

Study plan

Name of study plan: Bachelor TET-LOG Part-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 combined

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-BK-TET-22/23-DC

Name of the group: 1st Sem. Bachelor Part-Time TET from 2022/23

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 10 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
611CAL1	Calculus 1 Romana Zibnerová Ondřej Navrátil (Gar.)	Z,ZK	7	2P+4C+2B	Z	Z
611LA	Linear Algebra Romana Zibnerová Romana Zibnerová Martina Beváová (Gar.)	Z,ZK	3	2P+1C+10B	Z	Z
612ZYDK	Introduction to Transportation Engineering	Z,ZK	3	6B	Z	Z
618MTY	Materials Science and Engineering Vít Malinovský Jaroslav Valach (Gar.)	Z,ZK	3	2P+1C+10B	Z	Z
611GIE	Geometry Vít Malinovský Šárka Voráová (Gar.)	KZ	3	2P+2C+12B	Z	Z
614ASD	Algorithm and Data Structures Jan Mejstík	KZ	3	0P+2C+8B	Z	Z
614KSP	Constructing with Computer Aid	KZ	2	0P+2C+8B	Z	Z
618TED	Technical Documentation Vít Malinovský Jitka ezníková (Gar.)	KZ	2	1P+1C+8B	Z	Z
615DPLG	Transportation Psychology	Z	2	2P+0C+6B	Z	Z
616UDOP	Introduction into Vehicles Zuzana Radová Petr Bouchner (Gar.)	Z	2	2P+0C+8B	Z	Z

Characteristics of the courses of this group of Study Plan: Code=1S-BK-TET-22/23-DC Name=1st Sem. Bachelor Part-Time TET from 2022/23

611CAL1	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.
611LA	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.
612ZYDK	Introduction to Transportation Engineering	Z,ZK	3	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.
618MTY	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.

611GIE	Geometry	KZ	3
Orthographic and oblique projections, linear perspective. Topographic surfaces and their orthogonal projection. Differential geometry of curves - parameterization, 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.			
614ASD	Algorithm and Data Structures	KZ	3
Students will be familiarized with selected basic and derived data structures, algorithms, their properties and their design procedure. Students will analyze problems, propose theoretical solutions to the set task and the resulting algorithm write by means of flowcharts, practice in reading algorithms recorded by means of the flowchart and use the basics of Boolean algebra with forming the conditions for the algorithms.			
614KSP	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 possibilities, AutoCAD environment profiles, drawings with raster foundations).			
618TED	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.			
615DPLG	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.			
616UDOP	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.			

Code of the group: 2S-BK-TET-22/23-DC

Name of the group: 2nd Sem. Bachelor Part-Time TET from 2022/23

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

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

Credits in the group: 30

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
611CAL2	Calculus 2 Romana Zibnerová, Ondřej Navrátil, Magdalena Hykšová, Olga Vraštilová, Tomáš Tasák Romana Zibnerová Ondřej Navrátil (Gar.)	Z,ZK	5	2P+3C+20B	L	Z
611STAT	Statistics Pavel Provinský, Evžen Uglíckich, Pavla Pecherková, Michal Matowicki Pavla Pecherková Pavel Provinský (Gar.)	Z,ZK	4	2P+2C+12B	L	Z
612ZTS	Railway Lines and Stations Tomáš Javořík, Ondřej Trešl	Z,ZK	4	2P+2C+10B	L	Z
618SAT	Structural Analysis Tomáš Doktor Daniel Kytý (Gar.)	Z,ZK	4	2P+2C+14B	L	Z
620SYSA	Systems Analysis Petr Bureš, Eva Hajárová, Jiří Růžka Zuzana Břínová (Gar.)	Z,ZK	5	2P+2C+14B	L	Z
614PRG	Programming Libor Židek	KZ	2	0P+2C+8B	L	Z
617TEDK	Transport Technology and Logistics	KZ	4	12B	L	Z
621ZALD	Basics of Air Transport Jakub Hospodka	KZ	2	0P+2C+8B	L	Z

Characteristics of the courses of this group of Study Plan: Code=2S-BK-TET-22/23-DC Name=2nd Sem. Bachelor Part-Time TET from 2022/23

611CAL2	Calculus 2	Z,ZK	5
Linear differential equations and their systems, differential calculus of functions of several real variables. Riemann integral in R^n . Line and surface integrals.			
611STAT	Statistics	Z,ZK	4
Definition of probability, random variable and its description, known distributions, random vector, function of random variable. Methods of point estimation. Testing of statistical hypothesis. Regression and correlation, linear regression, correlation coefficient, coefficient of determination, the general linear model, statistical inference in linear regression, analysis of variance, multiple regression, the use of matrices in regression.			
612ZTS	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.			
618SAT	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.			
620SYSA	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.			
614PRG	Programming	KZ	2
Algorithm development, methods of structured programming, high-level programming languages, basics of C programming languages (types, variables, conditions, cycles, arrays, functions), programming techniques, complexity.			

