Study plan

Name of study plan: DOS bak.prez.21/22

Faculty/Institute/Others:

Department:

Branch of study guaranteed by the department: Welcome page

Garantor of the study branch:

Program of study: Technology in Transportation and Telecommunications

Type of study: Bachelor full-time

Required credits: 180 Elective courses credits: 0 Sum of credits in the plan: 180

Note on the plan:

Name of the block: Compulsory courses Minimal number of credits of the block: 140

The role of the block: Z

Code of the group: 1.S.BP 20/21

Name of the group: 1.sem.bak.prez. (od) 20/21 (pro B3710)

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

Requirement courses in the group: In this group you have to complete 11 courses

Credits in the group: 30 Note on the group:

| Code | Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.) | Completion | Credits | Scope | Semester | Role |
|--------|--|------------|---------|-----------|----------|------|
| 11CAL1 | Calculus 1 Olga Vraštilová, Tomáš Tasák, Magdalena Hykšová, Bohumil Ková, Ond ej Navrátil Bohumil Ková Ond ej Navrátil (Gar.) | Z,ZK | 7 | 2P+4C+22B | Z | Z |
| 11LA | Linear Algebra Lucie Kárná, Pavel Provinský, Martina Be vá ová Martina Be vá ová Martina Be vá ová (Gar.) | Z,ZK | 3 | 2P+1C+10B | Z | Z |
| 12ZYDI | Introduction to Transportation Engineering Vojt ch Novotný, Zuzana arská, Dagmar Ko árková | Z,ZK | 2 | 1P+1C | Z | Z |
| 18MTY | Materials Science and Engineering Nela Kr má ová, Jan Falta, Radim Dvo ák, Václav Rada, Jitka ezní ková, Jaroslav Valach, Jaroslav Valach Jaroslav Valach (Gar.) | Z,ZK | 3 | 2P+1C+10B | Z | Z |
| 11GIE | Geometry Pavel Provinský, Old ich Hykš, Šárka Vorá ová Old ich Hykš Old ich Hykš (Gar.) | KZ | 3 | 2P+2C+12B | Z | Z |
| 14ASD | Algorithm and Data Structures Jana Kaliková, Jan Kr ál, Tomáš Brandejský, Michal Je ábek, Marek Kalika, Zden k Lokaj, Alena Plašilová, Jan Procházka, Martin Šrotý, Vít Fábera Vít Fábera (Gar.) | KZ | 3 | 0P+2C+8B | Z | Z |
| 14KSP | Constructing with Computer Aid Martin Brumovský, Martin Fiala, Radek Kratochvíl, Lukáš Svoboda, Jan Vogl, Drahomír Schmidt Lukáš Svoboda Drahomír Schmidt (Gar.) | KZ | 2 | 0P+2C+8B | Z | Z |
| 18TED | Technical Documentation Jitka ezní ková, Vít Malinovský Jitka ezní ková (Gar.) | KZ | 2 | 1P+1C+8B | Z | Z |
| 15DPLG | Transportation Psychology Eva Rezlerová, Jana Štikarová | Z | 2 | 2P+0C+6B | Z | Z |
| 16UDOP | Introduction into Vehicles Zuzana Radová, Petr Bouchner | Z | 2 | 2P+0C+8B | Z | Z |
| TV-1 | Physical Education | Z | 1 | | Z | Z |

Characteristics of the courses of this group of Study Plan: Code=1.S.BP 20/21 Name=1.sem.bak.prez. (od) 20/21 (pro B3710)

their applications. Scalar product. Similarity of matrices (eigenvalues and eigenvectors). Quadratic forms and their classification.

| 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. Geometric properties of n-dimensional Euklidean space and | | | | | | | |
| Cartesian coordinate system. Geometric meaning of the differential of functions several real variables, differential calculus of functions of several real variables. | | | | | | | |

11LA Linear Algebra Z,ZK Vector spaces (linear combinations, linear independence, dimension, basis, coordinates). Matrices and operations. Systems of linear equations and their solvability. Determinants and

| 12ZYDI | Introduction to Transportation Engineering | Z,ZK | 2 | | | | | |
|---|--|----------------------|-------------------|--|--|--|--|--|
| Role of transportation in land-use planning. Basic terms in transportation engineering. Traffic survey and traffic prognosis. Introduction to topic of roads, public mass transport. Negative | | | | | | | | |
| impacts of transportation | to environment and safety. | | | | | | | |
| 18MTY | Materials Science and Engineering | Z,ZK | 3 | | | | | |
| Basic course of material | s science and engineering explains mechanical properties of structural materials based on their bonding forces and microstru | cture. However th | e main attention | | | | | |
| is paid to metals as the r | nost important engineering materials, also other major classes of materials are presented, namely ceramics, polymers and o | composites. Atten | tion is also paid | | | | | |
| to degradation processe | s 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, th | e velocity, and | | | | | |
| acceleration of a particle | moving on a curved path. | | | | | | | |
| 14ASD | Algorithm and Data Structures | KZ | 3 | | | | | |
| Students will be familiaria | zed with selected basic and derived data structures, algorithms, their properties and their design procedure. Students will ana | yze problems, pro | pose 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 basic | s of Boolean | | | | | |
| algebra with forming the | conditions for the algorithms. | | | | | | | |
| 14KSP | Constructing with Computer Aid | KZ | 2 | | | | | |
| "CAD systems" term det | ermination. CAD role in projecting system model. Existing CAD systems on Czech market. Project creation, basic common v | vork rules in grap | hic applications | | | | | |
| and CA systems. Co-ord | inated systems, CAD environment skill (basics of constructing, dimensioning, modifications, user interfaces, projecting possi | bilites, AutoCAD | environment | | | | | |
| profiles, drawings with ra | ster foundaments). | | | | | | | |
| 18TED | Technical Documentation | KZ | 2 | | | | | |
| Technical standards, inte | ernational standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimension | al and geometrica | al accuracy, | | | | | |
| arrangement of drawing | sheets. | | | | | | | |
| 15DPLG | Transportation Psychology | Z | 2 | | | | | |
| Subject of psychology ar | nd its basic concepts. Information intake, decision-making and behaviour. Performance. Engineering psychology and vehicle co | nstruction. Psych | ological 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 o | peration. | | | | | | |
| 16UDOP | Introduction into Vehicles | Z | 2 | | | | | |
| Vehicles and transportat | ion systems. Functionality and setup. Movement and drive principles. Engines and their characteristics. Rail, road, air and w | ater transport. Alte | ernative means | | | | | |
| of transport. Lifting equip | oment and conveyors. Legislation. | | | | | | | |
| TV-1 | Physical Education | Z | 1 | | | | | |
| ı | - | l | | | | | | |

Code of the group: 2.S.BP 20/21

Name of the group: 2.sem.bak.prez. (od) 20/21 (pro B3710)

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

Requirement courses in the group: In this group you have to complete 9 courses

Credits in the group: 30 Note on the group:

| Note on the gro | oup. | | | | | |
|-----------------|---|------------|---------|-----------|----------|------|
| Code | Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.) | Completion | Credits | Scope | Semester | Role |
| 11CAL2 | Calculus 2 Olga Vraštilová, Tomáš Tasák, Magdalena Hykšová, Ond ej Navrátil, Old ich Hykš Ond ej Navrátil Ond ej Navrátil (Gar.) | Z,ZK | 5 | 2P+3C+20B | L | Z |
| 11STAT | Statistics Pavel Provinský, Evženie Uglickich, Pavla Pecherková, Michal Matowicki, Natálie Blahitka, Ivan Nagy Pavla Pecherková Evženie Uglickich (Gar.) | Z,ZK | 4 | 2P+2C+12E | L | Z |
| 12ZTS | Railway Lines and Stations Lukáš Týfa, Petr Šatra, Martin Jacura, Tomáš Javo ík, Ond ej Trešl Lukáš Týfa (Gar.) | Z,ZK | 4 | 2P+2C+10B | L | Z |
| 18SAT | Structural Analysis Nela Kr má ová, Jan Falta, Jitka ezní ková, Daniel Kytý, Jan Vy ichl, Tomáš Doktor, Jan Šleichrt Daniel Kytý (Gar.) | Z,ZK | 4 | 2P+2C+14B | L | Z |
| 20SYSA | Systems Analysis Zuzana B linová, Ji í R ži ka, Petr Bureš Zuzana B linová (Gar.) | Z,ZK | 5 | 2P+2C+14B | L | Z |
| 14PRG | Programming Jana Kaliková, Jan Kr ál, Alena Plašilová, Jan Procházka, Martin Fiala, Lukáš Svoboda Jana Kaliková Jana Kaliková (Gar.) | KZ | 2 | 0P+2C+8B | L | Z |
| 17TEDL | Transport Technology and Logistics Vít Janoš, Michal Drábek, Zden k Michl, Milan K íž, Rudolf Vávra Zden k Michl Vít Janoš (Gar.) | KZ | 3 | 2P+1C | L | Z |
| 21ZALD | Basics of Air Transport Jakub Hospodka, Tomáš Tlu ho , Ji í Volt, Peter Olexa, Jan Slezá ek, Jakub Trýb | KZ | 2 | 0P+2C+8B | L | Z |
| TV-2 | Physical Education | Z | 1 | | L | Z |

Characteristics of the courses of this group of Study Plan: Code=2.S.BP 20/21 Name=2.sem.bak.prez. (od) 20/21 (pro B3710)

11CAL2 Calculus 2
Indefinite integral, Newtonian integral, Riemannian integral of the function of one variable, improper Riemannian integral, Riemannian integral in Rn. Parametric description of regular k-dimensional surfaces in Rn, Riemannian integral over regular surfaces. Line and surface integrals of the second type, Stokes theorems, ordinary differential equations of the first order, linear differential equations with constant coefficients and its systems

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. Railv | vay track geometry parameters. Route layout of railway lines. Railway line construction - railway substructure and superstructu | re. Spatial layout of r | ailway lines. |
| Railway control sys | tems 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 f | orces in plane and space. Calculation of reactions of bodies and structures. Assessment of internal forces on statically determ | inate beams and sin | nple girders. |
| Principle of virtual w | ork. Kinematic method for calculation of reactions of statically determinate systems. Determination of axial forces in truss construc | ctions. Cross-section | al characteristics |
| of planar shapes. Fi | ber polygons and chains. | | |
| 20SYSA | Systems Analysis | Z,ZK | 5 |
| Introduction to syste | em sciences, system viewpoint, terminology, typical system analysis tasks, system identification, system interface and interface | tasks, processes, s | ystem behaviour |
| and its analysis, stre | ong functions and processes, genetic code, system identity, system architecture. Tools for system analysis - Petri nets, decisio | n tables, algorithms | for structural |
| tasks. Soft and hard | systems, methods for soft system analysis. | | |
| 4.4000 | Dan and an arian | 1/7 | _ |
| 14PRG | Programming | KZ | 2 |
| _ | Programming mming builds on and fully extends the course 14ASD (Algorithmization and Data Structures). The knowledge of the Python pro | | _ |
| The Course Program | | ogramming language | e is expanded |
| The Course Programhere so that the par | mming builds on and fully extends the course 14ASD (Algorithmization and Data Structures). The knowledge of the Python pro | ogramming language | e is expanded |
| The Course Programhere so that the par | mming builds on and fully extends the course 14ASD (Algorithmization and Data Structures). The knowledge of the Python proticipant gains skills and can apply them to solve various follow-up tasks. Main topics: lists, multidimensional arrays, sorting and | ogramming language | e is expanded |
| The Course Programmere so that the par working with date a 17TEDL | mming builds on and fully extends the course 14ASD (Algorithmization and Data Structures). The knowledge of the Python pro ticipant gains skills and can apply them to solve various follow-up tasks. Main topics: lists, multidimensional arrays, sorting and and time, regular expressions, functions and procedures, working with files (CSV, JSON, XML). | ogramming language searching, tuples, s | e is expanded ets, dictionaries, |
| The Course Programmere so that the parameter working with date a 17TEDL Basic terms in trans | mming builds on and fully extends the course 14ASD (Algorithmization and Data Structures). The knowledge of the Python proticipant gains skills and can apply them to solve various follow-up tasks. Main topics: lists, multidimensional arrays, sorting and not time, regular expressions, functions and procedures, working with files (CSV, JSON, XML). Transport Technology and Logistics | ogramming language searching, tuples, s KZ nt transport, organisa | e is expanded ets, dictionaries, |
| The Course Programmere so that the parameter working with date a 17TEDL Basic terms in trans | mming builds on and fully extends the course 14ASD (Algorithmization and Data Structures). The knowledge of the Python proticipant gains skills and can apply them to solve various follow-up tasks. Main topics: lists, multidimensional arrays, sorting and and time, regular expressions, functions and procedures, working with files (CSV, JSON, XML). Transport Technology and Logistics sport technology and logistics, particular steps of transport planning, line planning, timetabling, planning in pasanger and freight | ogramming language searching, tuples, s KZ nt transport, organisa | e is expanded ets, dictionaries, |
| The Course Prograin here so that the part working with date a 17TEDL Basic terms in transeach transport mod 21ZALD | mming builds on and fully extends the course 14ASD (Algorithmization and Data Structures). The knowledge of the Python proticipant gains skills and can apply them to solve various follow-up tasks. Main topics: lists, multidimensional arrays, sorting and not time, regular expressions, functions and procedures, working with files (CSV, JSON, XML). Transport Technology and Logistics sport technology and logistics, particular steps of transport planning, line planning, timetabling, planning in pasanger and freightus, technologic factors of the side of operator and client, organisation of city transport, logistic technologies and their aplication. | searching, tuples, s KZ ht transport, organism using various trans KZ | e is expanded ets, dictionaries, 3 ation of traffic in sport modus. |
| The Course Programmere so that the part working with date and 17TEDL Basic terms in transport mod 21ZALD History, definitions, to | mming builds on and fully extends the course 14ASD (Algorithmization and Data Structures). The knowledge of the Python proticipant gains skills and can apply them to solve various follow-up tasks. Main topics: lists, multidimensional arrays, sorting and not time, regular expressions, functions and procedures, working with files (CSV, JSON, XML). Transport Technology and Logistics sport technology and logistics, particular steps of transport planning, line planning, timetabling, planning in pasanger and freight us, technologic factors of the side of operator and client, organisation of city transport, logistic technologies and their aplication. Basics of Air Transport | searching, tuples, s KZ ht transport, organism using various trans KZ gation. Weight, balance | e is expanded ets, dictionaries, ation of traffic in sport modus. |
| The Course Programmere so that the part working with date and 17TEDL Basic terms in transport mod 21ZALD History, definitions, to Flight planning, opti | mming builds on and fully extends the course 14ASD (Algorithmization and Data Structures). The knowledge of the Python proticipant gains skills and can apply them to solve various follow-up tasks. Main topics: lists, multidimensional arrays, sorting and not time, regular expressions, functions and procedures, working with files (CSV, JSON, XML). Transport Technology and Logistics sport technology and logistics, particular steps of transport planning, line planning, timetabling, planning in pasanger and freightus, technologic factors of the side of operator and client, organisation of city transport, logistic technologies and their aplication. Basics of Air Transport terminology, basic rules. VFR/IFR. Basics of aerodynamics. Propulsion of aircraft. Aircraft design. Basics of navigation, radio navige. | searching, tuples, s KZ ht transport, organism using various trans KZ gation. Weight, balance | e is expanded ets, dictionaries, ation of traffic in sport modus. |

Code of the group: 3.S.BP 20/21

Name of the group: 3.sem.bak.prez. (od) 20/21 (pro B3710)

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:

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|---------------|---|------------|---------|-----------|----------|------|
| Code | Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.) | Completion | Credits | Scope | Semester | Role |
| 11FYZ | Physics Old ich Hykš, Zuzana Malá, Tomáš Vít , Jana Kuklová Zuzana Malá Zuzana Malá (Gar.) | Z,ZK | 5 | 2P+2C+18E | B Z | Z |
| 12MDE | Transport Models and Transport Excesses Milan Dont, Josef Kocourek | Z,ZK | 3 | 2P+1C+8E | 3 Z | Z |
| 17TGA | Graph Theory and its Applications in Transport Alena Rybi ková, Denisa Mocková, Dušan Teichmann | Z,ZK | 4 | 2P+2C+12E | B Z | Z |
| 18PZP | Elasticity and Strength Nela Kr má ová, Jan Falta, Radim Dvo ák, Jitka ezní ková, Daniel Kytý, Jan Vy ichl, Tomáš Doktor, Jan Šleichrt, Tomáš Fíla, | Z,ZK | 3 | 2P+1C+10E | B Z | Z |
| 20UITS | Introduction to Intelligent Transport Systems Ji í R ži ka, Patrik Horaž ovský, Kristýna Navrátilová, Viktor Beneš, Eva Haj iarová, Martin Langr, Vladimír Faltus, Pavel Hrubeš | Z,ZK | 7 | 3P+2C+20E | B Z | Z |
| 12PPOK | Designing Roads, Highways and Motorways Petr Šatra, Josef Kocourek, Tomáš Pad lek, Petr Kumpošt | KZ | 3 | 1P+2C+10E | B Z | Z |
| 14DATS | Database Systems Jana Kaliková, Jan Kr ál Jana Kaliková Jana Kaliková (Gar.) | KZ | 2 | 1P+1C+10E | 3 Z | Z |
| 15JZ1A | Foreign Language - English 1 Eva Rezlerová, Markéta Vojanová, Dana Boušová, Marie Michlová, Barbora Horá ková, Marek Tome ek, Jan Feit, Markéta Musilová, Peter Morpuss, | Z | 3 | 0P+4C+10E | B Z | Z |

