Study plan

Name of study plan: Bachelor TET-LED Part-Time from 2025/26

Faculty/Institute/Others:
Department:
Branch of study guaranteed by the department: Welcome page
Garantor of the study branch:
Program of study: Technology in Transportation and Telecommunications
Type of study: Bachelor combined
Required credits: 166
Elective courses credits: 14
Sum of credits in the plan: 180
Note on the plan:

Name of the block: Compulsory courses
Minimal number of credits of the block: 166
The role of the block: Z

Code of the group: 1S-BK-TET-24/25
Name of the group: 1st Sem. Bachelor Part-Time TET from 2024/25
Requirement credits in the group: In this group you have to gain 30 credits
Requirement courses in the group: In this group you have to complete 8 courses
Credits in the group: 30
Note on the group:

Code	Name of the course / Name of the group of courses *(in case of groups of courses the list of codes of their members)* *Tutors,* ***authors*** *and guarantors (gar.)*	Completion	Credits	Scope	Semester	Role
11CAL1	**Calculus 1** *Tomáš Třasák, Olga Vraštilová, Magdalena Hykšová, Bohumil Kovář, Ondřej Navrátil* ***Bohumil Kovář*** *Ondřej Navrátil (Gar.)*	Z,ZK	7	2P+4C+22B	Z	z
11LA	**Linear Algebra** *Magdalena Hykšová, Lucie Kárná, Pavel Provinský, Martina Bečvářová* ***Magdalena Hykšová*** *Martina Bečvářová (Gar.)*	Z,ZK	3	2P+1C+10B	Z	z
12ZADK	**Introduction to Transportation Engineering** *Dagmar Kočárková, Jana Štikarová*	Z,ZK	5	12B	Z	z
18MTY	**Materials Science and Engineering** *Tomáš Doktor, Jan Falta, Petr Koudelka, Tomáš Fíla, Jaromír Kylar, Veronika Drechslerová, Nela Krčmářová, Jitka Řezníčková, Jaroslav Valach, ...* ***Jaroslav Valach*** *Tomáš Doktor (Gar.)*	Z,ZK	3	2P+1C+10B	Z	z
11GIE	**Geometry** *Pavel Provinský, Oldřich Hykš, Šárka Voráčová* ***Oldřich Hykš*** *Oldřich Hykš (Gar.)*	KZ	3	2P+2C+12B	Z	z
14ASD	**Algorithm and Data Structures** *Tomáš Brandejský, Michal Jeřábek, Alena Kubáčová, Jan Procházka, Vít Fábera, Martin Fiala, Lukáš Svoboda, Tereza Panská* ***Vít Fábera*** *Vít Fábera (Gar.)*	KZ	3	0P+2C+8B	Z	z
18TKK	**Technical Drawing and Designing** *Jitka Řezníčková, Vít Malinovský, Lukáš Svoboda, Jan Šleichrt, Martin Brumovský, Jan Mejstřík, Drahomír Schmidt, Jan Vogl, Jiří Zeisek, ...* ***Jan Šleichrt*** *Jan Šleichrt (Gar.)*	KZ	4	2P+2C+16B	Z	z
16UDOP	**Introduction into Vehicles** *Josef Mík, Zuzana Radová, Petr Bouchner*	Z	2	2P+0C+8B	Z	z

Characteristics of the courses of this group of Study Plan: Code=1S-BK-TET-24/25 Name=1st Sem. Bachelor Part-Time TET from 2024/25

11CAL1	Calculus 1	Z,ZK	7
Sequence of real numbers and its limit. Basic properties of mappings. Function of one real variable, its limit and derivative. Indefinite integral, Newton integral, Riemann integral, improper Riemann integral. First-order differential equations, linear differential equations.			
11LA	Linear Algebra	Z,ZK	3
Vector spaces (linear 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.			
12ZADK	Introduction to Transportation Engineering	Z,ZK	5

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.			
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.			
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.			
18TKK	Technical Drawing and Designing	KZ	4
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.			