617TEDK	Transport Technology and Logistics	KZ	4
Basic terms in transport technology and logistics, particular steps of transport planning, line planning, timetabling, planning in passenger and freight transport, organisation of traffic in each transport modus, technological factors of the side of operator and client, organisation of city transport, logistic technologies and their application using various transport modus.			
621ZALD	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.			

Code of the group: 3S-BK-TET-23/24-DC

Name of the group: 3rd Sem. Bachelor Part-Time TET from 2023/24

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

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

Credits in the group: 30

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
611FYZ	Physics Goce Chadžitaskos Zuzana Malá (Gar.)	Z,ZK	5	2P+2C+18B	Z	z
612MDE	Transport Models and Transport Excesses Josef Kocourek, Tomáš Pad lek Josef Kocourek (Gar.)	Z,ZK	3	2P+1C+8B	Z	z
617TGA	Graph Theory and its Applications in Transport	Z,ZK	4	2P+2C+12B	Z	z
618PZP	Elasticity and Strength Tomáš Doktor Ond ej Jiroušek (Gar.)	Z,ZK	3	2P+1C+10B	Z	z
620UITS	Introduction to Intelligent Transport Systems Vladimír Faltus Pavel Hrubeš (Gar.)	Z,ZK	7	3P+2C+20B	Z	z
612PPOK	Designing Roads, Highways and Motorways Josef Kocourek, Tomáš Pad lek, Petr Kumpošt	KZ	3	1P+2C+10B	Z	z
614DATS	Database Systems Ond ej Smišek Jana Kaliková (Gar.)	KZ	2	1P+1C+10B	Z	z
615JZ1A	Foreign Language - English 1 Jan Feit	Z	3	0P+4C+10B	Z	z

Characteristics of the courses of this group of Study Plan: Code=3S-BK-TET-23/24-DC Name=3rd Sem. Bachelor Part-Time TET from 2023/24

611FYZ	Physics	Z,ZK	5
Kinematics, dynamics, Newton's laws, force fields, mechanics of continuum, thermodynamics, introduction to electrostatics and electric current.			
612MDE	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.			
617TGA	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.			
618PZP	Elasticity and Strength	Z,ZK	3
Tension and compression. Bending of beam. Shear stress during bending of beam. Design and analysis of cross section of beam. Design of riveted, bolted and welded joint of structure. Analysis of deflection curve of beam. Torsion of circle cross section. Combined loading. Stability of compressed bar and buckling. Beam on elastic foundation. Strength analysis.			
620UITS	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.			
612PPOK	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.			
614DATS	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.			
615JZ1A	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.			

Code of the group: 4S-BK-LOG-23/24-DC

Name of the group: 4th Sem. Bachelor Part-Time TET-LOG from 2023/24

Requirement credits in the group: In this group you have to gain 26 credits

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

Credits in the group: 26

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
611MSP	Modeling of Systems and Processes Jana Kuklová, Bohumil Ková Bohumil Ková (Gar.)	Z,ZK	4	2P+2C+12B	L	Z
617ESYS	Transport Systems Economy Rudolf Franz Heidu	Z,ZK	6	3P+2C+18B	L	Z
617LGT	Logistics Daniel Pilát Tomáš Horák (Gar.)	Z,ZK	6	3P+2C+18B	L	Z
617MDP	Transport prognostic methods	KZ	2	2P+0C+10B	L	Z
611LP	Linear Programming Šárka Vorá ová, Pavla Pecherková, Ivan Nagy Pavla Pecherková Šárka Vorá ová (Gar.)	KZ	3	2P+1C+12B	L	Z
616DPO	Vehicle Technology Josef Mík Josef Mík (Gar.)	KZ	2	2P+0C+10B	L	Z
615JZ2A	Foreign Language - English 2 Jan Feit, Karolina Beauxisová, V ra Pastorková	Z,ZK	3	0P+4C+10B	L	Z

Characteristics of the courses of this group of Study Plan: Code=4S-BK-LOG-23/24-DC Name=4th Sem. Bachelor Part-Time TET-LOG from 2023/24

611MSP	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.		
617ESYS	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.		
617LGT	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.		
617MDP	Transport prognostic methods	KZ	2	The techniques of economical analysis in the domain of analysis of dependencies, analysis and construction of time series and comparison of statistical values using differences and indices.		
611LP	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.		
616DPO	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.		
615JZ2A	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.		