Characteristics of the courses of this group of Study Plan: Code=3.S.BP 20/21 Name=3.sem.bak.prez. (od) 20/21 (pro B3710)

| 11FYZ | Physics | Z,ZK | 5 |
|------------------------|--|----------------------|--------------------|
| Kinematics, particle | lynamics, dynamics of particle systems and rigid body. Continuum mechanics, thermodynamics. | | ' |
| 12MDE | Transport Models and Transport Excesses | Z,ZK | 3 |
| Parameters of the tra | ffic flow and methods for their measurement. Models of the traffic flow, communications load, line and urban systems. Theory o | f queues, shock w | vaves. Quality of |
| transport and its ass | essment. Statistical characteristics of transport. Transport excesses, their analysis, the causes, identify and minimize the conse | quences. Improvin | g of transport |
| safety and fluency. | | | |
| 17TGA | Graph Theory and its Applications in Transport | Z,ZK | 4 |
| Basic terms of graph | theory, paths in graphs, flows in networks, location problems, design problems on graphs, optimum routing, use of graphs in ot | her scientific disci | plines. |
| 18PZP | Elasticity and Strength | Z,ZK | 3 |
| Tension and compre | sion. Bending of beam. Shear stress in bending of beam. Design and analysis of cross section of beam. Design of riveted, bolt | ed and welded joir | nts 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 legi | lative framework telematics systems and their architecture. Telematics systems in practice and their operation. Fundamentals of in | nformation and tel | ecommunication |
| systems for ITS. Prin | ciples and technical support measurement of traffic data, localization and navigation. Practical work with traffic data. Real examples | ples of possible ap | oplications of the |
| principles of ITS. | | | |

12PPOK Designing Roads, Highways and Motorways

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

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

Code of the group: 4.S.BDOS VÝB R1 18/1

Name of the group: 4.sem.DOS 1.výb r p edm tu (od) 18/19

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

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

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

Credits in the group: 4 Note on the group:

| 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 |
|--------|---|------------|---------|-------|----------|------|
| 11EMOP | Electromagnetic Field and Optics Old ich Hykš, Zuzana Malá, Tomáš Vít Tomáš Vít Tomáš Vít (Gar.) | Z,ZK | 4 | 2P+2C | L | Z |
| 12DOPS | Traffic Surveys and Simulations | Z,ZK | 4 | 2P+2C | L | Z |

Characteristics of the courses of this group of Study Plan: Code=4.S.BDOS VÝB R1 18/1 Name=4.sem.DOS 1.výb r p edm tu (od) 18/19

| 11EMOP | Electromagnetic Field and Optics | Z,ZK | 4 | | | | |
|---|----------------------------------|------|---|--|--|--|--|
| Electric field. Electric current. Magnetic field. Electromagnetic field. Optics. Basics of solid-state physics. | | | | | | | |
| 12DOPS | Traffic Surveys and Simulations | Z,ZK | 4 | | | | |
| Theory of traffic flow. Methods of monitoring - profile, spatially time. Automatic traffic counts. Security parameters - accidents, near-misses. Surveys in public transport. Overview of | | | | | | | |
| traffic microsimulation models. Getting to know the working environment applications. Explanation of movement of vehicles in the traffic system. Creating and simulation of microscopic | | | | | | | |

Ineory of traffic flow. Methods of monitoring - profile, spatially time. Automatic traffic counts. Security parameters - accidents, near-misses. Surveys in public transport. Overview of traffic microsimulation models. Getting to know the working environment applications. Explanation of movement of vehicles in the traffic system. Creating and simulation of microscopic traffic model. Evaluation of the output characteristics. 4D visualization model.

Code of the group: 4.S.BDOS VÝB R2 17/1

Name of the group: 4.sem.DOS 2.výb r p edm tu (od) 17/18

Requirement credits in the group: In this group you have to gain 2 credits

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

Credits in the group: 2 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 |
|-------|---|------------|---------|-------|----------|------|
| 11MDS | Collection and Processing of Traffic Data | KZ | 2 | 2P+0C | L | Z |
| 18TK | Theory of Structures | KZ | 2 | 2P+0C | L | Z |

Characteristics of the courses of this group of Study Plan: Code=4.S.BDOS VÝB R2 17/1 Name=4.sem.DOS 2.výb r p edm tu (od) 17/18

| 11MDS | Collection and Processing of Traffic Data | KZ | 2 | | | |
|--|--|----|---|--|--|--|
| Basic principles of traffic detection and data collection, specific problems of the field of traffic data. Data preprocessing and analysis for use in additional applications. | | | | | | |
| 18TK | Theory of Structures | KZ | 2 | | | |
| Deformation in plane, p | Deformation in plane, principle of virtual work. Force (flexibility) method. Aplication of force method to frame analysis. Displacement (stiffness) method. Simplified and general stiffness | | | | | |
| method. Mathematical foundations of elasticity. Static analysis of complex statically indeterminate structure. Energy methods for beam analysis. Lagrange variational principle. Winkler | | | | | | |
| model of elastic foundation. Pasternak model of elastic foundation. | | | | | | |

Code of the group: 4.S.BDOS VÝB R3 17/1

Name of the group: 4.sem.DOS 3.výb r p edm tu (od) 17/18

Requirement credits in the group: In this group you have to gain 2 credits

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

Credits in the group: 2 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 | |
|-------|---|------------|---------|-------|----------|------|--|
| 14PPD | Computer Aid of Transportation Projecting | KZ | 2 | 0P+2C | L | Z | |
| 18POM | Advanced Materials | KZ | 2 | 0P+2C | L | Z | |

Characteristics of the courses of this group of Study Plan: Code=4.S.BDOS VÝB R3 17/1 Name=4.sem.DOS 3.výb r p edm tu (od) 17/18

14PPD Computer Aid of Transportation Projecting

ΚZ

. | 2

Overview of CAx application for transportation projecting aid. AutoCAD environment possibilities of basic tasks automatizing (programming, scripting, data exchange). Advanced blocks modification (attributes, relation to databases). Work in projecting group, external references. Basic tasks for cummunication projecting (clotoidic transition curve, cross and longitudinal section). Basics of 3D modelling.

18POM Advanced Materials

ΚZ

| 2

The knowledge gained in primary materials course is further developed. In greater physical detail it explains dynamics of structure defects, phase diagrams of binary systems and other concepts. Special processes of structure control are discussed. The gained knowledge is utilized on description of contemporary technologies of material production for key industrial applications.

Code of the group: 5.S.BDOS 19/20

Name of the group: 5.sem.DOS bak.prez. (od) 19/20 (pro B3710)

Requirement credits in the group: In this group you have to gain 18 credits

Requirement courses in the group: In this group you have to complete 5 courses

Credits in the group: 18 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 |
|--------|--|------------|---------|-------|----------|------|
| 12MKOD | City Rail Transport Ond ej Trešl | Z,ZK | 5 | 2P+1C | Z | Z |
| 12ZELP | Railway Operation Martin Jacura, Tomáš Javo ík | Z,ZK | 4 | 2P+2C | Z | Z |
| 16DYJ | Vehicle Dynamics | Z,ZK | 3 | 2P+1C | Z | Z |
| 22PRES | Road Traffic Accidents Prevention | KZ | 4 | 2P+1C | Z | Z |
| 22UAN | Road Traffic Accidents Analysis Introduction | KZ | 2 | 1P+2C | Z | Z |

Characteristics of the courses of this group of Study Plan: Code=5.S.BDOS 19/20 Name=5.sem.DOS bak.prez. (od) 19/20 (pro B3710)

12MKOD | City Rail Transport | Z,ZK | 5
City and suburban rail transport. Tram lines layout and city roads. Tram track geometry parameters. Tram track superstructure. Turnouts and other construction of tram lines. Tram stops and turn space. Underground and its basic characteristics. Underground nets in the world and undeground history in Prague. Underground track geometry parameters. Underground

track superstructure and substructure. Underground stations. Suburban rail transport.

12ZELP 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.

16DYJ Vehicle Dynamics Z,ZK 3

Application of mechanics. Wheel and axle suspension mechanism. Wheel to road positioning characteristics. Wheel - road contact. Skid and its characteristics. Longitudinal dynamics, acceleration and deceleration. Vertical dynamics, spring suspension, driving characteristics. Directional dynamics, gyroscopical characteristics. Driving stability conditions. Aerodynamic forces. Driving and feedback. ABS. ESP.

22PRES Road Traffic Accidents Prevention

K7

4

Basic relation causes - prevention, collision diagrams, causes of not giving way, initial speed and breaking influence on speed of impact, downhill grade, load transport and fixation, collisions with pedestrians, cyclists and motorcyclists, construction of vehicle breaks, winter conditions, inconvenient road parameters, visibility, anti-slide properties of road surface, solid barriers, assist systems, technical fault of vehicles.

22UAN Road Traffic Accidents Analysis Introduction

KZ

2

Important parameters of road infrastructure, typical vehicle dimensions, distance-time diagram, response time components, backward projection of accidental process, vehicle body post-crash deformation, impact influence on passengers, video documentation, problem who was the driver, documentation, marks analysis, limits of accidental analysis, cornering, critical maneuvring, technical view hindrances, visibility and discriminability, nightfall.

Code of the group: 5.S.BDOS VÝB R 19/20

Name of the group: 5.sem.DOS výb r p edm tu (od) 19/20 (pro B3710) Requirement credits in the group: In this group you have to gain 3 credits

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

Credits in the group: 3 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 |
|--------|---|------------|---------|-------|----------|------|
| 12APE | Applied Ecology | Z | 3 | 2P+0C | Z | Z |
| 12VERD | Public Transport in Cities and Regions Vladimír Pušman | Z | 3 | 2P+0C | Z | Z |

Characteristics of the courses of this group of Study Plan: Code=5.S.BDOS VÝB R 19/20 Name=5.sem.DOS výb r p edm tu (od) 19/20 (pro B3710)

12APE Applied Ecology

Basic ecological principles. The atmosphere, air pollution from transport, smog, traffic share of greenhouse gas emissions. Transport within the different components of the environment. Nature and landscape protection, conflict of highway construction and protected areas NATURA 2000. The current ecological problems of the present. Rating losses from transport,

especially in the context of traffic on the roads and delay construction of transport.

12VERD Public Transport in Cities and Regions

Public transport network design including determination of walking distances, characteristics of usable kind of transport, dimensioning transport capacity of lines, formation of lines, operational parametres of lines, objective way of quality evaluation of transport measures design.

Code of the group: 6.S.BDOS 17/18

Name of the group: 6.sem.DOS bak.prez. (od)17/18

Lirban Bood Troffic and Decign

Requirement credits in the group: In this group you have to gain 10 credits

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

Credits in the group: 10 Note on the group:

12DDM/IZ

| 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 |
|--------|---|------------|---------|----------|----------|------|
| 12PPMK | Urban Road Traffic and Design Josef Kocourek, Tomáš Pad lek, Petr Kumpošt Josef Kocourek (Gar.) | Z,ZK | 4 | 2P+2C | L | Z |
| 17GEDS | Geography of Transport Systems Miroslav Marada Miroslav Marada (Gar.) | KZ | 2 | 2P+0C+8B | L | Z |
| 22MEMT | Measurement Methods and Technology in Transportation Drahomír Schmidt, Michal Frydrýn, Luboš Nouzovský, Zden k Svatý Drahomír Schmidt (Cox.) | KZ | 4 | 2P+2C | L | Z |

Characteristics of the courses of this group of Study Plan: Code=6.S.BDOS 17/18 Name=6.sem.DOS bak.prez. (od)17/18

| IZPPIVIK | Orban Road Trainc and Design | Z,ZN | 4 | | | | |
|----------------------|---|------|---|--|--|--|--|
| Composition of urban | omposition of urban road, elements and routes for traffic, pedestrian and cycling transport, projection of intersections, roundabouts, calming of traffic, parking, precaution for blir | | | | | | |
| & partially-sighte | d, induction of traffic, organization and regulation of transport. | | | | | | |
| 17GEDS | Geography of Transport Systems | KZ | 2 | | | | |

Regional differentiation of the transport system. Sociogeographic regionalization and its relation to 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.

22MEMT Measurement Methods and Technology in Transportation KZ

Measurement methods in transport, their meaning and use; Geodetic basics in the Czech Republic; Angular, length and height measurements; Principles of mapping, accuracy and errors of geodetic measurements; Surveying and setting out; Challenges of localization, navigation and Global Navigation Satellite Systems; Laser scanning (terrestrial, mobile, UAV); Technical photography and photogrammetry; Dynamic measurements of vehicles; High-speed cameras;

Code of the group: 6.S.BDOS VÝB1 17/18

Name of the group: 6.sem.DOS 1.vvb r p edm tu (od)17/18

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

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

Credits in the group: 4

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 |
|--------|---|------------|---------|-------|----------|------|
| 12OMHD | Public Transport Operation Jan Kruntorád, Martin Jareš, Petr Chmela | Z,ZK | 4 | 2P+2C | L | Z |
| 18DKS | Dynamics of Structures and Systems | Z,ZK | 4 | 2P+2C | L | Z |

Characteristics of the courses of this group of Study Plan: Code=6.S.BDOS VÝB1 17/18 Name=6.sem.DOS 1.výb r p edm tu (od)17/18

| 12OMHD | Public Transport Operation | Z,ZK | 4 |
|--------|----------------------------|------|---|

Project of public transport organisation, project of city public transport network, transportation survey, project of transport parametres, transport graph, route and stops of line, public transport priority, financing of public transport, quality of public transport.

18DKS Dynamics of Structures and Systems

Z,ZK

4

Vibration of systems with multiple degrees of freedom. Natural modes and natural frequencies. Method of stiffness constants, method of elastic constants, other numerical methods. Systems with continuously distributed mass. Matrix form of equations of vibration. Finite element method in dynamics of structures. Solving vibrations by superposition of natural modes Subspace iteration methods. Introduction to nonlinear vibrations.

Code of the group: 6.S.BDOS VÝB2 22/23

Name of the group: 6.sem.DOS 2.výb r p edm tu (od) 22/23

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

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

Credits in the group: 4 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 |
|-------|---|------------|---------|-----------|----------|------|
| 16PAV | Passive Safety Zuzana Radová, Josef Mík Josef Mík (Gar.) | Z,ZK | 4 | 2P+1C | L | Z |
| 17FID | Financing and Investment in Transport Olga Mertlová, Alexandra Dvo á ková Olga Mertlová (Gar.) | Z,ZK | 4 | 2P+1C+12B | L | Z |

Characteristics of the courses of this group of Study Plan: Code=6.S.BDOS VÝB2 22/23 Name=6.sem.DOS 2.výb r p edm tu (od) 22/23

16PAV Passive Safety
Road accident evaluation. Testing and legislation. Crash tests. Carbody properties. Injury mechanics. Restrain systems. Airbags. Road user safety. Mathematic modelling. Post collision safety systems.

17FID Financing and Investment in Transport Z,ZK 4

Sources of financing of transport infrastructure, the role of public administration in the financing and realization of investment in transport, the investment project cycle, subsidy programs and their rules, competition, effectiveness and efficiency of spending public funds, evaluation systems of public projects and programs.