Code of the group: 2S-BK-TET-24/25
Name of the group: 2nd Sem. Bachelor Part-Time TET from 2024/25
Requirement credits in the group: In this group you have to gain 30 credits
Requirement courses in the group: In this group you have to complete 8 courses
Credits in the group: 30
Note on the group:

Code	Name of the course / Name of the group of courses ***(in case of groups of courses the list of codes of their members)*** *Tutors,* ***authors*** *and guarantors (gar.)*	Completion	Credits	Scope	Semester	Role
11CAL2	**Calculus 2** *Tomáš Třasák, Olga Vraštilová, Magdalena Hykšová, Ondřej Navrátil, Oldřich Hykš* ***Magdalena Hykšová*** *Ondřej Navrátil (Gar.)*	Z,ZK	5	2P+3C+20B	L	z
11STAT	**Statistics** *Pavel Provinský, Šárka Trsťanová, Evženie Uglickich, Pavla Pecherková, Michal Matowicki, Ivan Nagy, Jana Kuklová* ***Pavla Pecherková*** *Evženie Uglickich (Gar.)*	Z,ZK	4	2P+2C+12B	L	z
12ZTS	**Railway Lines and Stations** *Lukáš Týfa, Martin Jacura, Petr Šatra, Tomáš Javořík, Ondřej Trešl Lukáš Týfa (Gar.)*	Z,ZK	4	2P+2C+10B	L	z
18SAT	**Structural Analysis** *Tomáš Doktor, Jan Falta, Jaromír Kylar, Veronika Drechslerová, Nela Krčmářová, Jitka Řezníčková, Jan Šleichrt, Daniel Kytýř, Jan Vyčichl Daniel Kytýř (Gar.)*	Z,ZK	4	2P+2C+14B	L	z
20SYSA	**Systems Analysis** *František Kekula, Petr Bureš, Jiří Růžička, Zuzana Bělinová, Patrik Horažďovský Zuzana Bělinová (Gar.)*	Z,ZK	5	2P+2C+14B	L	z
14PRG	**Programming** *Alena Kubáčová, Jan Procházka, Martin Fiala, Lukáš Svoboda, Tereza Panská, Jana Kaliková, Jan Krčál* ***Jana Kaliková*** *Jana Kaliková (Gar.)*	KZ	2	0P+2C+8B	L	z
17TEDK	**Transport Technology and Logistics** *Michal Drábek Michal Drábek (Gar.)*	KZ	4	12B	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

Characteristics of the courses of this group of Study Plan: Code=2S-BK-TET-24/25 Name=2nd Sem. Bachelor Part-Time TET from 2024/25

11CAL2	Calculus 2	Z,ZK	5
Linear differential equations and their systems, differential calculus of functions of several real variables. Riemann integral in Rn. Line and surface integrals.			
11STAT	Statistics	Z,ZK	4
Basics of probability Descriptive statistics Population and sample, limit theorem Point estimate, construction and properties Interval estimates Parametric tests Nonparametric tests Regression and correlation analysis			
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.			
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.			
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.			

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).			
17TEDK	Transport Technology and Logistics	KZ	4
Basic terms in transport technology and logistics, particular steps of transport planning, line planning, timetabling, planning in pasanger and freight transport, organisation of traffic in each transport modus, technologic factors of the side of operator and client, organisation of city transport, logistic technologies and their aplication using various transport modus.			
21ZALD	Basics of Air Transport	KZ	2
History, definitions, 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-25/26
Name of the group: 3rd Sem. Bachelor Part-Time TET from 2025/26
Requirement credits in the group: In this group you have to gain 30 credits
Requirement courses in the group: In this group you have to complete 8 courses
Credits in the group: 30
Note on the group:

Code	Name of the course / Name of the group of courses *(in case of groups of courses the list of codes of their members)* *Tutors,* ***authors*** *and guarantors (gar.)*	Completion	Credits	Scope	Semester	Role
11FYZ	**Physics** *Oldřich Hykš, Jana Kuklová, Pavel Demo, Zuzana Malá, Tomáš Vítů* ***Jana Kuklová*** *Pavel Demo (Gar.)*	Z,ZK	5	2P+2C+18B	Z	z
12MDE	**Transport Models and Transport Excesses** *Tomáš Padělek, Josef Kocourek*	Z,ZK	3	2P+1C+8B	Z	z
11TGA	**Graph Theory and its Applications in Transport** *Alena Rybičková, Denisa Mocková, Dušan Teichmann* ***Alena Rybičková*** *Alena Rybičková (Gar.)*	Z,ZK	4	2P+2C+12B	Z	z
18PZP	**Elasticity and Strength** *Tomáš Doktor, Jitka Řezníčková, Jan Šleichrt, Daniel Kytýř, Jan Vyčichl, Josef Jíra, Ondřej Jiroušek* ***Ondřej Jiroušek*** *Ondřej Jiroušek (Gar.)*	Z,ZK	3	2P+1C+10B	Z	z
20UITS	**Introduction to Intelligent Transport Systems** *Jiří Růžička, Patrik Horaždovský, Kristýna Navrátilová, Eva Hajčiarová, Martin Šrotýř, Martin Langr, Vladimír Faltus, Pavel Hrubeš* ***Martin Langr***	Z,ZK	7	3P+2C+20B	Z	z
12PPOK	**Designing Roads, Highways and Motorways** *Tomáš Padělek, Josef Kocourek, Petr Kumpošt Josef Kocourek (Gar.)*	KZ	3	1P+2C+10B	Z	z
14DATS	**Database Systems** *Jana Kaliková, Jan Krčál* ***Jana Kaliková*** *Jana Kaliková (Gar.)*	KZ	2	1P+1C+10B	Z	z
15JZ1A	**Foreign Language - English 1** *Lenka Monková, Markéta Vojanová, Dana Boušová, Marie Michlová, Marek Tomeček, Jan Feit, Markéta Musilová, Peter Morpuss, Jitka Heřmanová, ... Lenka Monková (Gar.)*	Z	3	0P+4C+10B	Z	z