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

Name of the group: 5th Sem. Bachelor Part-Time TET-LOG from 2024/25

Requirement credits in the group: In this group you have to gain 23 credits

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

Credits in the group: 23

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
612ZPV	Railway Operation Martin Jacura Martin Jacura (Gar.)	Z,ZK	4	2P+1C+12B	Z	Z
617EPOD	Economics of Transport Company Alexandra Dvo á ková Veronika Faifrová (Gar.)	Z,ZK	6	4P+2C+18B	Z	Z
617TVD	Technology of Public Transport Michal Drábek Vít Janoš (Gar.)	Z,ZK	5	2P+2C+18B	Z	Z
614DMG	Datamining Ond ej Smíšek	KZ	2	0P+2C+10B	Z	Z
617MAGD	Marketing Transport Alexandra Dvo á ková Petra Skolilová (Gar.)	KZ	4	2P+1C+12B	Z	Z
617ZAP	Fundamentals od law Martina D v rová Martina D v rová (Gar.)	Z	2	10B	Z	Z

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

612ZPV	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.		
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617EPOD	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.			
617TVD	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.			
614DMG	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.			
617MAGD	Marketing 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			
617ZAP	Fundamentals od law	Z	2

Code of the group: 6S-BK-LOG-23/24-DC

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

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 8 courses

Credits in the group: 22

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) <i>Tutors, authors and guarantors (gar.)</i>	Completion	Credits	Scope	Semester	Role
617FID	Financing and investment in transport <i>Alexandra Dvo á ková Olga Mertlová (Gar.)</i>	Z,ZK	4	2P+1C+12B	L	Z
617IVED	Integration of Public Transport <i>Roman Št rba Roman Št rba (Gar.)</i>	Z,ZK	3	2P+1C+10B	L	Z
617KLID	Quality in transport service <i>Pavel Edvard Van ura Pavel Edvard Van ura (Gar.)</i>	Z,ZK	3	2P+1C+10B	L	Z
617MRRK	Managerial Decision-making and Management <i>Alexandra Dvo á ková Alexandra Dvo á ková (Gar.)</i>	Z,ZK	3	10B	L	Z
614MPG	Modern Programming Approaches <i>Ond ej Smíšek Ond ej Smíšek (Gar.)</i>	KZ	2	0P+2C+8B	L	Z
617GEDS	Geography of Transport Systems <i>Milan K íž</i>	KZ	2	2P+0C+8B	L	Z
612ZAR	Introduction to Architectural Design <i>Petr ervenka, Jana Kumpořtová</i>	Z	3	2P+0C+8B	L	Z
617NAPR	Freight Traffic <i>Roman Št rba Roman Št rba (Gar.)</i>	Z	2	2P+0C+8B	L	Z

Characteristics of the courses of this group of Study Plan: Code=6S-BK-LOG-23/24-DC Name=6th Sem. Bachelor Part-Time TET-LOG from 2023/24

617FID	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.			
617IVED	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.			
617KLID	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 customer satisfaction.			
617MRRK	Managerial Decision-making and Management	Z,ZK	3
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.			
614MPG	Modern Programming Approaches	KZ	2
Principles of object oriented programming, polymorphism, references, memory allocation, inheritance, generic programming, operator overloading, STL library, object implementation of abstract data types, graph and graph algorithm implementation focused on logistic problems.			
617GEDS	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.			
612ZAR	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.			
617NAPR	Freight Traffic	Z	2
Freight traffic and transportation system, conditions of implementation, forwarding.			

Code of the group: X1-BK-LOG-22-23-DC

Name of the group: Bachelor TET-LOG Part-Time Bachelor Thesis Seminar from 2022/23

Requirement credits in the group: In this group you have to gain 1 credit

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

Credits in the group: 1

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) <i>Tutors, authors and guarantors (gar.)</i>	Completion	Credits	Scope	Semester	Role
611XBBP	Bachelor Thesis Seminar	Z	1	6B	L	z
612XBBP	Bachelor Thesis Seminar	Z	1	6B	L	z
614XBBP	Bachelor Thesis Seminar	Z	1	6B	L	z
615XBBP	Bachelor Thesis Seminar <i>Petr Musil</i>	Z	1	6B	L	z
616XBBP	Bachelor Thesis Seminar	Z	1	6B	L	z
623XBBP	Bachelor Thesis Seminar	Z	1	6B	L	z
618XBBP	Bachelor Thesis Seminar <i>Daniel Pilát</i>	Z	1	6B	L	z
620XBBP	Bachelor Thesis Seminar	Z	1	6B	L	z
621XBBP	Bachelor Thesis Seminar	Z	1	6B	L	z
622XBBP	Bachelor Thesis Seminar	Z	1	6B	L	z
617XBBP	Bachelor Thesis Seminar	Z	1	6B	L	z