Code of the group: 6.S.BDOS VÝB3 17/18

Name of the group: 6.sem.DOS 3.výb r p edm tu (od)17/18

Requirement credits in the group: In this group you have to gain 3 credits

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

Credits in the group: 3 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 |
|-------|---|------------|---------|----------|----------|------|
| 12ZAR | Introduction to Architectural Design Karel Hájek | Z | 3 | 2P+0C+8B | L | Z |
| 18NMM | Numerical Methods in Mechanics | Z | 3 | 2P+0C | L | Z |

Characteristics of the courses of this group of Study Plan: Code=6.S.BDOS VYB3 17/18 Name=6.sem.DOS 3.vyb r p edm tu (od)17/18

| 12ZAR | Introduction to Architectural Design | Z | 3 | | | | | |
|--|---|---|---|--|--|--|--|--|
| Urbanism and architecture of traffic systems. Bus and trolley-bus transport. Tramway and town tracks. Design of vehicles. Subway. Railway transport. Railway stations. Local | | | | | | | | |
| communications. Interna | ational airports. | | | | | | | |
| 18NMM | Numerical Methods in Mechanics | Z | 3 | | | | | |
| Basics of the most used | asics of the most used numerical methods in structural mechanics. Central difference method, finite element method, finite volume method, boundary element method. Time and | | | | | | | |

spatial discretization schemes. Finite element method: derivation of the basic equations. Stiffness matrix, mass matrix, damping matrix for element and structure. Methods for solving systems of algebraic equations. Numerical integration. Programming the FEM.

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

The role of the block: ZP

Code of the group: XB 4,5,6 13/14

Name of the group: Projekty bak. 4.5.6.sem. (od)13/14 - pro B3710

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

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

Credits in the group: 6 Note on the group:

| Code | Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.) | Completion | Credits | Scope | Semester | Role |
|-------|---|-------------|-----------|-----------|--------------|------|
| 11X31 | Project 1 | Z | 2 | 0P+1C | L | ZP |
| 2X31 | Project 1 | Z | 2 | 0P+1C | L | ZP |
| 4X31 | Project 1 | Z | 2 | 0P+1C | L | ZP |
| 5X31 | Project 1 | Z | 2 | 0P+1C | L | ZP |
| 6X31 | Project 1 | Z | 2 | 0P+1C | L | ZP |
| 7X31 | Project 1 Vít Janoš, Michal Drábek, Zden k Michl, Milan K íž, Rudolf Vávra, Alena Rybi ková, Denisa Mocková, Dušan Teichmann, Olga Mertlová, Václav Baroch (Gar.) | Z | 2 | 0P+1C | L | ZP |
| 18X31 | Project 1 | Z | 2 | 0P+1C | L | ZP |
| 20X31 | Project 1 Ji í R ži ka | Z | 2 | 0P+1C | L | ZP |
| 21X31 | Project 1 Jakub Hospodka, Jakub Kraus, Andrej Lališ, Slobodan Stoji , Lenka Hanáková, Terézia Pilmannová. Peter Vittek, Natalia Guskova, Kate ina Grötschelová | Z | 2 | 0P+1C | L | ZP |
| 22X31 | Project 1 | Z | 2 | 0P+1C | L | ZP |
| 23X31 | Project 1 Milena Macková | Z | 2 | 0P+1C | L | ZP |
| 1X32 | Project 2 | Z | 2 | 0P+2C | Z | ZP |
| 2X32 | Project 2 | Z | 2 | 0P+2C | Z | ZP |
| 4X32 | Project 2 Jana Kaliková, Jan Kr ál | Z | 2 | 0P+2C | Z | ZP |
| 5X32 | Project 2 | Z | 2 | 0P+2C | Z | ZP |
| 6X32 | Project 2 Petr Bouchner, Tereza Kunclová | Z | 2 | 0P+2C | Z | ZP |
| 7X32 | Project 2 Vít Janoš, Michal Drábek, Zden k Michl, Milan K íž, Rudolf Vávra, Alena Rybi ková, Denisa Mocková, Dušan Teichmann, Andrea Hrní ková, | Z | 2 | 0P+2C | Z | ZP |
| 18X32 | Project 2 | Z | 2 | 0P+2C | Z | ZP |
| .0X32 | Project 2 | Z | 2 | 0P+2C | Z | ZP |
| 21X32 | Project 2 Jakub Hospodka, Jakub Kraus, Andrej Lališ, Slobodan Stoji , Lenka Hanáková, Terézia Pilmannová. Peter Vittek, Natalia Guskova, Lukáš Popek, | Z | 2 | 0P+2C | Z | ZP |
| 22X32 | Project 2 | Z | 2 | 0P+2C | Z | ZP |
| 23X32 | Project 2 | Z | 2 | 0P+2C | Z | ZP |
| 1X33 | Project 3 | Z | 2 | 0P+1C | L | ZP |
| 2X33 | Project 3 Dagmar Ko árková, Josef Kocourek, Tomáš Pad lek | Z | 2 | 0P+1C | L | ZP |
| 4X33 | Project 3 Jana Kaliková, Jan Kr ál | Z | 2 | 0P+1C | L | ZP |
| 5X33 | Project 3 | Z | 2 | 0P+1C | L | ZP |
| 6X33 | Project 3 | Z | 2 | 0P+1C | L | ZP |
| 7X33 | Project 3 Vít Janoš, Michal Drábek, Zden k Michl, Milan K íž, Rudolf Vávra, Alena Rybi ková, Denisa Mocková, Dušan Teichmann, Olga Mertlová, Václav Baroch (Gar.) | z | 2 | 0P+1C | L | ZP |
| 8X33 | Project 3 | Z | 2 | 0P+1C | L | ZP |
| 20X33 | Project 3 | Z | 2 | 0P+1C | L | ZP |
| 21X33 | Project 3 Andrej Lališ, Slobodan Stoji , Lenka Hanáková, Terézia Pilmannová, Lukáš Popek, Iveta Kameníková, Milan Kameník, Marek Šudoma, Viktor Valenta, | Z | 2 | 0P+1C | L | ZP |
| 2X33 | Project 3 | Z | 2 | 0P+1C | L | ZP |
| 23X33 | Project 3 | Z | 2 | 0P+1C | L | ZP |
| | s of the courses of this group of Study Plan: Code=XB 4,5,6 13/14 Na | me=Projekty | bak. 4.5. | 6.sem. (c | od)13/14 - p | |
| 1X31 | Project 1 | | | | Z | 2 |
| 2X31 | Project 1 | | | | Z | 2 |
| 4X31 | Project 1 | | | 1 | Z | 2 |

| 11X31 | Project 1 | Z | 2 |
|-------|-----------|---|---|
| 12X31 | Project 1 | Z | 2 |
| 14X31 | Project 1 | Z | 2 |
| 15X31 | Project 1 | Z | 2 |
| 16X31 | Project 1 | Z | 2 |
| 17X31 | Project 1 | Z | 2 |
| 18X31 | Project 1 | Z | 2 |
| 20X31 | Project 1 | Z | 2 |

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

Name of the block: Compulsory courses in the program

Minimal number of credits of the block: 20

The role of the block: P

Code of the group: 4.S.BDOS 17/18

Name of the group: 4.sem.DOS bak.prez. (od)17/18

Requirement credits in the group: In this group you have to gain 20 credits

Requirement courses in the group: In this group you have to complete 5 courses

Credits in the group: 20 Note on the group:

| Code | Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.) | Completion | Credits | Scope | Semester | Role |
|--------|--|------------|---------|-----------|----------|------|
| 11MSP | Modeling of Systems and Processes Bohumil Ková, Lucie Kárná, Jana Kuklová Jana Kuklová Bohumil Ková (Gar.) | Z,ZK | 4 | 2P+2C+12B | L | Р |
| 12SDK | Highways, Motorways and Intersections Josef Kocourek, Tomáš Pad lek, Petr Kumpošt Josef Kocourek (Gar.) | Z,ZK | 4 | 2P+2C | L | Р |
| 18KAD | Kinematics and Dynamics Vít Malinovský, Tomáš Fíla, Petr Zlámal | Z,ZK | 4 | 2P+1C | L | Р |
| 16DPY | Vehicle Technology | KZ | 5 | 2P+2C | L | Р |
| 15JZ2A | Foreign Language - English 2 Eva Rezlerová, Markéta Vojanová, Dana Boušová, Marie Michlová, Barbora Horá ková, Marek Tome ek, Jan Feit, Markéta Musilová, Peter Morpuss, | Z,ZK | 3 | 0P+4C+10B | | Р |

Characteristics of the courses of this group of Study Plan: Code=4.S.BDOS 17/18 Name=4.sem.DOS bak.prez. (od)17/18

| onaracteristics of the courses of this group of otday Frant. Code=4.0.DD00 17710 Name=4.3em.D00 bak.prez. (od/17710 | | | | | | | |
|--|---|------|---|--|--|--|--|
| 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. | | | | | | | |
| 12SDK | Highways, Motorways and Intersections | Z,ZK | 4 | | | | |
| Roads and motorways | Roads and motorways network, transport output. Types of direction curves. Hairpin bend. Stopping sight distance and overtaking sight distance. Levels of traffic service. Design elements | | | | | | |
| of crossroads and intersections. Crossroads. Roundabouts. Intersections. Special types of junctions. Capacity of crossroads and intersections. Structure of pavement of roads and | | | | | | | |
| motorways. Road engineering structures. Assessment of route alternatives. | | | | | | | |
| 18KAD | Kinematics and Dynamics | 7 7K | 4 | | | | |

Motion along a line, motion along a curve. Kinematics of rigid plane, kinematics of rigid body. Point mass kinematics, system of point masses. Point mass dynamics and system of point masses, equation of motion. Method of Newton. Princle of D'Alembert. Free and forced vibration with one degree of freedom. Viscous damping. Impact theory. Introduction to the solution of vibration with multiple degrees of freedom.

16DPY Vehicle Technology Technical nomenclature in transportation technology. Vehicle in legislation. Design. Operation. Influence on environment. Vehicle and ecology. Traction engine characteristics

combustion engines, electric engines, change of energy principles. Powertrain construction. Power transmission.

15JZ2A Foreign Language - English 2

Z,ZK 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.

Name of the block: Compulsory elective courses

Minimal number of credits of the block: 8

The role of the block: PV

Code of the group: Y1-BDOS 22/23

Name of the group: PVP bak.prez.DOS v 22/23 (B3710)

Requirement credits in the group: In this group you have to gain 8 credits

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

Credits in the group: 8 Note on the group.

| Code | Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.) | Completion | Credits | Scope | Semester | Role |
|--------|---|------------|---------|-------|----------|------|
| 21Y1AM | Aeronautical Information Management (AIM) | KZ | 2 | 2P+0C | Z | PV |
| 20Y1AF | Alternative Forms of Transportation Project Financing Mária Jánešová | KZ | 2 | 2P+0C | Z | PV |
| 18Y1AM | Anatomy, Mobility and Safety of Man Jitka Jírová | KZ | 2 | 2P+0C | Z | PV |
| 14Y1AV | Animation and Visualization | KZ | 2 | 2P+0C | L | PV |
| 12Y1AE | Applied Ecology Kristýna Neubergová | KZ | 2 | 2P+0C | Z | PV |
| 20Y1AE | Applied Electronics | KZ | 2 | 2P+0C | Z | PV |
| 14Y1BE | Barrierless Transport Jan Kr ál | KZ | 2 | 2P+0C | L | PV |
| 15Y1BO | Work Safety and Health Protection in Transportation Eva Rezlerová, Petr Musil | KZ | 2 | 2P+0C | L | PV |
| 11Y1BK | Error Detection Codes for Interlocking Systems Lucie Kárná | KZ | 2 | 2P+0C | Z | PV |
| 21Y1BS | Unmanned aircraft systems 1 Tomáš Tlu ho , Michal erný | KZ | 2 | 2P+0C | L | PV |
| 14Y1BM | Biometric Methods | KZ | 2 | 2P+0C | Z | PV |
| 15Y1DZ | History of Railway Eva Rezlerová, Martin Jacura | KZ | 2 | 2P+0C | L | PV |
| 12Y1DS | Project Documentation in Practice | KZ | 2 | 2P+0C | Z | PV |
| 17Y1EV | Public Sector Economy Veronika Faifrová | KZ | 2 | 2P+0C | Z | PV |
| 23Y1EH | Electronics and hardware in security of transportation | KZ | 2 | 2P+0C | L | PV |
| 20Y1EK | Qualification in Electrical Engineering | KZ | 2 | 2P+0C | L | PV |
| 16Y1EN | Energy Requirements of Vehicles | KZ | 2 | 2P+0C | L | PV |
| 20Y1EA | Environmental Aspects of Transport | KZ | 2 | 2P+0C | Z | PV |
| 15Y1EH | European Integration within Historical Context Jan Feit | KZ | 2 | 2P+0C | Z | PV |
| 18Y1EM | Experimental Methods in Mechanics Daniel Kytý | KZ | 2 | 2P+0C | Z | PV |
| 15Y1FD | French Area Studies and Transportation | KZ | 2 | 2P+0C | L | PV |
| 14Y1HW | Computer Hardware | KZ | 2 | 2P+0C | L | PV |
| 15Y1HL | History of Civil Aviation Eva Rezlerová, Vladimír Plos | KZ | 2 | 2P+0C | L,Z | PV |
| 15Y1HD | History of City Mass Transport Eva Rezlerová, Milan Dont | KZ | 2 | 2P+0C | Z | PV |
| 12Y1HD | Traffic Noise Dagmar Ko árková, Libor Ládyš | KZ | 2 | 2P+0C | L | PV |
| 15Y1HE | Work Hygiene and Ergonomics in Traffic Eva Rezlerová, Petr Musil | KZ | 2 | 2P+0C | Z | PV |
| 16Y1IS | Interactive simulators and simulations | KZ | 2 | 2P+0C | L | PV |
| 12Y1KN | Combined Transportation Petr Nejedlý | KZ | 2 | 2P+0C | Z | PV |

| 12Y1KP | Communication and Promotion of Transport Projects Dagmar Ko árková, Ond ej Kubala | KZ | 2 | 2P+0C | L | PV |
|--------|---|----|---|-------|---|----|
| 20Y1KP | Communication and presentation skills Ji í R ži ka, Patrik Horaž ovský, Kristýna Navrátilová, Eva Haj iarová | KZ | 2 | 2P+0C | Z | PV |
| 23Y1KM | Crisis Management Dan ok | KZ | 2 | 2P+0C | Z | PV |
| 23Y1KO | Quantum Physics and Optoelectronics | KZ | 2 | 2P+0C | L | PV |
| 23Y1KB | Cyber security in transportation | KZ | 2 | 2P+0C | L | PV |
| 21Y1LJ | Aeronautical Radio and Flight Instruments | KZ | 2 | 2P+0C | L | PV |
| 21Y1LS | Air Traffic Services | KZ | 2 | 2P+0C | L | PV |
| 17Y1LL | Logistics of Passenger and Freight Air Transport Petra Skolilová Petra Skolilová (Gar.) | KZ | 2 | 2P+0C | L | PV |
| 20Y1LN | Location and Navigation | KZ | 2 | 2P+0C | L | PV |
| 23Y1MK | Crisis Situation Management in Critical Infrastructure | KZ | 2 | 2P+0C | L | PV |
| 23Y1MU | Emergency Events Management Solution in Transport Infrastructure | KZ | 2 | 2P+0C | Z | PV |
| 17Y1MD | Marketing in Transportation | KZ | 2 | 2P+0C | Z | PV |
| 18Y1MT | Engineering Materials | KZ | 2 | 2P+0C | L | PV |
| 21Y1MP | Matlab for project-oriented study Vladimír Socha | KZ | 2 | 2P+0C | Z | PV |
| 14Y1MP | Modeling Complex Assemblies and Models in Parametric Modeller | KZ | 2 | 2P+0C | Z | PV |
| 15Y1MK | Modern History in Context: Every Day Life and Transport Eva Rezlerová, Marie Michlová | KZ | 2 | 2P+0C | L | PV |
| 15Y1NE | German in the Economy and Society | KZ | 2 | 2P+0C | Z | PV |
| 21Y1OH | Airline Business and Operations Peter Olexa, Eva Endrizalová Peter Olexa | KZ | 2 | 2P+0C | Z | PV |
| 23Y1OK | Protection of Critical Objects and Infrastructures | KZ | 2 | 2P+0C | L | PV |
| 20Y1OI | Fare Collection and Information Systems Patrik Horaž ovský, Milan Sliacky Milan Sliacky (Gar.) | KZ | 2 | 2P+0C | L | PV |
| 14Y1OJ | Object - oriented programming in JAVA | KZ | 2 | 2P+0C | L | PV |
| 14Y1OP | Operating System | KZ | 2 | 2P+0C | Z | PV |
| 17Y10F | Personal Finance | KZ | 2 | 2P+0C | Z | PV |
| 20Y1OK | Road Lighting František Kekula | KZ | 2 | 2P+0C | L | PV |
| 11Y1PV | Parametrical and Multicriterial Programming Olga Vraštilová | KZ | 2 | 2P+0C | Z | PV |
| 17Y1PM | Personnel Management | KZ | 2 | 2P+0C | L | PV |
| 12Y1PC | Pedestrian and Cycling Transport Denis Liutov | KZ | 2 | 2P+0C | L | PV |
| 14Y1PG | Computer Graphics | KZ | 2 | 2P+0C | L | PV |
| 14Y1P2 | Computer Aid of Transportation Projecting 2 | KZ | 2 | 2P+0C | Z | PV |
| 18Y1PS | Computer Simulations in Mechanics Petr Zlámal | KZ | 2 | 2P+0C | L | PV |
| 14Y1PI | Corporate Information System | KZ | 2 | 2P+0C | Z | PV |
| 14Y1PZ | Advanced Data Processing in Spreadsheets | KZ | 2 | 2P+0C | Z | PV |
| 21Y1PC | ATC Procedures and Activities Terézia Pilmannová | KZ | 2 | 2P+0C | Z | PV |
| 12Y1PD | Assessment of Transport Structures | KZ | 2 | 2P+0C | Z | PV |
| 20Y1PK | Product Quality Management Processes Martin Leso | KZ | 2 | 2P+0C | Z | PV |
| 14Y1PJ | C Programming Language | KZ | 2 | 2P+0C | Z | PV |
| 12Y1C1 | Designing Roads in Civil 3D I Tomáš Honc | KZ | 2 | 2P+0C | L | PV |
| 12Y1C2 | Designing Roads in Civil 3D II Tomáš Honc | KZ | 2 | 2P+0C | Z | PV |
| 14Y1PA | 3D Modeling in AutoCAD | KZ | 2 | 2P+0C | Z | PV |
| 16Y1PV | Operation, Construction and Maintenance of Vehicles | KZ | 2 | 2P+0C | L | PV |
| 21Y1PL | Operational Aspects of Aerodromes | KZ | 2 | 2P+0C | L | PV |
| 21Y1PA | Air Traffic Control Operating Procedures Terézia Pilmannová | KZ | 2 | 2P+0C | Z | PV |
| 12Y1PU | Organization Disposition of Railway Stations | KZ | 2 | 2P+0C | L | PV |
| 12Y1RU | Railway Lines Reconstruction | KZ | 2 | 2P+0C | Z | PV |