Characteristics of the courses of this group of Study Plan: Code=3S-BK-TET-25/26 Name=3rd Sem. Bachelor Part-Time TET from 2025/26

11FYZ	Physics	Z,ZK	5
Kinematics, dynamics, Newton's laws, force fields, mechanics of continuum, thermodynamics, introduction to electrostatics and electric current.			
12MDE	Transport Models and Transport Excesses	Z,ZK	3
Parameters of the traffic flow and methods for their measurement. Models of the traffic flow, communications load, line and urban systems. Theory of queues, shock waves. Quality of transport and its assessment. Statistical characteristics of transport. Transport excesses, their analysis, the causes, identify and minimize the consequences. Improving of transport safety and fluency.			
11TGA	Graph Theory and its Applications in Transport	Z,ZK	4
Basic terms of graph theory, paths in graphs, flows in networks, location problems, design problems on graphs, optimum routing, use of graphs in other scientific disciplines.			
18PZP	Elasticity and Strength	Z,ZK	3
Tension and compression. Bending of beam. Shear stress in bending of beam. Design and analysis of cross section of beam. Design of riveted, bolted and welded joints of structures. Analysis of deflection curve of beams. Torsion of circular cross sections. Combined loading. Stability.			
20UITS	Introduction to Intelligent Transport Systems	Z,ZK	7
Terminology and 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.			
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.			
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.			
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.			

Code of the group: 4S-BK-LED-25/26
Name of the group: 4th Sem. Bachelor Part-Time TET-LED from 2025/26
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 10 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
11EMO	**Electromagnetic Field and Optics** *Oldřich Hykš, Jana Kuklová, Zuzana Malá, Tomáš Vítů* ***Zuzana Malá*** *Pavel Demo (Gar.)*	Z,ZK	4	2P+1C	L	z
21LEIS	**Aerodromes** *Ladislav Capoušek, Petr Líkař, Slobodan Stojić* ***Ladislav Capoušek*** *Slobodan Stojić (Gar.)*	Z,ZK	3	2P+1C	L	z
21RELP	**Air Traffic Control** *Miloš Strouhal, Terézia Pilmannová* ***Miloš Strouhal*** *Miloš Strouhal (Gar.)*	Z,ZK	4	3P+1C	L	z
21ZT	**ATM Systems** *Stanislav Pleninger Stanislav Pleninger (Gar.)*	ZK	2	2P+0C	Z,L	z
21ZYT1	**Principles of Flight 1** *Jakub Trýb, Přemysl Vávra* ***Jakub Trýb*** *Vladimír Socha (Gar.)*	Z,ZK	3	2P+1C	L	z
16LLA1	**Aircraft 1** *Vladimír Plos, Michal Černý, Karel Mündel, Daniel Urban, Karel Hylmar Vladimír Plos (Gar.)*	KZ	3	2P+1C	L	z
21RIBZ	**Aviation Safety** *Natalja Guskova, Kateřina Grötschelová, Libor Kurzweil* ***Andrej Lališ***	KZ	2	2P+0C	L	z
14PGP	**Program Resources** *Michal Jeřábek, Vít Fábera* ***Michal Jeřábek*** *Vít Fábera (Gar.)*	Z	2	0P+2C	L	z
21SBL1	**Bachelor Thesis Seminar 1** *Vladimír Socha, Lenka Hanáková* ***Lenka Hanáková*** *Lenka Hanáková (Gar.)*	Z	1	1P+0C	L	z
15JL2A	**Foreign language - English 2 (for LED)** *Lenka Monková, Markéta Vojanová, Marie Michlová, Marek Tomeček, Jan Feit, Markéta Musilová, Peter Morpuss, Jitka Heřmanová, Eva Rezlerová, ...*	KZ	2	0P+2C	L	z