Characteristics of the courses of this group of Study Plan: Code=X1-BK-LOG-22-23-DC Name=Bachelor TET-LOG Part-Time Bachelor Thesis Seminar from 2022/23

611XBBP	Bachelor Thesis Seminar	Z	1
612XBBP	Bachelor Thesis Seminar	Z	1
614XBBP	Bachelor Thesis Seminar	Z	1
615XBBP	Bachelor Thesis Seminar	Z	1
616XBBP	Bachelor Thesis Seminar	Z	1
623XBBP	Bachelor Thesis Seminar	Z	1
618XBBP	Bachelor Thesis Seminar	Z	1
620XBBP	Bachelor Thesis Seminar	Z	1
621XBBP	Bachelor Thesis Seminar	Z	1
622XBBP	Bachelor Thesis Seminar	Z	1
617XBBP	Bachelor Thesis Seminar	Z	1

Name of the block: Compulsory elective courses

Minimal number of credits of the block: 12

The role of the block: PV

Code of the group: W1-BK-LOG-23/24-DC

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

Requirement credits in the group: In this group you have to gain 12 credits

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

Credits in the group: 12

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) <i>Tutors, authors and guarantors (gar.)</i>	Completion	Credits	Scope	Semester	Role
615W1BO	Work Safety and Health Protection in Transportation <i>Petr Musil</i>	KZ	4	8B	L	PV
621W1BS	Unmanned aircraft systems 1	KZ	4	8B	L	PV
617W1EV	Public Sector Economy	KZ	4	8B	Z	PV
614W1HW	Computer Hardware	KZ	4	8B	L	PV
615W1HE	Work Hygiene and Ergonomics in Traffic <i>Petr Musil</i>	KZ	4	8B	Z	PV

617W1LL	Logistics of Passenger and Freight Air Transportation	KZ	4	8B	L	PV
617W1MD	Marketing in Transportation	KZ	4	8B	Z	PV
621W1MP	Matlab for project-oriented study	KZ	4	8B	Z	PV
621W1OH	Airline Business and Operations	KZ	4	8B	Z	PV
617W1OF	Personal Finance <i>Alexandra Dvořáková Alexandra Dvořáková (Gar.)</i>	KZ	4	8B	Z	PV
617W1PM	Personnel Management <i>Stanislava Holíková</i>	KZ	4	8B	L	PV
614W1PZ	Advanced Data Processing in Spreadsheets	KZ	4	8B	Z	PV
614W1PJ	C Programming Language	KZ	4	8B	Z	PV
616W1PV	Operation, Construction and Maintenance of Vehicles	KZ	4	8B	L	PV
621W1RZ	Human Resources Management	KZ	4	8B	L	PV
617W1ST	Titan Simulation	KZ	4	8B	L	PV
617W1SL	Sociology of Human Resources	KZ	4	8B	Z	PV
617W1SK	Urban and Regional Rail Transport Systems	KZ	4	8B	L	PV
621W1TH	Aircraft Technical Handling	KZ	4	8B	Z	PV
614W1UP	Editing of Theses in MS Word	KZ	4	8B	L	PV

Characteristics of the courses of this group of Study Plan: Code=W1-BK-LOG-23/24-DC Name=Comp. Sel. Courses Bachelor Part-Time TET-LOG from 2023/24