| 21Y1SI | ATC Simulator Terézia Pilmannová | KZ | 2 | 2P+0C | L | PV |
|--|---|------------------------|----------------|--------------|-------------|-----------------|
| 20Y1SC | Sensors and Actuators | KZ | 2 | 2P+0C | L | PV |
| 17Y1SL | Sociology of Human Resources | KZ | 2 | 2P+0C | Z | PV |
| 11Y1SI | Transportation Software Engineering Martin P ni ka | KZ | 2 | 2P+0C | Z | PV |
| 16Y1KS | Quality and Reliability of Vehicles Jaroslav Machan, David Lehet | KZ | 2 | 2P+0C | Z | PV |
| 12Y1SU | Road Management and Maintenance Dagmar Ko árková, Otakar Vacín | KZ | 2 | 2P+0C | L | PV |
| 16Y1SO | Strategy and innovation in mobility | KZ | 2 | 2P+0C | Z | PV |
| 17Y1SK | Urban and Regional Rail Transport Systems Ji í Pospíšil Ji í Pospíšil (Gar.) | KZ | 2 | 2P+0C | L | PV |
| 21Y1TH | Aircraft Technical Handling Peter Olexa | KZ | 2 | 2P+0C | Z | PV |
| 11Y1TG | Graph Theory Lucie Kárná Lucie Kárná (Gar.) | KZ | 2 | 2P+0C | L | PV |
| 23Y1TP | Criminal Law in IT and Transportation | KZ | 2 | 2P+0C | Z | PV |
| 14Y1TI | Creating Interactive Internet Applications | KZ | 2 | 2P+0C | L | PV |
| 21Y1UL | Aircraft Maintenance | KZ | 2 | 2P+0C | L | PV |
| 14Y1UP | Editing of Theses in MS Word | KZ | 2 | 2P+0C | L | PV |
| 18Y1UK | Introduction of Rail Vehicles Jitka ezní ková, Josef Kolá | KZ | 2 | 2P+0C | L | PV |
| 12Y1VR | Public Transport in Cities and Regions Vladimír Pušman | KZ | 2 | 2P+0C | Z | PV |
| 23Y1VS | Negotiation and Cooperation Milena Macková | KZ | 2 | 2P+0C | Z | PV |
| 14Y1VM | Development of Applications for Mobile Devices | KZ | 2 | 2P+0C | Z | PV |
| 16Y1VT | Development in Railroad Vehicles | KZ | 2 | 2P+0C | L | PV |
| 14Y1WG | Webdesign | KZ | 2 | 2P+0C | Z | PV |
| 14Y1W1 | Webdesign 1 | KZ | 2 | 2P+0C | Z | PV |
| 14Y1W2 | Webdesign 2 | KZ | 2 | 2P+0C | L | PV |
| 16Y1ZG | Introduction into Applied Computer Graphics | KZ | 2 | 2P+0C | L | PV |
| 14Y1ZM | Fundamentals of parametric and adaptive modeling | KZ | 2 | 2P+0C | L | PV |
| 11Y1ZM | Foundation of MATLAB Programming Šárka Vorá ová Šárka Vorá ová (Gar.) | KZ | 2 | 2P+0C | L | PV |
| 14Y1ZJ | Fundamentals of programming in JAVA | KZ | 2 | 2P+0C | Z | PV |
| 12Y1ZU | Principles of Urbanism Karel Hájek | KZ | 2 | 2P+0C | Z | PV |
| 15Y1ZV | East-West dichotomy: Prelude to the Cold War Eva Rezlerová, Marie Michlová | KZ | 2 | 2P+0C | Z | PV |
| 16Y1ZL | Vehicle Testing, Legislation and Construction Zuzana Radová, Josef Mík | KZ | 2 | 2P+0C | Z | PV |
| Characteristics of the | courses of this group of Study Plan: Code=Y1-BDOS 22/23 | Name=PVP ba | k.prez.D | OS v 22/2 | 3 (B3710 |)) |
| | ronautical Information Management (AIM) | | <u>-</u> | | KŻ | 2 |
| Definition and basic overview | v of AIS and AIM. Transition from AIS to AIM. Regulatory base. Provision of AIS/AIM | | | | | FR Manual of |
| | em. NOTAM messages.PIB (Pre-flight Informtion Bulletin). AIC (Aeoronautical Inf. C | irculars). Aeronautic | al Charts. E | EAD (Europer | na AIS Data | base). QMS |
| ` ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' | (Aeronautical Data Quality). AIXM (Aeronautical Inf. Exchnage Format). ernative Forms of Transportation Project Financing | | | | KZ | 2 |
| | emative Forms of mansportation Project Financing s of financing in transportation and telecomunications, where the public sector bod | y perform the final de | ebtor, i. e. d | 1 | 1 | |
| · | t participant of the transaction and it is not the counterparty of the financial institute | | | | | ŭ |
| of transportation and telecor | | | | | | |
| 18Y1AM An | atomy, Mobility and Safety of Man | | | | KZ | 2 |
| Survey of tissues. Anatomica | al structure and growth of bones. Articular joint. Remodelling of bone tissue. Anatomic | | | | nervous sys | stem. Structure |
| and piomochanics of mucoul | iar evolutal evetom. Injury of human organe and mucculo ekolotal avetom during tra | TTIC ACCIDENTS MARKIN | tiv of ill and | | | |

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Control and Electronic Vehicle Systems

Josef Mik, P emysl Toman

Human Resources Management

Titan Simulation

joint prostheses. Protective means and traffic safety regulations.

Applied Ecology

Animation and Visualization

14Y1AV

12Y1AE

protection. Applied ecology.

16Y1RE

21Y1RZ

17Y1ST

and biomechanics of muscular-skeletal system. Injury of human organs and musculo-skeletal system during traffic accidents. Mobility of ill and injured man and his treatment. Human

Advanced modifications and modeling of NURBS, Patch objects, selection of objects (according to filter and properties). 3D Studio MAX systems and Space Warp objects. Atmospheric and other effects, rendering filters, Motion blur, advanced animations, Motion panel. Modeling for morphing and animation, bone formation, animation using Inverse Kinematics.

General ecology - ecological concepts and principles, ecosystem, ecological factors, energy flow through the ecosystem. Application of knowledge within EIA documentation. Special ecology. Landscape ecology - origin and historical development. Landscape definition and classification. Success. Traffic constructions in the countryside. Landscape and nature