Characteristics of the courses of this group of Study Plan: Code=4S-BK-LED-25/26 Name=4th Sem. Bachelor Part-Time TET-LED from 2025/26

11EMO	Electromagnetic Field and Optics	Z,ZK	4
Electric field. Electric current. Magnetic field. Electromagnetic field. Optics. Basics of solid-state physics.			
21LEIS	Aerodromes	Z,ZK	3
Basic definitions. Applicability. Airport design. Reference code. Declared distances of runways (RWY). Taxiways and aprons. Clearway. Stopway. Markings of movement areas. Markings. Signs. Markers. Visual aids for denoting obstacles. Obstacle restriction, removal. Visual aids for navigation, lights, approach lighting systems. Visual approach slope indicator systems. Runway lights. Taxiway lights. Visual aids for denoting obstacles.			
21RELP	Air Traffic Control	Z,ZK	4
21ZT	ATM Systems	ZK	2
The course introduces classical and modern facilities, systems and technologies designated for ATS. Student obtains knowledge of technical principles and solutions as far as communication, navigation and surveillance aviation systems are concerned.			
21ZYT1	Principles of Flight 1	Z,ZK	3
Aerodynamic drag, relation between drag and speed, streamline, boundary layer, formula of continuity, formula of Bernoulli, lift and drag, air flow and pressures around wing, angle of attack, reactions of wing in air flow, lift and drag of a wing and an aircraft, coefficient of lift and drag, critical angle of attack, wing with final span, induced drag, interference, devices for lift and drag increase.			
16LLA1	Aircraft 1	KZ	3
Aircraft structural and conceptual design types - definitions and basic knowledge of the problem. Development of requirements, aircraft definitions and categorisation. Aircraft loadings. Systems of primary and secondary airframe structure. Airframe and propulsion unit. Lectures are devoted to aeroplane topics.			
21RIBZ	Aviation Safety	KZ	2
The course contains topics related to the safety management and structure of the SMS. This includes a description of the SMS mechanisms and tools, used to ensure the safe operations. During the course, students are continuously working on the semestral assignment, which helps them to understand practical application of the SMS.			
14PGP	Program Resources	Z	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.			
21SBL1	Bachelor Thesis Seminar 1	Z	1
Types of thesis (review, applied research, basic research, thesis dealing with design proposals). Working with citation sources (citation sources, citation databases, citation styles, how to cite). Analyzing the state of the art (standards of research writing). Defining the limitations of the state of the art. Introduction to the thesis methodology.			
15JL2A	Foreign language - English 2 (for LED)	KZ	2
Grammar and technical vocabulary. Selection of conversation topics and professional topics based on students´ level and their focus at Faculty of Transportation Sciences. Development of perceptive and communication skills, ability to give feedback, summarization of a technical text, presentation structure, technical style and its usage, language of management.			

Code of the group: 5S-BK-LED-26/27
Name of the group: 5th Sem. Bachelor Part-Time TET-LED from 2026/27

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 11 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
16LLA2	**Aircraft 2** *Jan Slezáček, Karel Mündel, Daniel Urban, Karel Hylmar*	Z,ZK	2	2P+1C	Z	z
21LGCE	**Air Navigation** *Jan Slezáček*	Z,ZK	3	2P+0C	Z	z
21LGVP	**Legislation and Operational Regulations** *Martin Černotík Martin Černotík (Gar.)*	ZK	4	3P+0C	Z	z
21ZYT2	**Principles of Flight 2** *Jakub Trýb, Přemysl Vávra* ***Jakub Trýb***	Z,ZK	3	2P+1C	Z	z
22SELN	**Air Accident Investigation** *Karel Mündel, Michal Frydrýn* ***Michal Frydrýn*** *Karel Mündel (Gar.)*	ZK	2	2P+0C	Z	z
14ZDAL	**Data processing in air transport** *Martin Šrotýř* ***Martin Šrotýř*** *Martin Šrotýř (Gar.)*	KZ	2	0P+2C	Z	z
21MEOL	**Meteorology** *Iveta Kameníková* ***Iveta Kameníková***	KZ	3	2P+1C	Z	z
21SYLP	**Airport Security** *Lukáš Popek* ***Lukáš Popek*** *Andrej Lališ (Gar.)*	KZ	2	2P+0C	Z	z
21LGL1	**Aviation English 1** *Jitka Heřmanová* ***Jitka Heřmanová***	Z	2	0P+2C	Z	z
21SBL2	**Bachelor Thesis Seminar 2** *Vladimír Socha, Lenka Hanáková, Marta Urbanová* ***Marta Urbanová***	Z	1	1P+0C	Z	z
15JL3A	**Foreign language - English 3 (for LED)** *Lenka Monková, Markéta Vojanová, Dana Boušová, Marie Michlová, Marek Tomeček, Jan Feit, Markéta Musilová, Peter Morpuss, Jitka Heřmanová, ...*	KZ	2	0P+2C	Z	z