615W1BO	Work Safety and Health Protection in Transportation Fundamental legislative, definition of terms, risks and possible health damage, working conditions and health protection with focus on transportation. Health protection programmes, health insurance of home and foreign business trips, statistics, working practice.	KZ	4
621W1BS	Unmanned aircraft systems 1 Unmanned Aviation Development. Aircraft design. Legislation in force in the Czech Republic. Planning and execution of the flight. Airspace division. Operational risks and operational procedures. Practical flights.	KZ	4
617W1EV	Public Sector Economy Economic and financial theory of public sector, public choice theory, externalities, decisions about public finance allocation, economic assessment of public projects (CBA, MCA, CEA), tax system of the CR, state budget, management of public projects and their economic efficiency assessment, way of elaboration of PPP projects, funding from EU funds, program HDM-4.	KZ	4
614W1HW	Computer Hardware Computer architecture, basics of logical circuits design and their realization using FPGA. In detail, description of computer architecture and separate parts designing - controllers, arithmetic and logical units, I/O subsystem.	KZ	4
615W1HE	Work Hygiene and Ergonomics in Traffic Basic knowledge of occupational hygiene and ergonomics, and their application in transport. Working environment factors, and the influence of these factors on health of workers. Creation and protection of working conditions that do not damage public health. Mutual links man-machine-environment. Adaptation of technology to possibilities and skills of man. Practical examples from the field of transportation; relevant legislative.	KZ	4
617W1LL	Logistics of Passenger and Freight Air Transportation Logistics airline passenger and cargo. Aircraft and airport terminals for passenger and cargo transport. Airlines in terms of logistics systems. Aerial transport process passengers and air cargo. Information systems in air transport. Global distribution systems.	KZ	4
617W1MD	Marketing in Transportation General principles of marketing applied to transport issues, marketing tools suitable for transport as a service, specifics of public passenger transport and the resulting differences in the application of marketing.	KZ	4
621W1MP	Matlab for project-oriented study The subject's syllabus is focused on the problem-solving during bachelor's thesis preparation and it is based on students' requests. Individual exercises will be prepared according to particular examples, based on actual students' needs and suggestions. The subject will have a flexible form, which is expected to bring an improvement of students' Matlab skills.	KZ	4
621W1OH	Airline Business and Operations The course provides a comprehensive view of the commercial, operational and transportation activities of air transport companies. It focuses on the organizational structure of companies, various aspects of their strategy, economic and operational indicators. It introduces students in detail to operational processes and the essentials of transportation processes. It provides a basic view of the economic aspects of air transport.	KZ	4
617W1OF	Personal Finance Personal finance (budget, financing of basic living needs), debt (loans and credits, payment instruments, interest and fees, debt trap), financing of housing (rent, mortgage, savings, consumer loans, refinancing), savings and investments (investment horizon, return, risk, investment strategy), insurance (insurance types, suitability and adequacy), securing the future (retirement savings and insurance).	KZ	4
617W1PM	Personnel Management Human resources, work group, man as personality, planning, choice, evaluation and education of human resources, work adaptation, teamwork, intercultural communication.	KZ	4
614W1PZ	Advanced Data Processing in Spreadsheets Students will be familiar with principles of working in a spreadsheet. Graphic layout of the table appearance, formatting of numbers, insertion of formulas and functions, including addressing, error detection. Working with large spreadsheets, filters, advanced filters, database functions. Pivot tables and charts, conditional formatting, solution finding, solver, macros, data analysis. Examples and questions from various companies and training.	KZ	4
614W1PJ	C Programming Language C programming language. Preprocessor, basics of the C language (data types, syntax, commands), functions, pointers, dynamical memory allocation, string, files, structures and unions. Implementations of abstract data types (FIFO, LIFO, list), programming techniques (sorting, searching, recursion), using bitwise operators.	KZ	4
616W1PV	Operation, Construction and Maintenance of Vehicles Methods of vehicle production. Vehicle maintenance. Vehicle diagnostics. Maintenance and repair plans. Engine maintenance and emission measurement. Transmission mechanism. General principles of engine diagnostics.	KZ	4

621W1RZ	Human Resources Management	KZ	4
The position of human resources in the organization and related disciplines file. Substance, importance and challenges of human resources management. Internal and external environment of human resource management. Human resource planning. Search, recruitment and selection of employees. Motivation, evaluation and remuneration of staff. Positioning, dismissal and redundancies of employees. Education of employees. Planning career management.			
617W1ST	Titan Simulation	KZ	4
Titan is a management game simulating the business decisions. Lets 2-8 student groups to produce and compete in the market with the same product. Students set a price and determine the quantity and capacity of production, plan budgets for marketing, research and development. They become familiar with the consequences of their decisions by the form of financial corporate reports and they use this information for other business decisions.			
617W1SL	Sociology of Human Resources	KZ	4
Human resources and their importance, work group as a special kind of social group, communication, personal management, modern management, human resources planning, culture of the organization.			
617W1SK	Urban and Regional Rail Transport Systems	KZ	4
Factors affecting transport demand, modal-split, distribution of passenger flows on public regional transport lines. Optimization of line management, line networking. Creating and evaluation of the timetable. Vehicle circulation creation. Optimizing driver shifts and arranging them in turnus. Effects of barrier-free and public transport preferences. The role of marketing.			
621W1TH	Aircraft Technical Handling	KZ	4
Aircraft towing and pushing tractors. GPU. Air conditioning and heating units. Aircraft fuel equipment. De-icing and anti-icing units. Loading and unloading units. Equipment for passengers onboarding and offboarding. Operational processes of aircraft technical handling and regulations. Modernization and technical progress.			
614W1UP	Editing of Theses in MS Word	KZ	4
Students will be introduced to the principles of creating and editing large documents and basic typographic rules. They will properly apply styles, create tables of contents, lists of figures, tables, graphs, etc. Footnotes, captions, index. They practice corrections of finished documents. The goal is to prepare students for seamless editing dissertations and theses, so that they are able to concentrate mainly on writing a thesis.			