| 20Y1AE | Applied Electronics | KZ | 2 |
|--|--|---|--|
| | inductor components, their principles, characteristics and typical connection diagrams. Semiconductor PN junction diodes, translated for their designs (restificate values or several to be a series of their | - | - |
| | ates. Functions of basic electronic circuits and methods for their designs (rectifiers, voltage regulator with Zener diode, transi g and noninverting amplifier). | istor as an amplifie | er, operational |
| 14Y1BE | Barrierless Transport | KZ | 2 |
| | accessible public transportation in terms of architectural barriers and also for transportation-technological point of view. Stude | 1 | _ |
| of barrierless environme | ent roads, railway stations, public transport stops, terminal buildings, vehicles, public transport, information and orientation systems. | ems and transporta | ation technology. |
| | will be supplemented by practical examples. | | |
| 15Y1BO | Work Safety and Health Protection in Transportation | KZ | 2 |
| - | e, definition of terms, risks and possible health damage, working conditions and health protection with focus on transportation ne and foreign business trips, statistics, working practice. | n. Health protection | n programmes, |
| 11Y1BK | Error Detection Codes for Interlocking Systems | KZ | 2 |
| | d methods for its assuring. Safety codes – linear codes, cyclic codes, BCH codes, Reed-Solomon codes. Transmission chan | | |
| | detected error. Design and assessment of detection codes; requirements of the European standard EN 50159. | | |
| 21Y1BS | Unmanned aircraft systems 1 | KZ | 2 |
| | velopment. Aircraft design. Legislation in force in the Czech Republic. Planning and execution of the flight. Airspace division. | Operational risks | and operational |
| procedures. Practical fli | | 147 | |
| 14Y1BM | Biometric Methods authentication methods, principles and performance measurement of biometric systems, overview of biometric technologies, | KZ | 2 |
| | od, 2D and 3D face recognition, vein patterns on the wrist, ear biometrics, fingerprint recognition, skin spectroscopy, behavio | | • |
| = | s, safety and risks of biometric technologies. | | |
| 15Y1DZ | History of Railway | KZ | 2 |
| • | steam railways, railway network development in the 2nd half of 19th century, regional railways epoch, railways of the "First Re | - | |
| | development in the 2nd half of 20th century, high-speed railway origins, railway lines closing, important long-distance train conn | ections, railway lir | nes construction, |
| | ay junctions. Excursions and projections. | 1/7 | 2 |
| 12Y1DS Project documentation | Project Documentation in Practice Project Documentation in Practice Project documentation types. Support materials for project documentation creating. Building permit obtaining proces | KZ K | 2 cing Practical |
| creation of some project | | 33. Duaget and pri | cing. I factical |
| 17Y1EV | Public Sector Economy | KZ | 2 |
| Economic and financial | theory of public sector, public choice theory, externalites, decisions about public finance allocation, economic assessment of | public projects (CE | BA, MCA, CEA), |
| | ate budget, management of public projects a their economic efficiency assessment, way of elaboration of PPP projects, funding | g from EU funds, p | orogram HDM-4. |
| 23Y1EH | Electronics and hardware in security of transportation | KZ | 2 |
| • | of signals. Passive circuits, properties, basic measurements. Passive filters, semiconductors. Operational amplifiers, basic cir ircuits. AD converters. Connection of analog and digital parts. Basic blocks of digital signal processing. Measurement processin | | |
| in electronics. | reducts. AD converters, contribution of analog and digital parts, basic blocks of digital processing, weastrement processing | ig. Design and lab | ilcation methods |
| | | | |
| | Qualification in Electrical Engineering | KZ | 2 |
| 20Y1EK | Qualification in Electrical Engineering th measurements in laboratories, electrical equipment, power supply, electrical installation of low voltage, electric shock haza | KZ ard, symbols and la | |
| 20Y1EK Practical experience wi voltage, maximum allow | th measurements in laboratories, electrical equipment, power supply, electrical installation of low voltage, electric shock haza wed currents, electrical equipment protection against short circuit and overload protection, control and revision, first aid, legisl | ird, symbols and la | abeling, nominal |
| 20Y1EK Practical experience wi voltage, maximum allow in relation to health and | th measurements in laboratories, electrical equipment, power supply, electrical installation of low voltage, electric shock hazaved currents, electrical equipment protection against short circuit and overload protection, control and revision, first aid, legislatety and electrical engineering. | ord, symbols and la lation, standards a | abeling, nominal and regulations |
| 20Y1EK Practical experience wi voltage, maximum allov in relation to health and | th measurements in laboratories, electrical equipment, power supply, electrical installation of low voltage, electric shock hazaved currents, electrical equipment protection against short circuit and overload protection, control and revision, first aid, legisl safety and electrical engineering. Energy Requirements of Vehicles | ird, symbols and la lation, standards a | abeling, nominal and regulations |
| 20Y1EK Practical experience wi voltage, maximum allow in relation to health and 16Y1EN Dynamics and the driving the control of | th measurements in laboratories, electrical equipment, power supply, electrical installation of low voltage, electric shock hazaved currents, electrical equipment protection against short circuit and overload protection, control and revision, first aid, legisl safety and electrical engineering. Energy Requirements of Vehicles ng inertial of the vehicles. Types of energy - kinetic, static, heat, chemical and others. Ways of energy change into kinetic ene | ird, symbols and la lation, standards a | abeling, nominal and regulations |
| 20Y1EK Practical experience wi voltage, maximum allow in relation to health and 16Y1EN Dynamics and the drivi drive, steam engine, air | th measurements in laboratories, electrical equipment, power supply, electrical installation of low voltage, electric shock hazaved currents, electrical equipment protection against short circuit and overload protection, control and revision, first aid, legisl safety and electrical engineering. Energy Requirements of Vehicles ng inertial of the vehicles. Types of energy - kinetic, static, heat, chemical and others. Ways of energy change into kinetic ene engine. Energy accumulation means, accumulator, flywheel, fuel cell. Energy recuperation. WTW analysis. | rd, symbols and la lation, standards a KZ rgy. Combustion e | abeling, nominal and regulations |
| 20Y1EK Practical experience wi voltage, maximum allow in relation to health and 16Y1EN Dynamics and the drivi drive, steam engine, air 20Y1EA | th measurements in laboratories, electrical equipment, power supply, electrical installation of low voltage, electric shock hazaved currents, electrical equipment protection against short circuit and overload protection, control and revision, first aid, legisl safety and electrical engineering. Energy Requirements of Vehicles ng inertial of the vehicles. Types of energy - kinetic, static, heat, chemical and others. Ways of energy change into kinetic ene | rd, symbols and la lation, standards a KZ rgy. Combustion e | abeling, nominal and regulations 2 engine, electric |
| 20Y1EK Practical experience wi voltage, maximum allow in relation to health and 16Y1EN Dynamics and the drivi drive, steam engine, air 20Y1EA State of the atmosphere Air quality, main polluta | th measurements in laboratories, electrical equipment, power supply, electrical installation of low voltage, electric shock hazaved currents, electrical equipment protection against short circuit and overload protection, control and revision, first aid, legisl safety and electrical engineering. Energy Requirements of Vehicles ng inertial of the vehicles. Types of energy - kinetic, static, heat, chemical and others. Ways of energy change into kinetic ene engine. Energy accumulation means, accumulator, flywheel, fuel cell. Energy recuperation. WTW analysis. Environmental Aspects of Transport | KZ rgy. Combustion e KZ rgy. Combustion e | abeling, nominal and regulations 2 engine, electric 2 ecast evaluation. |
| 20Y1EK Practical experience wi voltage, maximum allow in relation to health and 16Y1EN Dynamics and the drivi drive, steam engine, air 20Y1EA State of the atmosphere Air quality, main polluta | th measurements in laboratories, electrical equipment, power supply, electrical installation of low voltage, electric shock hazaved currents, electrical equipment protection against short circuit and overload protection, control and revision, first aid, legislated and electrical engineering. Energy Requirements of Vehicles against short circuit and overload protection, control and revision, first aid, legislated and electrical engineering. Energy Requirements of Vehicles against short circuit and overload protection, control and revision, first aid, legislated and electrical engineering. Energy Requirements of Vehicles against short circuit and overload protection, control and revision, first aid, legislated and electrical engineering in the first aid, legislated and others. Ways of energy change into kinetic energine. Energy accumulation means, accumulator, flywheel, fuel cell. Energy recuperation. WTW analysis. Environmental Aspects of Transport against short circuit and overload protection, control and revision, first aid, legislated and others. Ways of energy change into kinetic energy engineering into kinetic energy accumulation means, accumulator, flywheel, fuel cell. Energy recuperation. WTW analysis. Environmental Aspects of Transport against short circuit and overload protection, control and revision, first aid, legislated and others. Ways of energy change into kinetic energy engineering. Environmental Aspects of Transport against short circuit and overload protection, control and overload protection, control and overload protection, control and revision, first aid, legislated and overload protection, control and revision, first aid, legislated and overload protection, control and overload protection, con | KZ rgy. Combustion e KZ rgy. Combustion e KZ istic forecasts, forecontation in climate | abeling, nominal and regulations 2 engine, electric 2 ecast evaluation. e change. |
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| 20Y1EK Practical experience wi voltage, maximum allow in relation to health and 16Y1EN Dynamics and the drivi drive, steam engine, air 20Y1EA State of the atmosphere Air quality, main polluta 15Y1EH Versailles system, form goals. Europe after Hitle | th measurements in laboratories, electrical equipment, power supply, electrical installation of low voltage, electric shock hazaved currents, electrical equipment protection against short circuit and overload protection, control and revision, first aid, legislated currents, electrical engineering. Energy Requirements of Vehicles and in the vehicles. Types of energy - kinetic, static, heat, chemical and others. Ways of energy change into kinetic energine. Energy accumulation means, accumulator, flywheel, fuel cell. Energy recuperation. WTW analysis. Environmental Aspects of Transport a, weather observation network, weather in transportation, road meteorology. Weather forecasting, data assimilation, probabilints and their effects, atmospheric chemistry, traffic emissions. Greenhouse gasses, carbon cycle, a role of energy and transports at the powers of the context action of new states. Europe and the powers, League of Nations. European policy in the 1920s. Fascism, nacism, communismer's getting to power, system of bilateral agreements. Decline of the LN. Rearrangement of powers during WWII. Cold war and | KZ rgy. Combustion e KZ rgy. Combustion e KZ istic forecasts, forecortation in climate KZ n. Little Entente, its | 2 excast evaluations 2 exchange. 2 exprinciples and |
| 20Y1EK Practical experience wi voltage, maximum allov in relation to health and 16Y1EN Dynamics and the drivi drive, steam engine, air 20Y1EA State of the atmosphere Air quality, main polluta 15Y1EH Versailles system, form goals. Europe after Hith New quality of French- | th measurements in laboratories, electrical equipment, power supply, electrical installation of low voltage, electric shock hazaved currents, electrical equipment protection against short circuit and overload protection, control and revision, first aid, legislated currents, electrical engineering. Energy Requirements of Vehicles ag inertial of the vehicles. Types of energy - kinetic, static, heat, chemical and others. Ways of energy change into kinetic energine. Energy accumulation means, accumulator, flywheel, fuel cell. Energy recuperation. WTW analysis. Environmental Aspects of Transport e, weather observation network, weather in transportation, road meteorology. Weather forecasting, data assimilation, probabilints and their effects, atmospheric chemistry, traffic emissions. Greenhouse gasses, carbon cycle, a role of energy and transportation of new states. Europe and the powers, League of Nations. European policy in the 1920s. Fascism, nacism, communismer's getting to power, system of bilateral agreements. Decline of the LN. Rearrangement of powers during WWII. Cold war and German relationship - a driving power of starting European integration. | KZ rgy. Combustion e KZ rgy. Combustion e KZ istic forecasts, forecortation in climate KZ Little Entente, its dits consequence | abeling, nominal and regulations 2 engine, electric 2 ecast evaluation. e change. 2 s principles and s for Europe. |
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| 15Y1HE Work Hygiene and Ergonomics in Traffic | KZ | 2 |
|---|-----------------------------|-----------------------|
| Basic knowledge of occupational hygiene and ergonomics, and their application in transport. Working environment factors, and the influence of these | | |
| Creation and protection of working conditions that do not damage public health. Mutual links: man-machine-environment. Adaptation of technology to Practical examples from the field of transportation; relevant legislature. | possibilities and | Skills of a man. |
| 16Y1IS Interactive simulators and simulations | KZ | 2 |
| Simulation theory and application of computing equipment. Creating computing models. Mechanical and dynamic systems and their mathematical models. | | methods. |
| Simulation of vehicle dynamics, on-land carriage in particular. Virtual reality systems. Practical exercise with simulation software and interactive simulation of vehicle dynamics, on-land carriage in particular. Virtual reality systems. Practical exercise with simulation software and interactive simulation of vehicle dynamics, on-land carriage in particular. | | |
| 12Y1KN Combined Transportation Combined transport strategy and legislation. Load units. Means of transport in combined transport. Combined transport systems. Transshipping areas | KZ Kultimodal logi | 2 stic centres |
| 12Y1KP Communication and Promotion of Transport Projects | KZ | 2 |
| Fundamentals of Public Relations and the power of public opinion. Work and tasks of PR department and press spokesperson. Communication with t | | blic on social |
| networks and beyond. Communication strategy of transport projects. Systematic goodwill building. Crisis situations in communication and preparation | for crisis commu | ınication. The |
| influence of political marketing and political PR on transport projects. Lobbing. 20Y1KP Communication and presentation skills | KZ | 2 |
| Motivation, priorities and their fulfillment, current communication networks, work with various sources, formal requirements of emails and final theses, | | |
| teamwork, emotional intelligence, manipulation and way of working with it, coping with stressful situations, formal requirements of presentations, ways | s of communicati | on during |
| presentation, presentation skills, presentation skills in online environment. | | |
| 23Y1KM Crisis Management Theory and legal frame of crisis management with direction to Rescue system (IZS). After introduction to safety domain, there are terms and knowledge | KZ | 2 |
| management and its targets; IZS-crisis management-crisis planning; and basic legislation. Practical part is concentrated to responsibility matrix comp | | position of crisis |
| 23Y1KO Quantum Physics and Optoelectronics | KZ | 2 |
| Ground of quantum physics. Application of quantum physics in practice. Optoelectronics. Production of optoelectronics components. | | |
| 23Y1KB Cyber security in transportation | KZ | 2 |
| Basic concepts of security and cyber security, legal status in the field of cyber security, virtual cyberspace and communities, taxonomy of crimes in cy engineering, cyber attack technology, information security, cyber attacks on telematics systems, security of systems with artificial intelligence, norms | • | impacis, sociai |
| 21Y1LJ Aeronautical Radio and Flight Instruments | KZ | 2 |
| Basic definitions, history of aircraft instrumentation, aerometric instrumentation, Earth magnetism, aircraft electric equipment, gyroscopic instrumentation | | |
| other aircraft equipment, engine instrumentation, warning and recording systems, instrumentation operational requirements, radiocommunication and | | |
| 21Y1LS Air Traffic Services Airspace structure in Czech Republic and other countries. Introduction and description of ATS units in Czech Republic. Practical examples of TWR, Al | KZ | 2 L History of ATS |
| at USA and Czechoslovakia. ATS - Model of financing. Training System of Air Traffic Controllers. Future development of ATS. | 1 47.00 001110 | i. I listory of ATO |
| 17Y1LL Logistics of Passenger and Freight Air Transport | KZ | 2 |
| Logistics airline passenger and cargo. Aircraft and airport terminals for passenger and cargo transport. Airlines in terms of logistics systems. Aerial tra | ansport process p | passengers and |
| air cargo. Information systems in air transport. Global distribution systems. 20Y1LN Location and Navigation | KZ | 2 |
| 20Y1LN Location and Navigation Description and examples of road networks, localization on the network. Routing algorithms, their properties and implementation. Description and examples | | 1 |
| transport connections, routing algorithms, their properties and implementation. | | |
| 23Y1MK Crisis Situation Management in Critical Infrastructure | KZ | 2 |
| Determination of critical infrastructute elements on all levels, their protection systems, responsibilities of particular agencies of the state administration their responsibilities to anounce particular safety provisions. Physical and cyber protection of critical infrastructure with special attention to the soft tar | _ | vernment, and |
| 23Y1MU Emergency Events Management Solution in Transport Infrastructure | KZ | 2 |
| Basic solutions of emergency events with emphasis of the transport infrastructure events and their solution management. Knowledge in the emergency | l l | |
| in liquidation work within the transport infrastructure. | | |
| 17Y1MD Marketing in Transportation | KZ | 2 |
| General principles of marketing applied to transport issues, marketing tools suitable for transport as a service, specifics of public passenger transport the application of marketing. | and the resulting | y dillerences in |
| 18Y1MT Engineering Materials | KZ | 2 |
| Systematic overview of main classes of materials used in technical design. In addition to main classes of materials, i. e. metals, ceramics, polymers a | nd composites, a | ttention is paid |
| to biological materials and to biomimetics. Integral approach to material selection process is also demonstrated based on so called Ashby's selection | T | |
| 21Y1MP Matlab for project-oriented study The subject's syllabus is focused on the problem-solving during bachelor's thesis preparation and it is based on students' requests. Individual exercise | KZ es will be prepare | 2 ed 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 | | |
| 14Y1MP Modeling Complex Assemblies and Models in Parametric Modeller | KZ | 2 |
| Assemblies programming - tools and methodology of working subassemblies and assemblies, sheet metal parts modelling, welded assemblies, pipeli | ines, and distribu | tion lines. |
| Photorealistic output rendering - physical and material properties, lighting sources. MKP - visual example. 15Y1MK Modern History in Context: Every Day Life and Transport | KZ | 2 |
| Historical overview of modern history of every day life, science, technology and transport in a wider context. | IXZ | 2 |
| 15Y1NE German in the Economy and Society | KZ | 2 |
| Recent economic and social issues of German speaking countries and of the EU. Reading and listening of texts. Lexical, grammatical and semantic and | inalysis of texts. I | Discussion on |
| selected topics. 21V1OH Airling Rusiness and Operations | L/7 | 2 |
| 21Y10H 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 organ | KZ nizational structur | 2 re of companies, |
| various aspects of their strategy, economic and operational indicators. It introduces students in detail to operational processes and the essentials of trans | | |
| a basic view of the economic aspects of air transport. | | |
| 23Y10K Protection of Critical Objects and Infrastructures | KZ | 2 |
| Types of technological systems, critical item, risks and their courses, criticality, vulnerability, connectivity, dependability, resilience, failure, protection, sa infrastructures. | nety of Chilical Ob | jects and critical |
| 20Y1OI Fare Collection and Information Systems | KZ | 2 |
| Fare collection systems in public transport and their components (on-board units, validators, turnstiles,). Information systems and their components | • | ables, maps, |
| panels) and operators (cycles, location or current delay of vehicles,). The issue of tariff systems. Other examples of clearance systems (parking) | | |

