TED	Technical Documentation	KZ	2
Technical standards, international standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensional and geometrical accuracy, arrangement of drawing sheets.			
18X31	Project 1	Z	2
18X32	Project 2	Z	2
18X33	Project 3	Z	2
20SYSA	Systems Analysis	Z,ZK	5
Introduction to system sciences, system viewpoint, terminology, typical system analysis tasks, system identification, system interface and interface tasks, processes, system behaviour and its analysis, strong functions and processes, genetic code, system identity, system architecture. Tools for system analysis - Petri nets, decision tables, algorithms for structural tasks. Soft and hard systems, methods for soft system analysis.			
20UITS	Introduction to Intelligent Transport Systems	Z,ZK	7
Terminology and legislative framework telematics systems and their architecture. Telematics systems in practice and their operation. Fundamentals of information and telecommunication 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.			
20X31	Project 1	Z	2
20X32	Project 2	Z	2
20X33	Project 3	Z	2

21SLD	Seminar of Air Transport	Z	0
History, definitions, terminology, basic rules. VFR / IFR. Basics of aerodynamics. Propulsion of aircraft. Aircraft design. Basics of navigation, radio navigation. Weight, balance, performance. Flight planning, optimization of speed and heights, minimum fuel. Limitations of operation, maintenance, service life of aircraft. Traffic management, ground handling, security. Air crew. Airlines and economics. Space technologies.			
21X31	Project 1	Z	2
21X32	Project 2	Z	2
21X33	Project 3	Z	2
21ZALD	Basics of Air Transport	KZ	2
History, definitions, terminology, basic rules. VFR/IFR. Basics of aerodynamics. Propulsion of aircraft. Aircraft design. Basics of navigation, radio navigation. Weight, balance, performance. Flight planning, optimization of speed and heights, minimum fuel. Limitations of operation, maintenance, service life of aircraft. Traffic management, ground handling, security. Air crew. Airlines and economics. Space technologies.			
22X31	Project 1	Z	2
22X32	Project 2	Z	2
22X33	Project 3	Z	2
23X31	Project 1	Z	2
23X32	Project 2	Z	2
23X33	Project 3	Z	2
TV-1	Physical Education	Z	1
TV-2	Physical Education	Z	1
TVKLV	Physical Education Course	Z	0
TVKZV	Physical Education Course	Z	0

For updated information see http://bilakniha.cvut.cz/en/FF.html
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