Name of the block: Jazyky

Minimal number of credits of the block: 6

The role of the block: J

Code of the group: JZ-BK-TET-22/23-DC

Name of the group: Bachelor TET Part-Time 2nd Language Courses from 2022/23

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

Requirement courses in the group: In this group you have to complete 2 courses

Credits in the group: 6

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
615JZ3F	Foreign Language - French 3 Irena Veselková Irena Veselková (Gar.)	Z	3	OP+4C+10B	Z	J
615JZ3I	Foreign Language - Italian 3	Z	3	OP+4C+10B	Z	J
615JZ3N	Foreign Language - German 3 Eva Rezlerová	Z	3	OP+4C+10B	Z	J
615JZ3R	Foreign Language - Russian 3 Marie Michlová	Z	3	OP+4C+10B	Z	J
615JZ3S	Foreign Language - Spanish 3	Z	3	OP+4C+10B	Z	J
615JZ4F	Foreign Language - French 4 Irena Veselková Irena Veselková (Gar.)	Z,ZK	3	OP+4C+10B	L	J
615JZ4I	Foreign Language - Italian 4	Z,ZK	3	OP+4C+10B	L	J
615JZ4N	Foreign Language - German 4 Eva Rezlerová, Sv tiana Petrová, René Skalický	Z,ZK	3	OP+4C+10B	L	J
615JZ4R	Foreign Language - Russian 4 Marie Michlová, Vilma Gottwaldová	Z,ZK	3	OP+4C+10B	L	J
615JZ4S	Foreign Language - Spanish 4	Z,ZK	3	OP+4C+10B	L	J

Characteristics of the courses of this group of Study Plan: Code=JZ-BK-TET-22/23-DC Name=Bachelor TET Part-Time 2nd Language Courses from 2022/23

615JZ3F	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.			
615JZ3I	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.			
615JZ3N	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.			

615JZ3R	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.			
615JZ3S	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.			
615JZ4F	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.			
615JZ4I	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.			
615JZ4N	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.			
615JZ4R	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.			
615JZ4S	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.			

List of courses of this pass:

Code	Name of the course	Completion	Credits
611CAL1	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.			
611CAL2	Calculus 2	Z,ZK	5
Linear differential equations and their systems, differential calculus of functions of several real variables. Riemann integral in R^n . Line and surface integrals.			
611FYZ	Physics	Z,ZK	5
Kinematics, dynamics, Newton's laws, force fields, mechanics of continuum, thermodynamics, introduction to electrostatics and electric current.			
611GIE	Geometry	KZ	3
Orthographic and oblique projections, linear perspective. Topographic surfaces and their orthogonal projection. Differential geometry of curves - parameterization, 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.			
611LA	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.			
611LP	Linear Programming	KZ	3
Formulation of the problem of linear programming, transcription of some practical problems to the linear programming problems. Simplex and convex polyhedra. Simplex method, basic solutions, duality principle in linear programming, stability of solution of linear programming problem. Traffic problem.			
611MSP	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.			
611STAT	Statistics	Z,ZK	4
Definition of probability, random variable and its description, known distributions, random vector, function of random variable. Methods of point estimation. Testing of statistical hypothesis. Regression and correlation, linear regression, correlation coefficient, coefficient of determination, the general linear model, statistical inference in linear regression, analysis of variance, multiple regression, the use of matrices in regression.			
611XBBP	Bachelor Thesis Seminar	Z	1
612MDE	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.			
612PPOK	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.			
612XBBP	Bachelor Thesis Seminar	Z	1