| 14Y1OJ | | | |
|--|--|--|--|
| 141 103 | Object - oriented programming in JAVA | KZ | 2 |
| _ | psulation. Classes. Attributes. Access modifiers. Methods and overloading. Special methods (constructors, getters / setters) | | |
| | Polymorphism. Statics, constants, interfaces, abstract classes, enum, packages, exceptions, collections, generics, lambda ex | | |
| 14Y1OP | Operating System | KZ | 2 |
| | GNU/Linux OS. X-window system. Rights management - users and groups, ACL rights. Filesystems and attributes. Program | · · | |
| | programs / commands. Config files. SW management, package systems. Programs in graphic shell - text, spreadsheet, graphs s management. Safe and secure configuration of OS. Remote administration. | pnic editors, soun | a, video and |
| 17Y1OF | Personal Finance | KZ | 2 |
| | refsortal Finance t, financing of basic living needs), debt (loans and credits, payment instruments, interest and fees, debt trap), financing of ho | 1 | |
| · - | cing), savings and investments (investment horizon, return, risk, investment strategy), insurance (insurance types, suitability a | | |
| (retirement savings and | | | g |
| 20Y1OK | Road Lighting | KZ | 2 |
| | and terms, street lighting components (luminaires, control cabinets for street lighting, street lighting cables), characteristics of lu | 1 | |
| light distribution), standa | ards, measurement of illuminance and luminance in road lighting, tunnels, conceptual approach to street lighting design, light | ting calculations in | n DIALux and |
| Relux, street lighting cor | ntrol systems. | | |
| 11Y1PV | Parametrical and Multicriterial Programming | KZ | 2 |
| Solution to the problem | of linear programming with a parameter in objective function, on right sides and in the matrix of coeficients of linear constraints | s. Computation of | efficient solution. |
| 17Y1PM | Personnel Management | KZ | 2 |
| Human sources, work g | roup, man as personality, planning, choice, evaluation and education of human sources, work adaptation, teamwork, intercul | Itural communicat | on. |
| 12Y1PC | Pedestrian and Cycling Transport | KZ | 2 |
| • | Pedestrian crossings. Modifications for blind, dim-sighted and disabled people. Design of cycle routes network. Ways of cycle ro | - | |
| ' ' | of cyclists from other transport modes. Cycle tracks and its design - one way streets, reserved traffic lanes, bus stops, crossing | ngs with other trar | sport modes, |
| | and road marking for cyclists. | 147 | |
| 14Y1PG | Computer Graphics | KZ | 2 |
| | and possibilities of their editing and mutual conversion. Use of individual types according to character of work. Work with ed by DPI, colors. Basics of digital photography, scanning and computer technology like monitors and graphics cards. | aiting programs (w | itnin the user |
| | | KZ | 2 |
| 14Y1P2 | Computer Aid of Transportation Projecting 2 tion for transportation projecting aid. AutoCAD environment possibilities of basic tasks automatizing (programming, scripting, | | |
| | relation to databases). Work in projecting group, external references. Basic tasks for cummunication projecting (clotoidic trans | | |
| section). Basics of 3D m | | sition carve, cross | and longitudinal |
| 18Y1PS | Computer Simulations in Mechanics | KZ | 2 |
| | of tools for stress analysis of structures. Numerical methods in mechanics, finite element method. Geometric model develop | 1 | - |
| - | s. Assignment of material properties. The types of elements and their use. Discretization of solid model. Boundary conditions | - | |
| - | nodal analysis. Introduction to complex nonlinear problems. | | |
| 14Y1PI | Corporate Information System | KZ | 2 |
| Data-information-knowle | edge, components of information system, syntatic and semantic sense of data, structure of corporate information system, pa | rticular informatio | n system |
| (personalistic, productio | n, storage, etc.), corporate information politic and information control, risks of information system operation, legal environmen | nt of information sy | stem operation, |
| state information system | n, information system security, data protection, safety politics. | | |
| 14Y1PZ | Advanced Data Processing in Spreadsheets | KZ | 2 |
| | with principles of working in a spreadsheet. Graphic layout of the table appearance, formatting of numbers, insertion of form | ulas and function: | s, including |
| • | on. Working with large spreadsheets, filters, advanced filters, database functions. Pivot tables and charts, conditional formattin | | = |
| - | | ng, solution finding | = |
| | and questions from various companies and training. | | , solver, macros, |
| 21Y1PC | and questions from various companies and training. ATC Procedures and Activities | KZ | , solver, macros, |
| 21Y1PC Air traffic control proced | and questions from various companies and training. ATC Procedures and Activities ures, basics of communication and phraseology, aircraft identification, spacing and traffic coordination. In addition, the cours | KZ se discusses air tra | , solver, macros, |
| 21Y1PC Air traffic control proced the airports and low visi | and questions from various companies and training. ATC Procedures and Activities ures, basics of communication and phraseology, aircraft identification, spacing and traffic coordination. In addition, the course oility operational procedures. Students will during the course learn basic safety management applications applied across the | KZ se discusses air tra s infrastructure. | , solver, macros, 2 affic control at |
| 21Y1PC Air traffic control proced the airports and low visi 12Y1PD | and questions from various companies and training. ATC Procedures and Activities ures, basics of communication and phraseology, aircraft identification, spacing and traffic coordination. In addition, the course bility operational procedures. Students will during the course learn basic safety management applications applied across the Assessment of Transport Structures | KZ e discusses air tra e infrastructure. KZ | , solver, macros, 2 affic control at |
| 21Y1PC Air traffic control proced the airports and low visi 12Y1PD Assessment of transport | and questions from various companies and training. ATC Procedures and Activities ures, basics of communication and phraseology, aircraft identification, spacing and traffic coordination. In addition, the course bility operational procedures. Students will during the course learn basic safety management applications applied across the Assessment of Transport Structures structures, the EIA process. Multicriteria assessment methods, risk analysis, SWOT analysis. Landscape character, possibilities | KZ e discusses air tra e infrastructure. KZ es of its protection | , solver, macros, 2 affic control at 2 and assessment |
| 21Y1PC Air traffic control proced the airports and low visi 12Y1PD Assessment of transport | and questions from various companies and training. ATC Procedures and Activities ures, basics of communication and phraseology, aircraft identification, spacing and traffic coordination. In addition, the course bility operational procedures. Students will during the course learn basic safety management applications applied across the Assessment of Transport Structures | KZ e discusses air tra e infrastructure. KZ es of its protection | , solver, macros, 2 affic control at 2 and assessment |
| 21Y1PC Air traffic control proced the airports and low visi 12Y1PD Assessment of transport transport structures on the environment. | and questions from various companies and training. ATC Procedures and Activities ures, basics of communication and phraseology, aircraft identification, spacing and traffic coordination. In addition, the course bility operational procedures. Students will during the course learn basic safety management applications applied across the Assessment of Transport Structures structures, the EIA process. Multicriteria assessment methods, risk analysis, SWOT analysis. Landscape character, possibilities the landscape. Rating fragmentation and landscape connectivity in the preparation of linear structures. Practical examples of | KZ e discusses air tra e infrastructure. KZ es of its protection assessment of tra | affic control at 2 and assessment affic buildings on |
| 21Y1PC Air traffic control proced the airports and low visi 12Y1PD Assessment of transport transport structures on the environment. | and questions from various companies and training. ATC Procedures and Activities ures, basics of communication and phraseology, aircraft identification, spacing and traffic coordination. In addition, the course bility operational procedures. Students will during the course learn basic safety management applications applied across the Assessment of Transport Structures structures, the EIA process. Multicriteria assessment methods, risk analysis, SWOT analysis. Landscape character, possibilities | KZ e discusses air tra e infrastructure. KZ es of its protection assessment of tra | affic control at 2 and assessment affic buildings on |
| 21Y1PC Air traffic control proced the airports and low visi 12Y1PD Assessment of transport transport structures on the environment. 20Y1PK General principles of organizations. | and questions from various companies and training. ATC Procedures and Activities ures, basics of communication and phraseology, aircraft identification, spacing and traffic coordination. In addition, the course billity operational procedures. Students will during the course learn basic safety management applications applied across the Assessment of Transport Structures structures, the EIA process. Multicriteria assessment methods, risk analysis, SWOT analysis. Landscape character, possibilities the landscape. Rating fragmentation and landscape connectivity in the preparation of linear structures. Practical examples of Product Quality Management Processes | KZ e discusses air tra e infrastructure. KZ es of its protection assessment of tra KZ processes, syster | affic control at 2 and assessment affic buildings on 2 ms. A framework |
| 21Y1PC Air traffic control proced the airports and low visi 12Y1PD Assessment of transport transport structures on the environment. 20Y1PK General principles of orgot standards for systems | and questions from various companies and training. ATC Procedures and Activities ures, basics of communication and phraseology, aircraft identification, spacing and traffic coordination. In addition, the course billity operational procedures. Students will during the course learn basic safety management applications applied across the Assessment of Transport Structures structures, the EIA process. Multicriteria assessment methods, risk analysis, SWOT analysis. Landscape character, possibilities the landscape. Rating fragmentation and landscape connectivity in the preparation of linear structures. Practical examples of Product Quality Management Processes analysis and international standards; quality management systems. Quality products, | KZ e discusses air tra e infrastructure. KZ es of its protection assessment of tra KZ processes, syster | affic control at 2 and assessment affic buildings on 2 ms. A framework |
| 21Y1PC Air traffic control proced the airports and low visi 12Y1PD Assessment of transport transport structures on the environment. 20Y1PK General principles of orgot standards for systems | and questions from various companies and training. ATC Procedures and Activities ures, basics of communication and phraseology, aircraft identification, spacing and traffic coordination. In addition, the course billity operational procedures. Students will during the course learn basic safety management applications applied across the Assessment of Transport Structures structures, the EIA process. Multicriteria assessment methods, risk analysis, SWOT analysis. Landscape character, possibilities the landscape. Rating fragmentation and landscape connectivity in the preparation of linear structures. Practical examples of Product Quality Management Processes ganization management. Management systems and international standards; quality management systems. Quality products, management, management principles. Principles of process management, monitoring and measurement systems management | KZ e discusses air tra e infrastructure. KZ es of its protection assessment of tra KZ processes, syster | affic control at 2 and assessment affic buildings on 2 ms. A framework |
| 21Y1PC Air traffic control proced the airports and low visi 12Y1PD Assessment of transport transport structures on the environment. 20Y1PK General principles of orgof standards for systems management 14Y1PJ | and questions from various companies and training. ATC Procedures and Activities ures, basics of communication and phraseology, aircraft identification, spacing and traffic coordination. In addition, the course bility operational procedures. Students will during the course learn basic safety management applications applied across the Assessment of Transport Structures structures, the EIA process. Multicriteria assessment methods, risk analysis, SWOT analysis. Landscape character, possibilities the landscape. Rating fragmentation and landscape connectivity in the preparation of linear structures. Practical examples of Product Quality Management Processes ganization management. Management systems and international standards; quality management systems. Quality products, management, management principles. Principles of process management, monitoring and measurement systems management. Process management principles. Metrology and testing. Product certification. | KZ se discusses air tra e infrastructure. KZ ses of its protection assessment of tra KZ processes, system t. Uniform framew | affic control at 2 and assessment affic buildings on 2 ms. A framework ork of standards |
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| 21Y1PC Air traffic control proced the airports and low visi 12Y1PD Assessment of transport transport structures on the environment. 20Y1PK General principles of orgof standards for systems for systems for systems for systems for systems in an agency 14Y1PJ C programming language Implementations of abstraction 12Y1C1 The course is devoted to particular linear building explanation of the traffic 12Y1C2 The course is devoted to particular linear building improved and developed 14Y1PA Work in 3D non-parame connected with external 16Y1PV Methods of vehicle productions of the course is devoted to particular linear building improved and developed 14Y1PA Work in 3D non-parame connected with external 16Y1PV Methods of vehicle productions of the course is devoted to particular linear building improved and developed 14Y1PA Work in 3D non-parame connected with external 16Y1PV Methods of vehicle productions of the course is devoted to particular linear building improved and developed 14Y1PA Work in 3D non-parame connected with external 16Y1PV Methods of vehicle productions of the course is devoted to particular linear building improved and developed 14Y1PA Work in 3D non-parame connected with external 16Y1PV Methods of vehicle productions of the course is devoted to particular linear building improved and developed 14Y1PA Work in 3D non-parame connected with external 16Y1PV Methods of vehicle productions of the course is devoted to particular linear building improved and developed 14Y1PA Work in 3D non-parame connected with external 16Y1PV Methods of vehicle productions of the course is devoted to particular linear building improved and developed 14Y1PA Work in 3D non-parame connected with external 16Y1PV | ATC Procedures and Activities ures, basics of communication and phraseology, aircraft identification, spacing and traffic coordination. In addition, the course idity operational procedures. Students will during the course learn basic safety management applications applied across the Assessment of Transport Structures structures, the ElA process. Multicriteria assessment methods, risk analysis, SWOT analysis. Landscape character, possibilitie he landscape. Rating fragmentation and landscape connectivity in the preparation of linear structures. Practical examples of Product Quality Management Processes annization management. Management systems and international standards; quality management systems. Quality products, management, management principles. Principles of process management, monitoring and measurement systems management. Process management principles. Metrology and testing. Product certification. C Programming Language e. Preprocessor, basics of the C language (data types, syntax, commands), functions, pointes, dynamical memory allocation, ract data types (FIFO, LIFO, list), programming techniques (sorting, searching, recursion), using bitwise oprerators. Designing Roads in Civil 3D I be traffic buildings design field, specifically the design of roads as such, by the means of a 3D software. Students go throu from the initial situation, over the longitudinal section, to the model and work sections and the cubic capacity calculation. The building design in the real-life profession. Designing Roads in Civil 3D II the traffic buildings design field, specifically the design of roads as such, by the means of a 3D software. Students go throu from the initial situation, over the longitudinal section, to the model and work sections and the cubic capacity calculation. The students learn to design intersections. 3D Modeling in AutoCAD tric modeller (AutoCAD) environment, scenes rendering, creation of planar and volumetric objects, user setup creation, object database. Basic definition of work with lights, mate | KZ se discusses air tra se infrastructure. KZ ses of its protection reassessment of tra KZ processes, system nt. Uniform framew KZ string, files, struct KZ agh the complete of the course also incomplete of the previously acquired that creation, where the course of the course of the course of the previously acquired that creation, where the course of the course of the course of the previously acquired that creation, where the course of the cou | affic control at 2 and assessment affic buildings on 2 ms. A framework york of standards 2 ures and unions. 2 design of this ludes a basic 2 design of this wired skills are 2 york with data 2 on mechanism. |

| 21Y1PA Air Traffic Control Operating Procedures | KZ | 2 |
|--|--------------------------|---------------------|
| Practical exercises on the ATC simulator with the following focus - getting familiar with the simulation environment, acquiring basic habits, aircraft | | _ |
| level changes, ATC clearance, use of RNAV points. Practical exercises focused on the basis of vectoring, timely application of vertical spacing, Exercises in the APPROACH airspace, arrivals, departures and conflict solutions. | SI and REV messag | ge transmission. |
| 12Y1PU Organization Disposition of Railway Stations | KZ | 2 |
| Connecting station. Passenger transport equipment. Freight transport equipment. Branch lines and railway traffic inside industrial company areas | I . | 1 |
| Reserve stations. Technology of work in railway station with regard to its disposition. Railway station documentations in the Czech Republic railway | | idilon yards. |
| 12Y1RU Railway Lines Reconstruction | KZ | 2 |
| Keeping railway line operational, maintaining lines and stations, geometrical alignment of railway line, vehicles for railway superstructure and sub | 1 | _ |
| and organising possesions, preparation of railway lines reconstruction and maintenance, process of railway line reconstruction. | | , , |
| 16Y1RE Control and Electronic Vehicle Systems | KZ | 2 |
| Elementary concepts of regulation. Tools for analytical solution, linear system description. Basic types of a regulator (PID), properties, advantages, | disadvantages, functi | on. Conventional |
| and hybrid drive control. Electric drive. Vehicle communication bus (CAN, LIN, FlexRay, ISObus, KWP2000 protocole etc.). Vehicle electronic con | rol, safety, communi- | cation and |
| comfort systems. | | |
| 21Y1RZ Human Resources Management | KZ | 2 |
| The position of human resources in the organization and related disciplines file. Substance, importance and challenges of human resources markets | | |
| environment of human resource management. Human resource planning. Search, recruitment and selection of employees. Motivation, evaluation | and remuneration of s | staff. Positioning, |
| dismissal and redundancies of employees. Education of employees. Planning career management. | | T |
| 17Y1ST Titan Simulation | KZ | 2 |
| Titan is a management game simulating the business decisions. Lets 2-8 student groups to produce and compete in the market with the same production and according to the same production and the same | | • |
| determine the quantity and capacity of production, plan budgets for marketing, research and development. They become familiar with the consequence of financial corporate reports and thou use this information for other huniness decisions. | uences of their decis | sions by the form |
| of financial corporate reports and they use this information for other business decisions. | 1/7 | |
| 21Y1SI ATC Simulator | KZ | 2 Proofice! |
| Familiarization with the simulation environment, acquiring basic habits, aircraft identification procedures, vectoring, level changes, ATC clearance exercises focusing on basic vectoring, early application of vertical separation, EST and REV message passing. Practical exercises in the APPRO | - | |
| departure management procedures, conflict resolution. | Aci i area, practicing | g arrivar ariu |
| 20Y1SC Sensors and Actuators | KZ | 2 |
| Principles of sensors and actuators. Basics of measuring theory and actuating influence. The respective technologies and construction principles. Ser | 1 | I |
| state (temperature, humidity), chemical and particle flow values. Electrical, pneumatic and hydraulic actuators and solid phase elements. | iooro or moonamoai, c | oloctio magnotio, |
| 17Y1SL Sociology of Human Resources | KZ | 2 |
| Human resources and their importance, work group as a special kind of social group, communication, personal management, modern management | 1 | _ |
| of the organization. | , | 3, |
| 11Y1SI Transportation Software Engineering | KZ | 2 |
| Basic concepts of software engineering, ranging from domain analysis, requirement analysis and software architectures to analyses, design and im | 1 | ormal techniques |
| and practical usuage. | _ | |
| 16Y1KS Quality and Reliability of Vehicles | KZ | 2 |
| Quality and reliability theory in design, development, production and operation of vehicles. Definition and possible approach to quality and reliability | ity. Key legislation. Fi | MEA (Failure |
| Mode and Effects Analysis), QFD (Quality Function Deployment), DFx (Design for Assamly, Manufacturying, Quality, Services) and other methods | ods used in industria | al applications. |
| Knowledge-based systems of quality and reliability, data collection. | | |
| 12Y1SU Road Management and Maintenance | KZ | 2 |
| Getting familiar with ownership of roads in the Czech Republic and the administration of the road at the state and county level. It is presented dev | • | |
| medium and long-term strategy of the Ministry of Transport. Maintenance of roads winter and summer, its requirements, specifics, possibilities and | d repair methods are | discussed in the |
| classroom as well as investment activity in highway engineering. | | |
| 16Y1SO Strategy and innovation in mobility | KZ | 2 |
| Introduction to innovation, definition. Innovation strategy. Innovation life cycle and ecosystem, main sources and funding opportunities. Successfu | | |
| co-financing, evaluation. Sprint method and its use. Innovative business model - main patterns and examples, design, strategy, processes and or of use). Creating an innovation strategy. Customer and value map, design and testing. | tiook (business pian | and possibilities |
| 17Y1SK Urban and Regional Rail Transport Systems | KZ | 2 |
| Factors affecting transport demand, modal-split, distribution of passenger flows on public regional transport lines. Optimization of line management | | |
| evaluation of the timetable. Vehicle circulation creation. Optimizing driver shifts and arranging them in turnus. Effects of barrier-free and public tra | | |
| marketing. | ioport prototoriocor . | |
| 21Y1TH Aircraft Technical Handling | KZ | 2 |
| Aircraft towing and pushing tractors. GPU. Air conditioning and heating units. Aircraft fuel equipment. De-acing and anti-icing units. Loading and units. | | |
| passangers onboarding and offboarding. Operational processes of aircraft technical handling and regulations. Modernization and technical programmers on the programmers of the programme | | |
| 11Y1TG Graph Theory | KZ | 2 |
| Basic concepts and terminology of graph theory, graph representation. Problems of graph theory, problem instance. Graph search algorithms, tre | | ng tree, shortest |
| path problem, Eulerian path, bipartite graph matching, flow networks, circulations, critical path method, traveling salesman problem. Problem of exist | ence and optimizatio | n and algorithms |
| for their solving. Computational complexity, dealing with NP-complete problems, heuristic approach. | | |
| 23Y1TP Criminal Law in IT and Transportation | KZ | 2 |
| Introduction of criminal law into legal order, conception of culpability and criminal delict, consequency of other legal standards. international treat | , and criminal law, in | vestigation of |
| crime, specific indicia of criminal court cases, practical examples. | | · |
| 14Y1TI Creating Interactive Internet Applications | KZ | 2 |
| Possibilities of scripting language PHP. Overview of PHP language syntax, and functions. Analysis of finished scripts and demonstration of solutions. | ns. Your own applicat | tion programmed |
| in PHP language. | | |
| 21Y1UL Aircraft Maintenance | KZ | 2 |
| Aircraft operations and technical operations. Maintenance and work processes. Defects search methods, status check diagnostic tools. Selection a | = | = |
| Basic documentation for maintenance. Optimization of time maintenance intervals. Regulation no. 1321/2014 Part 145. Human factors of aircraft EASA for aircraft maintenance. Seminars will be focused on practical application. | namenance. Regula | AUDIT OF CITECTOF |
| | | 2 |
| 14Y1UP 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, | KZ | I |
| - Stagonio will be introduced to the principles of creating and editing large decuments and pasic typographic rules. They will properly apply styles, | create tables of cont- | ents lists of |
| figures, tables, graphs, etc. Footnotes, captions, index. They practice corrections of finished documents. The goal is to prepare students for seam | | |
| figures, tables, graphs, etc. Footnotes, captions, index. They practice corrections of finished documents. The goal is to prepare students for seam so that they are able to concentrate mainly on writing a thesis. | | |