Characteristics of the courses of this group of Study Plan: Code=5S-BK-LED-26/27 Name=5th Sem. Bachelor Part-Time TET-LED from 2026/27

16LLA2	Aircraft 2	Z,ZK	2
Manufacturers responsibility, responsibilities of operator and professional supervising. Legislation in area of airworthiness. International and national standards. Static solidity of aircraft structures. Aeroelasticity. Inherent and operational reliability of aircraft structure. Fatigue strength. Aircraft structure lifetime presumption.			
21LGCE	Air Navigation	Z,ZK	3
Earth - its shape, parameters and properties. Aeronautical charts and their use. Measuring time. Dead reckoning. Radionavigation aids. Global navigation satellite systems. Air traffic services routes and their design.			
21LGVP	Legislation and Operational Regulations	ZK	4
Introduction into aviation regulations. The scope of international and national organizations in civil aviation. Analysis and interpretation of the ICAO Annexes 1-19, ICAO Docs. 4444, 7030, 8168. Introduction to the European Parliament and Council Regulation (EC), Commission Regulation (EU) and the Decisions of the Executive Director of EASA.			
21ZYT2	Principles of Flight 2	Z,ZK	3
Static & dynamic longitudinal stability, neutral point, location of centre of gravity, static directional & lateral stability, dynamic directional & lateral stability, control pitch (longitudinal), yaw (directional) & roll (lateral), roll/yaw interaction, trimming, speed of sound, Mach number, compressibility, shock waves, critical Mach number, aerodynamic heating, operating limitations, manoeuvring envelope, gust-load diagram.			
22SELN	Air Accident Investigation	ZK	2
Introduction and legislation (ICAO, EU, Czechia) related to air accident investigation. Obligations arising from legislative requirements for individual States in the event of an air accident, investigation process. Air accident site (inspector's equipment, site security, personal protection, initial activities at the site, sketch, evidence, etc.). Aircraft and crew documentation. Final report (formalities, substantive content, contribution).			
14ZDAL	Data processing in air transport	KZ	2
Introduction to data processing and analysis tools. Practical part of the training - introduction to the working environment, applied examples of data processing from practice, advanced methods of presentation of the results. Seminar papers on open data. Consultation hours for seminar papers. Seminar paper submission and presentation.			
21MEOL	Meteorology	KZ	3
Structure of atmosphere. Vertical stratification. Pressures QNH, QFE, QFF, QME. Instability. Atmospherical fronts. Atmospherical rainfall, origin fission. Turbulence. Powers causing wind. Cyclone and anticyclone. Gradient wind. Geostrofical and geocyklostrofical wind. Visibilities in air transport. Dangerous meteorological aspects. Meteorological maps. Climatology. Circulation. Intertropical front. Meteorological informations.			
21SYLP	Airport Security	KZ	2
Definition of aviation security and unlawful acts against the civil aviation. Description of threats, risks, causes and goals of Security. Overview of national and international regulations and their relevance to airport security. Security control devices. Operational efficiency factors and related variables. Basic use of queueing theory and optimization tasks.			
21LGL1	Aviation English 1	Z	2
Familiarity with the terminology used in civil aviation in the general context and emphasizing the ability to receive information only in English.			
21SBL2	Bachelor Thesis Seminar 2	Z	1
Methodology of thesis writing (introduction, analysis of the current state, specification of the problem, objectives and hypotheses). Definition of materials and methods, approach to obtaining results, presentation and discussion of results, formulation of thesis conclusions. Basics of LaTeX, working with LaTeX and Word template.			
15JL3A	Foreign language - English 3 (for LED)	KZ	2
Grammar and technical vocabulary. Selection of conversation topics and professional topics based on students´ level and their focus at Faculty of Transportation Sciences. Development of perceptive and communication skills, ability to give feedback, summarization of a technical text, presentation structure, technical style and its usage, language of management.			