612ZAR	Introduction to Architectural Design 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.	Z	3
612ZPV	Railway Operation 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.	Z,ZK	4
612ZTS	Railway Lines and Stations 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.	Z,ZK	4
612ZYDK	Introduction to Transportation Engineering 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.	Z,ZK	3
614ASD	Algorithm and Data Structures Students will be familiarized with selected basic and derived data structures, algorithms, their properties and their design procedure. Students will analyze problems, propose theoretical solutions to the set task and the resulting algorithm write by means of flowcharts, practice in reading algorithms recorded by means of the flowchart and use the basics of Boolean algebra with forming the conditions for the algorithms.	KZ	3
614DATS	Database Systems 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.	KZ	2
614DMG	Datamining 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.	KZ	2
614KSP	Constructing with Computer Aid "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 possibilities, AutoCAD environment profiles, drawings with raster foundations).	KZ	2
614MPG	Modern Programming Approaches Principles of object oriented programming, polymorphism, references, memory allocation, inheritance, generic programming, operator overloading, STL library, object implementation of abstract data types, graph and graph algorithm implementation focused on logistic problems.	KZ	2
614PRG	Programming Algorithm development, methods of structured programming, high-level programming languages, basics of C programming languages (types, variables, conditions, cycles, arrays, functions), programming techniques, complexity.	KZ	2
614W1HW	Computer Hardware Computer architecture, basics of logical circuits design and their realization using FPGA. In detail, description of computer architecture and separate parts designing - controllers, arithmetic and logical units, I/O subsystem.	KZ	4
614W1PJ	C Programming Language C programming language. Preprocessor, basics of the C language (data types, syntax, commands), functions, pointers, dynamical memory allocation, string, files, structures and unions. Implementations of abstract data types (FIFO, LIFO, list), programming techniques (sorting, searching, recursion), using bitwise operators.	KZ	4
614W1PZ	Advanced Data Processing in Spreadsheets Students will be familiar with principles of working in a spreadsheet. Graphic layout of the table appearance, formatting of numbers, insertion of formulas and functions, including addressing, error detection. Working with large spreadsheets, filters, advanced filters, database functions. Pivot tables and charts, conditional formatting, solution finding, solver, macros, data analysis. Examples and questions from various companies and training.	KZ	4
614W1UP	Editing of Theses in MS Word Students will be introduced to the principles of creating and editing large documents and basic typographic rules. They will properly apply styles, create tables of contents, lists of figures, tables, graphs, etc. Footnotes, captions, index. They practice corrections of finished documents. The goal is to prepare students for seamless editing dissertations and theses, so that they are able to concentrate mainly on writing a thesis.	KZ	4
614XBBP	Bachelor Thesis Seminar	Z	1
615DPLG	Transportation Psychology 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.	Z	2
615JZ1A	Foreign Language - English 1 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.	Z	3
615JZ2A	Foreign Language - English 2 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.	Z,ZK	3
615JZ3F	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.	Z	3
615JZ3I	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.	Z	3
615JZ3N	Foreign Language - German 3 Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation.	Z	3

615JZ3R	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.			
615JZ3S	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.			
615JZ4F	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.			
615JZ4I	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.			
615JZ4N	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.			
615JZ4R	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.			
615JZ4S	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.			
615W1BO	Work Safety and Health Protection in Transportation	KZ	4
Fundamental legislative, definition of terms, risks and possible health damage, working conditions and health protection with focus on transportation. Health protection programmes, health insurance of home and foreign business trips, statistics, working practice.			
615W1HE	Work Hygiene and Ergonomics in Traffic	KZ	4
Basic knowledge of occupational hygiene and ergonomics, and their application in transport. Working environment factors, and the influence of these factors on health of workers. Creation and protection of working conditions that do not damage public health. Mutual links man-machine-environment. Adaptation of technology to possibilities and skills of man. Practical examples from the field of transportation; relevant legislative.			
615XBBP	Bachelor Thesis Seminar	Z	1
616DPO	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.			
616UDOP	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.			
616W1PV	Operation, Construction and Maintenance of Vehicles	KZ	4
Methods of vehicle production. Vehicle maintenance. Vehicle diagnostics. Maintenance and repair plans. Engine maintenance and emission measurement. Transmission mechanism. General principles of engine diagnostics.			
616XBBP	Bachelor Thesis Seminar	Z	1
617EPOD	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.			
617ESYS	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.			
617FID	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.			
617GEDS	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.			
617IVED	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.			
617KLID	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.			
617LGT	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.			