| 18Y1UK | Introduction of Rail Vehicles | KZ | 2 |
|-----------------------|--|------------------------|-----------------|
| Basic characteristic | s and parameters rail transport systems - railway and urban transport. Basis driving mechanics rail vehicles - equation of motio | n train and unit train | ns. Rolling and |
| rack resistance. To | al running resistance. Acceleration force. Analyzing driving cycle rail vehicle. Speed-power diagrams and characteristics rail vehi | cle - hydromechani | c, hydrodynam |
| and electric drive. D | lesign concept rail vehicles and drive of wheel set. | | |
| I2Y1VR | Public Transport in Cities and Regions | KZ | 2 |
| Professional and po | olitical pillars of public transport. Accessibility of public transport. Transport demand management and directional coordination of | lines. Principles of | line tracing. |
| | ameters and transport variations. Types of lines according to their routing and basic operating parameters. Time coordination of | | |
| Organization of trar | n operation in Prague. Tram safety. | | |
| 23Y1VS | Negotiation and Cooperation | KZ | 2 |
| Code of conduct for | negotiation. The influence of personality traits on the negotiations. Negotiation and commanding. Teamwork. Variants teams. In | formal and formal r | ole in the tean |
| Principles of negoti | ation, the essence of negotiation, the differences in negotiation in business and in crisis situations, the principle of "win both", sp | ecifications and bid | dding, the role |
| rust. | | | |
| 14Y1VM | Development of Applications for Mobile Devices | KZ | 2 |
| Object oriented pro | gramming, Java programming language, development environment, operating system Android, development application - widge | ets, containers, thre | ads, menu, |
| ermissions, servic | es, GUI. | | |
| 16Y1VT | Development in Railroad Vehicles | KZ | 2 |
| Railroad vehicles tr | action. Railroad vehicle parametres regulation. Control and driving of railroad vehicles. Importance in heavy duty and personal t | ransportation. Critic | al situation |
| | aterials in design. International standardization. | • | |
| 14Y1WG | Webdesign | KZ | 2 |
| | the basics of HTTP communication, URL and addressing, HTML5 markup language, advanced CSS3 techniques, accessible at | | |
| | management systems, web server installation + configuration directives. The subject matter will be trained on examples. | | , |
| 14Y1W1 | Webdesign 1 | KZ | 2 |
| | he basics of communication HTTP, URL and addressing, markup languages HTML and XHTML, HTML tags, rules of web acces | 1 | |
| | ssue of web browsers, creating one to three column layout pages, sites validation, conditional comments. Topics will be practice | | |
| 14Y1W2 | Webdesign 2 | KZ | 2 |
| | advanced techniques CSS, responsive webdesign, CSS frontends, content management systems, JavaScript, jQuery, SEO, we | 1 | - |
| | ll be practiced on practical examples. | b server iristaliation | i + comigurati |
| 16Y1ZG | Introduction into Applied Computer Graphics | KZ | 2 |
| - | division and applications with emphasis on transport, including development and research. Colours, colour perception, colour | 1 | |
| | elementary algorithms for graphic data workout. Visualisation principles and tasks, technics, graphics and visualisation HW bases | | |
| graphics software. | outline, agentine of graphic data notices, violations principles and dotte, continue, graphics and notation in particular principles and dotte, continue, graphics and notation in particular principles and dotte, continue, graphics and notation principles and dotte, continue, graphics and notation principles and dotter principles | noo. Introduction to | ZD and ob |
| 14Y1ZM | Fundamentals of parametric and adaptive modeling | KZ | 2 |
| | oducts and parts creation. Sketch drawing by help of geometric relations, parametric dimensions, creation of adaptive models fi | 1 | _ |
| - | oducts and parts creation. Sketch drawing by help of geometric relations, parametric dimensions, creation of adaptive models in systems. Fundamentals of assemblies creation. | OIII 2D Sketches. III | iport and expo |
| | | 1/7 | |
| 11Y1ZM | Foundation of MATLAB Programming | KZ | 2 |
| | iple of algorithmization, flow charts, description of MATLAB environment and its settings, MATLAB help, mathematical operators | matrices and elem | ents operation |
| | and outputs, graphics, optimization and program code debugging. | 1/7 | |
| 14Y1ZJ | Fundamentals of programming in JAVA | KZ | . 2 |
| | lava SE Platform. IDE Installation and First Project. Comments. Variables and Type System. Operators. User Input and Parsing. | | |
| | atical Methods. Terms. Relational Operators and Switches. Cycles for, while, foreach. Field - declaration, initialization, methods in the control of the con | or field work. ASCI | . Functions, |
| <u> </u> | value, recursion. Program creation. | 1/7 | |
| I2Y1ZU | Principles of Urbanism | KZ | 2 |
| | f city and settlement building. Functional components and their mutual relations (working, living, recreation, transportation). Spa | icial arrangement o | t settlements. |
| · | ities with a certain prevailing function, forms of their development. Brief overview of land-use planning. | · | |
| 5Y1ZV | East-West dichotomy: Prelude to the Cold War | KZ | 2 |
| | evolution of the "West" and "East" from the 1500s. Focus on the history in the period between 1850 nad 1950. Milestones and co | | |
| | entury and the beginning of the 20th century. Revolutions, the causes and consequences. Scientific and technological progress | , the causes and co | nsequences. |
| | cial history. Social changes. Discussions on texts, sources. | | |
| 16Y1ZL | Vehicle Testing, Legislation and Construction | KZ | 2 |
| /ehicle, bus and mo | torbike costruction, aggregate computing, driving resistance, build and parameters of traction, constructional arrangement of pers | onal cars, trucks, bu | ses, motorbik |
| | I and in the world, technical legislation creation, testing methods, vehicle tests, accelerated tests, mathematical modelling in tes | | |

Name of the block: Jazyky

Minimal number of credits of the block: 6

The role of the block: J

Code of the group: JZ-B-3,4 16/17

Name of the group: Jazyk bak. 5., 6.sem. (od) 16/17 (pro B3710)

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: Name of the course / Name of the group of courses

| Code | (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.) | Completion | Credits | Scope | Semester | Role |
|--------|---|------------|---------|-----------|----------|------|
| 15JZ3F | Foreign Language - French 3 Eva Rezlerová, Irena Veselková | Z | 3 | 0P+4C+10B | Z | J |

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

Characteristics of the courses of this group of Study Plan: Code=JZ-B-3,4 16/17 Name=Jazyk bak. 5., 6.sem. (od) 16/17 (pro B3710)

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.

15JZ3I Foreign Language - Italian 3

Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation.

15JZ3N Foreign Language - German 3 Ζ

3

Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation.

15JZ3R Foreign Language - Russian 3

Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation.

15JZ3S Foreign Language - Spanish 3 Ζ

Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation.

15JZ4F Foreign Language - French 4 Z.ZK

Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its

features. Practice of oral and written presentation. 15JZ4I Foreign Language - Italian 4

Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation.

15JZ4N Foreign Language - German 4

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

Foreign Language - Russian 4 15JZ4R

features. Practice of oral and written presentation.

Z,ZK

Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation.

15.174S Foreign Language - Spanish 4 Z,ZK

Grammar and stylistics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of language structure knowledge and perceptive and communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work with (professional) text and its features. Practice of oral and written presentation.

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. Geometric properties of n-dimensional Euklidean space and Cartesian coordinate system. Geometric meaning of the differential of functions several real variables, differential calculus of functions of several real variables.

| 11CAL2 | Calculus 2 | Z,ZK | 5 |
|--|--|--|--|
| • | Newtonian integral, Riemannian integral of the function of one variable, improper Riemannian integral, Riemannian integral in Rn. Pa | | · · · |
| k-dimensional su | rfaces in Rn, Riemannian integral over regular surfaces. Line and surface integrals of the second type, Stokes theorems, ordinary dif order, linear differential equations with constant coefficients and its systems | ferential equations | s of the first |
| 11EMOP | Electromagnetic Field and Optics | Z,ZK | 4 |
| TIEWOF | Electric field. Electric current. Magnetic field. Electromagnetic field. Optics. Basics of solid-state physics. | Z,ZR | 4 |
| 11FYZ | Physics | Z,ZK | 5 |
| 111 12 | Kinematics, particle dynamics, dynamics of particle systems and rigid body. Continuum mechanics, thermodynamics. | 2,213 | ' ' |
| 11GIE | Geometry | KZ | 3 |
| | try of curves - parameterization, the arc of the curve, torsion and curvature, Frenet`s trihedron. Kinematics - a curve as a trajectory of | 1 | - 1 |
| | acceleration of a particle moving on a curved path. | | - |
| 11LA | Linear Algebra | Z,ZK | 3 |
| Vector spaces (line | ar combinations, linear independence, dimension, basis, coordinates). Matrices and operations. Systems of linear equations and the | ir solvability. Deter | minants and |
| | their applications. Scalar product. Similarity of matrices (eigenvalues and eigenvectors). Quadratic forms and their classificat | | _ |
| 11MDS | Collection and Processing of Traffic Data | KZ | 2 |
| • | ciples of traffic detection and data collection, specific problems of the field of traffic data. Data preprocessing and analysis for use in a | | |
| 11MSP | Modeling of Systems and Processes | Z,ZK | 4 |
| | tem, external and internal system description, continuous and discrete system, mathematics as a tool, examples of formulation of different linear system, estationary and non-stationary external system as a stationary and some stationary external system. It is not stationary and some stationary and some stationary external system. | | · · |
| Linear and non | linear system, stationary and non-stationary system, causality. Convolutional integral. Laplace and Z transformations. Transfer function Discretization of continuous systems. System interconnection. | on. Stability of LTT: | systems. |
| 11STAT | Statistics | Z.ZK | 4 |
| _ | Statistics ity Descriptive statistics Population and sample, limit theorem Point estimate, construction and properties Interval estimates Parame | 1 ' | 1 |
| | Regression and correlation analysis | | |
| 11X31 | Project 1 | Z | 2 |
| 11X32 | Project 2 | Z | 2 |
| 11X33 | Project 3 | Z | 2 |
| 11Y1BK | Error Detection Codes for Interlocking Systems | KZ | 2 |
| | tion and methods for its assuring. Safety codes – linear codes, cyclic codes, BCH codes, Reed-Solomon codes. Transmission channels | | 1 |
| | errors, probability of undetected error. Design and assessment of detection codes; requirements of the European standard EN | | |
| 11Y1PV | Parametrical and Multicriterial Programming | KZ | 2 |
| Solution to the prob | olem of linear programming with a parameter in objective function, on right sides and in the matrix of coeficients of linear constraints. Co | omputation of effic | ient solution. |
| 11Y1SI | Transportation Software Engineering | KZ | 2 |
| Basic concepts of s | oftware engineering, ranging from domain analysis, requirement analysis and software architectures to analyses, design and implement | ntation using forma | al techniques |
| | and practical usuage. | | _ |
| | | | |
| 11Y1TG | Graph Theory | KZ | 2 |
| Basic concepts an | d terminology of graph theory, graph representation. Problems of graph theory, problem instance. Graph search algorithms, trees, mi | nimum spanning ti | ree, shortest |
| Basic concepts an | d terminology of graph theory, graph representation. Problems of graph theory, problem instance. Graph search algorithms, trees, mi rian path, bipartite graph matching, flow networks, circulations, critical path method, traveling salesman problem. Problem of existence a | nimum spanning ti | ree, shortest |
| Basic concepts an path problem, Eule | d terminology of graph theory, graph representation. Problems of graph theory, problem instance. Graph search algorithms, trees, mi rian path, bipartite graph matching, flow networks, circulations, critical path method, traveling salesman problem. Problem of existence a for their solving. Computational complexity, dealing with NP-complete problems, heuristic approach. | nimum spanning to | ree, shortest nd algorithms |
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| 12VERD | Public Transport in Cities and Regions | Z | 3 |
|---|---|---|------------------------------|
| | network design including determination of walking distances, characteristics of usable kind of transport, dimensioning transport capaci operational parametres of lines, objective way of quality evaluation of transport measures design. | _ | _ |
| 12X31 | Project 1 | Z | 2 |
| 12X32 | Project 2 | Z | 2 |
| 12X33 | Project 3 | <u>Z</u> | 2 |
| | · | KZ | 2 |
| 12Y1AE | Applied Ecology ecological concepts and principles, ecosystem, ecological factors, energy flow through the ecosystem. Application of knowledge within | | _ |
| • | cape ecology - origin and historical development. Landscape definition and classification. Success. Traffic constructions in the countrys protection. Applied ecology. | | • |
| 12Y1C1 | Designing Roads in Civil 3D I | KZ | 2 |
| | evoted to the traffic buildings design field, specifically the design of roads as such, by the means of a 3D software. Students go through building, from the initial situation, over the longitudinal section, to the model and work sections and the cubic capacity calculation. The explanation of the traffic building design in the real-life profession. | | • |
| 12Y1C2 | Designing Roads in Civil 3D II | KZ | 2 |
| | evoted to the traffic buildings design field, specifically the design of roads as such, by the means of a 3D software. Students go through building, from the initial situation, over the longitudinal section, to the model and work sections and the cubic capacity calculation. The part of the model and work sections are the cubic capacity calculation. | • | - |
| 10)/150 | improved and developed. Students learn to design intersections. | | |
| 12Y1DS Project documen | Project Documentation in Practice tation creating. Project documentation types. Support materials for project documentation creating. Building permit obtaining process. | KZ Budget and pricir | 2 ng. Practic |
| 40)/41.15 | creation of some project documentation parts. | | |
| 12Y1HD | Traffic Noise | KZ | 2 |
| area, principles | ion, basic terms, quantities. Basics of physiological acoustic, noise impacts on human body. Acoustic legislation, standarts, regulations of urban acoustic, noise transmission, soundproofing. Types of noise sources in area. Determination of acoustic situation in the area computing and measurement of transport noise. Acoustic studies, measuring protocol. | of interest. Metho | dology of |
| 12Y1KN | Combined Transportation | KZ | 2 |
| | port strategy and legislation. Load units. Means of transport in combined transport. Combined transport systems. Transshipping areas. | | |
| 12Y1KP | Communication and Promotion of Transport Projects | KZ | 2 |
| | Public Relations and the power of public opinion. Work and tasks of PR department and press spokesperson. Communication with the | - | |
| networks and be | yond. Communication strategy of transport projects. Systematic goodwill building. Crisis situations in communication and preparation for | or crisis commun | ication. Th |
| | influence of political marketing and political PR on transport projects. Lobbing. | | _ |
| 12Y1PC | Pedestrian and Cycling Transport | KZ | 2 |
| - | rians. Pedestrian crossings. Modifications for blind, dim-sighted and disabled people. Design of cycle routes network. Ways of cycle route ration of cyclists from other transport modes. Cycle tracks and its design - one way streets, reserved traffic lanes, bus stops, crossings crossroads. Traffic signs and road marking for cyclists. | - | - |
| 12Y1PD | Assessment of Transport Structures | KZ | 2 |
| ssessment of trar | nsport structures, the EIA process. Multicriteria assessment methods, risk analysis, SWOT analysis. Landscape character, possibilities of so on the landscape. Rating fragmentation and landscape connectivity in the preparation of linear structures. Practical examples of assignments. | its protection and | assessm |
| | the environment. | 555ITIETH OF HAITIC | bullulligs |
| 12Y1PU | Organization Disposition of Railway Stations | KZ | 2 |
| | ion. Passenger transport equipment. Freight transport equipment. Branch lines and railway traffic inside industrial company areas. Zonerve stations. Technology of work in railway station with regard to its disposition. Railway station documentations in the Czech Republic | | tion yards |
| 12Y1RU | Railway Lines Reconstruction | KZ | 2 |
| Keeping railway I | ine operational, maintaining lines and stations, geometrical alignment of railway line, vehicles for railway superstructure and substructure and organising possesions, preparation of railway lines reconstruction and maintenance, process of railway line reconstruction | | schedulir |
| 12Y1SU | Road Management and Maintenance | KZ | 2 |
| ŭ | with ownership of roads in the Czech Republic and the administration of the road at the state and county level. It is presented develop term strategy of the Ministry of Transport. Maintenance of roads winter and summer, its requirements, specifics, possibilities and repair classroom as well as investment activity in highway engineering. | | |
| 12Y1VR | Public Transport in Cities and Regions | KZ | 2 |
| | d political pillars of public transport. Accessibility of public transport. Transport demand management and directional coordination of line | | Į. |
| | parameters and transport variations. Types of lines according to their routing and basic operating parameters. Time coordination of line Organization of tram operation in Prague. Tram safety. | • | |
| 12Y1ZU | Principles of Urbanism | KZ | 2 |
| | y of city and settlement building. Functional components and their mutual relations (working, living, recreation, transportation). Spacial Types of towns or cities with a certain prevailing function, forms of their development. Brief overview of land-use planning. | | ettlement |
| | Introduction to Architectural Design | Z | 3 |
| 127AD | introduction to Architectural Design | | 3 |
| 12ZAR Urbanism and | d architecture of traffic systems. Bus and trolley-bus transport. Tramway and town tracks. Design of vehicles. Subway. Railway transport | | s. Local |
| Urbanism and | communications. International airports. | t. Railway station | |
| Urbanism and | communications. International airports. Railway Operation way transport. Railway vehicles. Railway signals and signal devices. Railway traffic organisation and operation. Simplified railway traffic | t. Railway station | 4 |
| Urbanism and 12ZELP Legislation in rail | communications. International airports. Railway Operation way transport. Railway vehicles. Railway signals and signal devices. Railway traffic organisation and operation. Simplified railway traffic brakes. Railway vehicles marking. Operation intervals. Theoretical graph of train running. | t. Railway station Z,ZK c operation. Railw | 4 ay vehicle |
| Urbanism and 12ZELP Legislation in rail | communications. International airports. Railway Operation way transport. Railway vehicles. Railway signals and signal devices. Railway traffic organisation and operation. Simplified railway traffic brakes. Railway vehicles marking. Operation intervals. Theoretical graph of train running. Railway Lines and Stations ailway track geometry parameters. Route layout of railway lines. Railway line construction - railway substructure and superstructure. S | t. Railway station Z,ZK c operation. Railw Z,ZK patial layout of rai | 4 vay vehicle |
| Urbanism and 12ZELP Legislation in rail 12ZTS Rail transport. R | communications. International airports. Railway Operation way transport. Railway vehicles. Railway signals and signal devices. Railway traffic organisation and operation. Simplified railway traffic brakes. Railway vehicles marking. Operation intervals. Theoretical graph of train running. Railway Lines and Stations ailway track geometry parameters. Route layout of railway lines. Railway line construction - railway substructure and superstructure. Sp. Railway control systems in relation to infrastructure. Operating and carriage points. Railway lines net and category. Traction in rail tr | t. Railway station Z,ZK c operation. Railw Z,ZK patial layout of rai ansport. | 4 vay vehicle 4 ilway lines |
| Urbanism and 12ZELP Legislation in rail 12ZTS Rail transport. R | communications. International airports. Railway Operation way transport. Railway vehicles. Railway signals and signal devices. Railway traffic organisation and operation. Simplified railway traffic brakes. Railway vehicles marking. Operation intervals. Theoretical graph of train running. Railway Lines and Stations ailway track geometry parameters. Route layout of railway lines. Railway line construction - railway substructure and superstructure. S | t. Railway station Z,ZK c operation. Railw Z,ZK patial layout of raisansport. Z,ZK | 4 yay vehicle 4 lilway lines |

impacts of transportation to environment and safety.