Code of the group: 6S-BK-LED-26/27
Name of the group: 6th Sem. Bachelor Part-Time TET-LED from 2026/27

Requirement credits in the group: In this group you have to gain 24 credits
Requirement courses in the group: In this group you have to complete 8 courses
Credits in the group: 24
Note on the group:

Code	Name of the course / Name of the group of courses *(in case of groups of courses the list of codes of their members)* *Tutors,* ***authors*** *and guarantors (gar.)*	Completion	Credits	Scope	Semester	Role
11MSP	**Modeling of Systems and Processes** *Bohumil Kovář, Lucie Kárná* ***Bohumil Kovář*** *Bohumil Kovář (Gar.)*	Z,ZK	4	2P+2C+12B	L	z
21EMIL	**Air Transport Economy** *Peter Vittek* ***Peter Vittek*** *Peter Vittek (Gar.)*	Z,ZK	5	3P+1C	L	z
21LMR1	**Aircraft Engines 1** *Daniel Hanus* ***Daniel Hanus*** *Daniel Hanus (Gar.)*	ZK	3	2P+0C	L	z
21LVYO	**Human Performance and Limitations** *Lenka Hanáková, Boris Oniščenko Vladimír Socha (Gar.)*	ZK	3	2P+0C	L	z
21PAP	**Flight Planning and Performance** *Ladislav Capoušek* ***Ladislav Capoušek***	Z,ZK	4	2P+2C+14B	L	z
21LGL2	**Aviation English 2** *Jitka Heřmanová*	KZ	2	0P+2C	L	z
21SBL3	**Bachelor Thesis Seminar 3** *Lenka Hanáková* ***Lenka Hanáková*** *Lenka Hanáková (Gar.)*	Z	1	1P+0C	L	z
15JL4A	**Foreign language - English 4 (for LED)** *Lenka Monková, Markéta Vojanová, Marie Michlová, Marek Tomeček, Jan Feit, Markéta Musilová, Peter Morpuss, Jitka Heřmanová, Eva Rezlerová, ...*	ZK	2	0P+2C	L	z

Characteristics of the courses of this group of Study Plan: Code=6S-BK-LED-26/27 Name=6th Sem. Bachelor Part-Time TET-LED from 2026/27

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.			
21EMIL	Air Transport Economy	Z,ZK	5
The course focuses on the fundamentals of economics, providing students with an understanding of accounting principles and role of financial statements. In the second part, the course builds on the general knowledge acquired and applies it to the environment of air transport economics. The basic principle is the Holloway model, which structures knowledge about demand, price and yield on the one hand, and supply, costs and expenses on the other.			
21LMR1	Aircraft Engines 1	ZK	3
Aircraft piston engine, theoretical background, operational characteristics and construction schemes. Propellers, operational characterictics. Turbine engine, theoretical background, thermal cycles, construction schemes, operational characteristics. Turbojet and turbofan engines, basic construction modules, and their operational characteristics. Engine control.			
21LVYO	Human Performance and Limitations	ZK	3
Human performace & limitations, aptibility & competence, accident statistics, flight safety, basics of flight physiology, man & environment, breathing & circulation, sensory system, health & hygiene, health preservation, intoxication, incapacitation, basics of flight psychology, human information processing, memory & learning, theory & model of human error, body rhythms & sleep, stress, fatigue, working methods.			
21PAP	Flight Planning and Performance	Z,ZK	4
Mass and balance. Load of aircraft. Determination of centre of gravity - loadsheet, trimsheet. Aircraft weighing. Overloading of aircraft. Basic characteristic speeds. Runway characteristics. Take off and landing performance. Drift down. ETOPS. MEL. Flight planning and monitoring. Routing. FL and speeds selection. Charts. ICAO ATC FPL. Aerodrom operation minimums. Fuel plan. Operational flight plan.			
21LGL2	Aviation English 2	KZ	2
Terminology in the sphere of aircraft construction, principles of flight, aircraft engines, instruments and systems.			
21SBL3	Bachelor Thesis Seminar 3	Z	1
Formal and graphic design of the thesis. Data collection and presentation, basic statistical reasoning, validation of results and designs. Achieving the objectives of the thesis and evaluation of hypothesis tests. Preparation of the presentation, principles of presentation of the thesis.			
15JL4A	Foreign language - English 4 (for LED)	ZK	2
Grammar and technical vocabulary. Selection of conversation topics and professional topics based on students´ level and their focus at Faculty of Transportation Sciences. Development of perceptive and communication skills, ability to give feedback, summarization of a technical text, presentation structure, technical style and its usage, language of management.			