617MAGD	Marketing 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			
617MDP	Transport prognostic methods	KZ	2
The techniques of economical analysis in the domain of analysis of dependencies, analysis and construction of time series and comparison of statistical values using differences and indices.			
617MRRK	Managerial Decision-making and Management	Z,ZK	3
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.			
617NAPR	Freight Traffic	Z	2
Freight traffic and transportation system, conditions of implementation, forwarding.			
617TEDK	Transport Technology and Logistics	KZ	4
Basic terms in transport technology and logistics, particular steps of transport planning, line planning, timetabling, planning in passenger 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 application using various transport modus.			
617TGA	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.			
617TVD	Technology of Public Transport	Z,ZK	5
The course contains 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.			
617W1EV	Public Sector Economy	KZ	4
Economic and financial theory of public sector, public choice theory, externalities, decisions about public finance allocation, economic assessment of public projects (CBA, MCA, CEA), tax system of the CR, state budget, management of public projects a their economic efficiency assessment, way of elaboration of PPP projects, funding from EU funds, program HDM-4.			
617W1LL	Logistics of Passenger and Freight Air Transportation	KZ	4
Logistics airline passenger and cargo. Aircraft and airport terminals for passenger and cargo transport. Airlines in terms of logistics systems. Aerial transport process passengers and air cargo. Information systems in air transport. Global distribution systems.			
617W1MD	Marketing in Transportation	KZ	4
General principles of marketing applied to transport issues, marketing tools suitable for transport as a service, specifics of public passenger transport and the resulting differences in the application of marketing.			
617W1OF	Personal Finance	KZ	4
Personal finance (budget, financing of basic living needs), debt (loans and credits, payment instruments, interest and fees, debt trap), financing of housing (rent, mortgage, savings, consumer loans, refinancing), savings and investments (investment horizon, return, risk, investment strategy), insurance (insurance types, suitability and adequacy), securing the future (retirement savings and insurance).			
617W1PM	Personnel Management	KZ	4
Human sources, work group, man as personality, planning, choice, evaluation and education of human sources, work adaptation, teamwork, intercultural communication.			
617W1SK	Urban and Regional Rail Transport Systems	KZ	4
Factors affecting transport demand, modal-split, distribution of passenger flows on public regional transport lines. Optimization of line management, line networking. Creating and evaluation of the timetable. Vehicle circulation creation. Optimizing driver shifts and arranging them in turnus. Effects of barrier-free and public transport preferences. The role of marketing.			
617W1SL	Sociology of Human Resources	KZ	4
Human resources and their importance, work group as a special kind of social group, communication, personal management, modern management, human resources planning, culture of the organization.			
617W1ST	Titan Simulation	KZ	4
Titan is a management game simulating the business decisions. Lets 2-8 student groups to produce and compete in the market with the same product. Students set a price and determine the quantity and capacity of production, plan budgets for marketing, research and development. They become familiar with the consequences of their decisions by the form of financial corporate reports and they use this information for other business decisions.			
617XBBP	Bachelor Thesis Seminar	Z	1
617ZAP	Fundamentals of law	Z	2
618MTY	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.			
618PZP	Elasticity and Strength	Z,ZK	3
Tension and compression. Bending of beam. Shear stress during bending of beam. Design and analysis of cross section of beam. Design of riveted, bolted and welded joint of structure. Analysis of deflection curve of beam. Torsion of circle cross section. Combined loading. Stability of compressed bar and buckling. Beam on elastic foundation. Strength analysis.			
618SAT	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.			
618TED	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.			
618XBBP	Bachelor Thesis Seminar	Z	1
620SYSA	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.			
620UITS	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.			

620XBBP	Bachelor Thesis Seminar	Z	1
621W1BS	Unmanned aircraft systems 1 Unmanned Aviation Development. Aircraft design. Legislation in force in the Czech Republic. Planning and execution of the flight. Airspace division. Operational risks and operational procedures. Practical flights.	KZ	4
621W1MP	Matlab for project-oriented study The subject's syllabus is focused on the problem-solving during bachelor's thesis preparation and it is based on students' requests. Individual exercises will be prepared according to particular examples, based on actual students' needs and suggestions. The subject will have a flexible form, which is expected to bring an improvement of students' Matlab skills.	KZ	4
621W1OH	Airline Business and Operations The course provides a comprehensive view of the commercial, operational and transportation activities of air transport companies. It focuses on the organizational structure of companies, various aspects of their strategy, economic and operational indicators. It introduces students in detail to operational processes and the essentials of transportation processes. It provides a basic view of the economic aspects of air transport.	KZ	4
621W1RZ	Human Resources Management The position of human resources in the organization and related disciplines file. Substance, importance and challenges of human resources management. Internal and external environment of human resource management. Human resource planning. Search, recruitment and selection of employees. Motivation, evaluation and remuneration of staff. Positioning, dismissal and redundancies of employees. Education of employees. Planning career management.	KZ	4
621W1TH	Aircraft Technical Handling Aircraft towing and pushing tractors. GPU. Air conditioning and heating units. Aircraft fuel equipment. De-icing and anti-icing units. Loading and unloading units. Equipment for passengers onboarding and offboarding. Operational processes of aircraft technical handling and regulations. Modernization and technical progress.	KZ	4
621XBBP	Bachelor Thesis Seminar	Z	1
621ZALD	Basics of Air Transport 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.	KZ	2
622XBBP	Bachelor Thesis Seminar	Z	1
623XBBP	Bachelor Thesis Seminar	Z	1

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

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