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.			
11EMO	Electromagnetic Field and Optics	Z,ZK	4
Electric field. Electric current. Magnetic field. Electromagnetic field. Optics. Basics of solid-state physics.			

11FYZ	Physics	Z,ZK	5
Kinematics, dynamics, Newton's laws, force fields, mechanics of continuum, thermodynamics, introduction to electrostatics and 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.			
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.			
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.			
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.			
12ZADK	Introduction to Transportation Engineering	Z,ZK	5
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.			
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.			
14PGP	Program Resources	Z	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).			
14ZDAL	Data processing in air transport	KZ	2
Introduction to data processing and analysis tools. Practical part of the training - introduction to the working environment, applied examples of data processing from practice, advanced methods of presentation of the results. Seminar papers on open data. Consultation hours for seminar papers. Seminar paper submission and presentation.			
15JL2A	Foreign language - English 2 (for LED)	KZ	2
Grammar and technical vocabulary. Selection of conversation topics and professional topics based on students´ level and their focus at Faculty of Transportation Sciences. Development of perceptive and communication skills, ability to give feedback, summarization of a technical text, presentation structure, technical style and its usage, language of management.			
15JL3A	Foreign language - English 3 (for LED)	KZ	2
Grammar and technical vocabulary. Selection of conversation topics and professional topics based on students´ level and their focus at Faculty of Transportation Sciences. Development of perceptive and communication skills, ability to give feedback, summarization of a technical text, presentation structure, technical style and its usage, language of management.			
15JL4A	Foreign language - English 4 (for LED)	ZK	2
Grammar and technical vocabulary. Selection of conversation topics and professional topics based on students´ level and their focus at Faculty of Transportation Sciences. Development of perceptive and communication skills, ability to give feedback, summarization of a technical text, presentation structure, technical style and its usage, language of management.			
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.			
16LLA1	Aircraft 1	KZ	3
Aircraft structural and conceptual design types - definitions and basic knowledge of the problem. Development of requirements, aircraft definitions and categorisation. Aircraft loadings. Systems of primary and secondary airframe structure. Airframe and propulsion unit. Lectures are devoted to aeroplane topics.			
16LLA2	Aircraft 2	Z,ZK	2
Manufacturers responsibility, responsibilities of operator and professional supervising. Legislation in area of airworthiness. International and national standards. Static solidity of aircraft structures. Aeroelasticity. Inherent and operational reliability of aircraft structure. Fatigue strength. Aircraft structure lifetime presumption.			
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.			
17TEDK	Transport Technology and Logistics	KZ	4
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.			

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.			
18TKK	Technical Drawing and Designing	KZ	4
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.			
21EMIL	Air Transport Economy	Z,ZK	5
The course focuses on the fundamentals of economics, providing students with an understanding of accounting principles and role of financial statements. In the second part, the course builds on the general knowledge acquired and applies it to the environment of air transport economics. The basic principle is the Holloway model, which structures knowledge about demand, price and yield on the one hand, and supply, costs and expenses on the other.			
21LEIS	Aerodromes	Z,ZK	3
Basic definitions. Applicability. Airport design. Reference code. Declared distances of runways (RWY). Taxiways and aprons. Clearway. Stopway. Markings of movement areas. Markings. Signs. Markers. Visual aids for denoting obstacles. Obstacle restriction, removal. Visual aids for navigation, lights, approach lighting systems. Visual approach slope indicator systems. Runway lights. Taxiway lights. Visual aids for denoting obstacles.			
21LGCE	Air Navigation	Z,ZK	3
Earth - its shape, parameters and properties. Aeronautical charts and their use. Measuring time. Dead reckoning. Radionavigation aids. Global navigation satellite systems. Air traffic services routes and their design.			
21LGL1	Aviation English 1	Z	2
Familiarity with the terminology used in civil aviation in the general context and emphasizing the ability to receive information only in English.			
21LGL2	Aviation English 2	KZ	2
Terminology in the sphere of aircraft construction, principles of flight, aircraft engines, instruments and systems.			
21LGVP	Legislation and Operational Regulations	ZK	4
Introduction into aviation regulations. The scope of international and national organizations in civil aviation. Analysis and interpretation of the ICAO Annexes 1-19, ICAO Docs. 4444, 7030, 8168. Introduction to the European Parliament and Council Regulation (EC), Commission Regulation (EU) and the Decisions of the Executive Director of EASA.			
21LMR1	Aircraft Engines 1	ZK	3
Aircraft piston engine, theoretical background, operational characteristics and construction schemes. Propellers, operational characterictics. Turbine engine, theoretical background, thermal cycles, construction schemes, operational characteristics. Turbojet and turbofan engines, basic construction modules, and their operational characteristics. Engine control.			
21LVYO	Human Performance and Limitations	ZK	3
Human performace & limitations, aptibility & competence, accident statistics, flight safety, basics of flight physiology, man & environment, breathing & circulation, sensory system, health & hygiene, health preservation, intoxication, incapacitation, basics of flight psychology, human information processing, memory & learning, theory & model of human error, body rhythms & sleep, stress, fatigue, working methods.			
21MEOL	Meteorology	KZ	3
Structure of atmosphere. Vertical stratification. Pressures QNH, QFE, QFF, QME. Instability. Atmospherical fronts. Atmospherical rainfall, origin fission. Turbulence. Powers causing wind. Cyclone and anticyclone. Gradient wind. Geostrofical and geocyklostrofical wind. Visibilities in air transport. Dangerous meteorological aspects. Meteorological maps. Climatology. Circulation. Intertropical front. Meteorological informations.			
21PAP	Flight Planning and Performance	Z,ZK	4
Mass and balance. Load of aircraft. Determination of centre of gravity - loadsheet, trimsheet. Aircraft weighing. Overloading of aircraft. Basic characteristic speeds. Runway characteristics. Take off and landing performance. Drift down. ETOPS. MEL. Flight planning and monitoring. Routing. FL and speeds selection. Charts. ICAO ATC FPL. Aerodrom operation minimums. Fuel plan. Operational flight plan.			
21RELP	Air Traffic Control	Z,ZK	4
21RIBZ	Aviation Safety	KZ	2
The course contains topics related to the safety management and structure of the SMS. This includes a description of the SMS mechanisms and tools, used to ensure the safe operations. During the course, students are continuously working on the semestral assignment, which helps them to understand practical application of the SMS.			
21SBL1	Bachelor Thesis Seminar 1	Z	1
Types of thesis (review, applied research, basic research, thesis dealing with design proposals). Working with citation sources (citation sources, citation databases, citation styles, how to cite). Analyzing the state of the art (standards of research writing). Defining the limitations of the state of the art. Introduction to the thesis methodology.			
21SBL2	Bachelor Thesis Seminar 2	Z	1
Methodology of thesis writing (introduction, analysis of the current state, specification of the problem, objectives and hypotheses). Definition of materials and methods, approach to obtaining results, presentation and discussion of results, formulation of thesis conclusions. Basics of LaTeX, working with LaTeX and Word template.			
21SBL3	Bachelor Thesis Seminar 3	Z	1
Formal and graphic design of the thesis. Data collection and presentation, basic statistical reasoning, validation of results and designs. Achieving the objectives of the thesis and evaluation of hypothesis tests. Preparation of the presentation, principles of presentation of the thesis.			
21SYLP	Airport Security	KZ	2
Definition of aviation security and unlawful acts against the civil aviation. Description of threats, risks, causes and goals of Security. Overview of national and international regulations and their relevance to airport security. Security control devices. Operational efficiency factors and related variables. Basic use of queueing theory and optimization tasks.			

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.			
21ZT	ATM Systems	ZK	2
The course introduces classical and modern facilities, systems and technologies designated for ATS. Student obtains knowledge of technical principles and solutions as far as communication, navigation and surveillance aviation systems are concerned.			
21ZYT1	Principles of Flight 1	Z,ZK	3
Aerodynamic drag, relation between drag and speed, streamline, boundary layer, formula of continuity, formula of Bernoulli, lift and drag, air flow and pressures around wing, angle of attack, reactions of wing in air flow, lift and drag of a wing and an aircraft, coefficient of lift and drag, critical angle of attack, wing with final span, induced drag, interference, devices for lift and drag increase.			
21ZYT2	Principles of Flight 2	Z,ZK	3
Static & dynamic longitudinal stability, neutral point, location of centre of gravity, static directional & lateral stability, dynamic directional & lateral stability, control pitch (longitudinal), yaw (directional) & roll (lateral), roll/yaw interaction, trimming, speed of sound, Mach number, compressibility, shock waves, critical Mach number, aerodynamic heating, operating limitations, manoeuvring envelope, gust-load diagram.			
22SELN	Air Accident Investigation	ZK	2
Introduction and legislation (ICAO, EU, Czechia) related to air accident investigation. Obligations arising from legislative requirements for individual States in the event of an air accident, investigation process. Air accident site (inspector's equipment, site security, personal protection, initial activities at the site, sketch, evidence, etc.). Aircraft and crew documentation. Final report (formalities, substantive content, contribution).			

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