| 14ASD | Algorithm and Data Structures | KZ | 3 |
|------------------------|--|-----------------------|----------------|
| | niliarized with selected basic and derived data structures, algorithms, their properties and their design procedure. Students will analyze | | |
| solutions to the se | et task and the resulting algorithm write by means of flowcharts, practice in reading algorithms recorded by means of the flowchart an algebra with forming the conditions for the algorithms. | d use the basics of | Boolean |
| 14DATS | Database Systems | KZ | 2 |
| | of database systems, conceptual model, relational data model, the principles of normal forms, relational database design, security and | | |
| | queries, relational algebra, SQL language, client / server, multilayer architectures, distributed database systems. Access to data via t | | |
| 14KSP | Constructing with Computer Aid | KZ | 2 |
| - | m determination. CAD role in projecting system model. Existing CAD systems on Czech market. Project creation, basic common work Co-ordinated systems, CAD environment skill (basics of constructing, dimensioning, modifications, user interfaces, projecting possibility.) | | |
| and on cyclomo. | profiles, drawings with raster foundaments). | | THO I HITO I I |
| 14PPD | Computer Aid of Transportation Projecting | KZ | 2 |
| - | oplication for transportation projecting aid. AutoCAD environment possibilities of basic tasks automatizing (programming, scripting, data | | |
| modification (attribu | utes, relation to databases). Work in projecting group, external references. Basic tasks for cummunication projecting (clotoidic transition section). Basics of 3D modelling. | curve, cross and I | ongitudinal |
| 14PRG | Programming Programming | KZ | 2 |
| | ramming builds on and fully extends the course 14ASD (Algorithmization and Data Structures). The knowledge of the Python program | | |
| here so that the par | rticipant gains skills and can apply them to solve various follow-up tasks. Main topics: lists, multidimensional arrays, sorting and search | ing, tuples, sets, d | ictionaries, |
| 4.47/04 | working with date and time, regular expressions, functions and procedures, working with files (CSV, JSON, XML). | 7 | |
| 14X31 14X32 | Project 1 | Z Z | 2 |
| 14X32 14X33 | Project 2 Project 3 | Z | 2 |
| 14Y1AV | Animation and Visualization | KZ | 2 |
| | tions and modeling of NURBS, Patch objects, selection of objects (according to filter and properties). 3D Studio MAX systems and Spa | 1 | _ |
| and other effect | s, rendering filters, Motion blur, advanced animations, Motion panel. Modeling for morphing and animation, bone formation, animation | using Inverse Kine | ematics. |
| 14Y1BE | Barrierless Transport | KZ | 2 |
| | rless accessible public transportation in terms of architectural barriers and also for transportation-technological point of view. Students vonment roads, railway stations, public transport stops, terminal buildings, vehicles, public transport, information and orientation systems a | | |
| or barrieriess erivire | Theoretical knowledge will be supplemented by practical examples. | and transportation | leci i lology. |
| 14Y1BM | Biometric Methods | KZ | 2 |
| | rms, authentication methods, principles and performance measurement of biometric systems, overview of biometric technologies, hair | - | - 1 |
| retina recognition n | nethod, 2D and 3D face recognition, vein patterns on the wrist, ear biometrics, fingerprint recognition, skin spectroscopy, behavioral m in transport applications, safety and risks of biometric technologies. | ethods, the use of | biometrics |
| 14Y1HW | Computer Hardware | KZ | 2 |
| | ecture, basics of logical circuits design and their realization using FPGA. In detail, description of computer architecture and separate p | | |
| | arithmetic and logical units, I/O subsystem. | | |
| 14Y1MP | Modeling Complex Assemblies and Models in Parametric Modeller | KZ | . 2 |
| Assemblies prog | gramming - tools and methodology of working subassemblies and assemblies, sheet metal parts modelling, welded assemblies, pipel Photorealistic output rendering - physical and material properties, lighting sources. MKP - visual example. | nes, and distribution | on lines. |
| 14Y1OJ | Object - oriented programming in JAVA | KZ | 2 |
| | Encapsulation. Classes. Attributes. Access modifiers. Methods and overloading. Special methods (constructors, getters / setters). Bar | Į. | |
| | nce. Polymorphism. Statics, constants, interfaces, abstract classes, enum, packages, exceptions, collections, generics, lambda expre | | |
| 14Y10P | Operating System | KZ | 2 |
| | stallation GNU/Linux OS. X-window system. Rights management - users and groups, ACL rights. Filesystems and attributes. Programs console programs / commands. Config files. SW management, package systems. Programs in graphic shell - text, spreadsheet, graph | | |
| | communication. Services management. Safe and secure configuration of OS. Remote administration. | | |
| 14Y1P2 | Computer Aid of Transportation Projecting 2 | KZ | 2 |
| | oplication for transportation projecting aid. AutoCAD environment possibilities of basic tasks automatizing (programming, scripting, data utes, relation to databases). Work in projecting group, external references. Basic tasks for cummunication projecting (clotoidic transitior | | |
| modification (attribu | section). Basics of 3D modelling. | curve, cross-and i | ongiludinai |
| 14Y1PA | 3D Modeling in AutoCAD | KZ | 2 |
| Work in 3D non-pa | arametric modeller (AutoCAD) environment, scenes rendering, creation of planar and volumetric objects, user setup creation, object of | lata creation, work | with data |
| 4.074.00 | connected with external database. Basic definition of work with lights, materials and reflexes. Models presentation. | 1/7 | |
| 14Y1PG | Computer Graphics graphic and possibilities of their editing and mutual conversion. Use of individual types according to character of work. Work with editir | KZ | 2 |
| basic formats or g | level scope) using layers, DPI, colors. Basics of digital photography, scanning and computer technology like monitors and graphics | · · · · | i tilo usoi |
| 14Y1PI | Corporate Information System | KZ | 2 |
| | n-knowledge, components of information system, syntatic and semantic sense of data, structure of corporate information system, par | | - 1 |
| (personalistic, prod | uction, storage, etc.), corporate information politic and information control, risks of information system operation, legal environment of state information system, information system security, data protection, safety politics. | information system | operation, |
| 14Y1PJ | C Programming Language | KZ | 2 |
| | guage. Preprocessor, basics of the C language (data types, syntax, commands), functions, pointes, dynamical memory allocation, strin | | |
| | Implementations of abstract data types (FIFO, LIFO, list), programming techniques (sorting, searching, recursion), using bitwise op | | |
| 14Y1PZ | Advanced Data Processing in Spreadsheets | KZ | 2 |
| | familiar with principles of working in a spreadsheet. Graphic layout of the table appearance, formatting of numbers, insertion of formu etection. Working with large spreadsheets, filters, advanced filters, database functions. Pivot tables and charts, conditional formatting, so | | - 1 |
| | data analysis. Examples and questions from various companies and training. | | |
| 14Y1TI | Creating Interactive Internet Applications | KZ | 2 |
| Possibilities of scrip | oting language PHP. Overview of PHP language syntax, and functions. Analysis of finished scripts and demonstration of solutions. Your | own application pr | ogrammed |
| | in PHP language. | | |

| 14Y1UP | F. IV. (TI : NAC)A/ I | 1/7 | _ |
|--|--|--|--|
| CIUGEIIIS WIII DE IIILO | Editing of Theses in MS Word duced to the principles of creating and editing large documents and basic typographic rules. They will properly apply styles, create | KZ tables of conten | ts. lists of |
| | etc. Footnotes, captions, index. They practice corrections of finished documents. The goal is to prepare students for seamless editions that they are able to concentrate mainly on writing a thesis. | | |
| 14Y1VM | Development of Applications for Mobile Devices | KZ | 2 |
| Object oriented progr | pramming, Java programming language, development environment, operating system Android, development application - widgets, c permissions, services, GUI. | ontainers, threa | ds, menu, |
| 14Y1W1 | Webdesign 1 | KZ | 2 |
| l l | basics of communication HTTP, URL and addressing, markup languages HTML and XHTML, HTML tags, rules of web accessibility a | | ı S propertie |
| and selectors, the | e issue of web browsers, creating one to three column layout pages, sites validation, conditional comments. Topics will be practiced | on practical exa | mples. |
| 14Y1W2 | Webdesign 2 | KZ | 2 |
| udents will learn adva | anced techniques CSS, responsive webdesign, CSS frontends, content management systems, JavaScript, jQuery, SEO, web serve directives. Topics will be practiced on practical examples. | er installation + c | onfiguratio |
| 14Y1WG | Webdesign | KZ | 2 |
| | e basics of HTTP communication, URL and addressing, HTML5 markup language, advanced CSS3 techniques, accessible and usa ebdesign, content management systems, web server installation + configuration directives. The subject matter will be trained on ex- | | esponsive |
| 14Y1ZJ | Fundamentals of programming in JAVA | KZ | 2 |
| | a SE Platform. IDE Installation and First Project. Comments. Variables and Type System. Operators. User Input and Parsing. Chain | | |
| Chain and Mathemat | tical Methods. Terms. Relational Operators and Switches. Cycles for, while, foreach. Field - declaration, initialization, methods for fie parameters, return value, recursion. Program creation. | id work. ASCII. i | -unctions, |
| 14Y1ZM | Fundamentals of parametric and adaptive modeling | KZ | 2 |
| asics of work at produ | ucts and parts creation. Sketch drawing by help of geometric relations, parametric dimensions, creation of adaptive models from 2D from and to another systems. Fundamentals of assemblies creation. | sketches. Impor | t and expo |
| 15DPLG | Transportation Psychology | Z | 2 |
| | and its basic concepts. Information intake, decision-making and behaviour. Performance. Engineering psychology and vehicle constru ute and traffic conditions, accidents and traffic incidents. Selection and training of the staff. Work and leisure. Age as a factor in tran | | ical aspect |
| 15JZ1A | Foreign Language - English 1 | Z | 3 |
| | s and Style. Selection of conversation topics relating to transportation sciences. Extending vocabulary, developing perceptive and comr distics forms. Oral and written presentation of original research. Academic text principles and reading comprehension. Principles of | | Elementa |
| 15JZ2A | Foreign Language - English 2 | Z,ZK | 3 |
| | s and style. Selection of conversation topics relating to transportation sciences. Extending vocabulary, developing perceptive and comr | , | |
| styl | listics forms. Oral and written presentation of original research. Academic text principles and reading comprehension. Principles of | rhetoric. | |
| 15JZ3F | Foreign Language - French 3 | Z | 3 |
| | s. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of lan | | |
| ind perceptive and coi | mmunicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work wit features. Practice of oral and written presentation. | in (professional) | text and its |
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| 15,1731 | | 7 | 3 |
| 15JZ3I Grammar and stylistics | Foreign Language - Italian 3 s. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of lan | Z guage structure | 3 knowledge |
| Grammar and stylistics | Foreign Language - Italian 3 | guage structure | knowledge |
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| 15JZ4S | Foreign Language - Spanish 4 | Z,ZK | 3 |
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| | stics. Selection of conversation and professional topics based on the language level and study focus at the Faculty. Improvement of la | | - |
| and perceptive and | d communicative skills, vocabulary development. Basic stylistic forms. Presentation of own knowledge in oral and written form. Work v | vith (professional) | text and its |
| | features. Practice of oral and written presentation. | | |
| 15X31 | Project 1 | Z | 2 |
| 15X32 | Project 2 | Z | 2 |
| 15X33 | Project 3 | Z | 2 |
| 15Y1BO | Work Safety and Health Protection in Transportation | KZ | 2 |
| Fundamental legis | lative, definition of terms, risks and possible health damage, working conditions and health protection with focus on transportation. He | ealth protection pro | ogrammes, |
| | health insurance of home and foreign business trips, statistics, working practice. | | |
| 15Y1DZ | History of Railway | KZ | 2 |
| | vays, steam railways, railway network development in the 2nd half of 19th century, regional railways epoch, railways of the "First Repu | | |
| War II railways, railv | vay development in the 2nd half of 20th century, high-speed railway origins, railway lines closing, important long-distance train connections and projections. | ons, railway lines o | onstruction, |
| 1EV1EU | railway accidents, railway junctions. Excursions and projections. | KZ | 2 |
| 15Y1EH | European Integration within Historical Context formation of new states. Europe and the powers, League of Nations. European policy in the 1920s. Fascism, nacism, communism. Lir | ı | |
| | er Hitler's getting to power, system of bilateral agreements. Decline of the LN. Rearrangement of powers during WWII. Cold war and it | • | |
| godioi Zuropo di i | New quality of French-German relationship - a driving power of starting European integration. | o concoquences is | 5. <u>_</u> u.opo. |
| 15Y1FD | French Area Studies and Transportation | KZ | 2 |
| | by and regions, transport infrastructure. Paris and its sights, city public transport. Road traffic, motorways, railway traffic, TGV, air traf | | |
| | nch society and culture. Current political system. System of education, studying in France. Selected authors of French literature. French | • | |
| 15Y1HD | History of City Mass Transport | KZ | 2 |
| History of city mass | s transport in the world, development of tram, bus and trolley-bus systems. History of transport networks in the world, current trends a | and developments | of tariff and |
| cleara | nce systems. History of city transport in Prague and Brno. History of tram, bus and trolley-bus operation systems in the Czech Republic | olic and Slovakia. | |
| 15Y1HE | Work Hygiene and Ergonomics in Traffic | KZ | 2 |
| _ | of occupational hygiene and ergonomics, and their application in transport. Working environment factors, and the influence of these f | | |
| Creation and prote | ction of working conditions that do not damage public health. Mutual links: man-machine-environment. Adaptation of technology to po | ssibilities and skill | s of a man. |
| | Practical examples from the field of transportation; relevant legislature. | | |
| 15Y1HL | History of Civil Aviation | KZ | 2 |
| | g, development of aircrafts lighter than air. Beginnings of aircrafts heavier than air. Czechoslovak aviation pioneers. Development of a | | - |
| vvorid airports. Fa | amous aviators. Helicopters. CSA airplanes. Development of aircrafts in Czechoslovakia between the years 1945-1989. Classic era of | aviation. Golden 6 | era of civil |
| 1 E V 1 N 1 V | aviation. Modern era of civil aviation. Airline companies. Supersonic flying. | V7 | 2 |
| 15Y1MK | Modern History in Context: Every Day Life and Transport Historical overview of modern history of every day life, science, technology and transport in a wider context. | KZ | 2 |
| 15Y1NE | German in the Economy and Society | KZ | 2 |
| | and social issues of German speaking countries and of the EU. Reading and listening of texts. Lexical, grammatical and semantic an | | |
| Trocont cooncinio | selected topics. | aryolo or toxto. Bloc | 0000011 011 |
| 15Y1ZV | East-West dichotomy: Prelude to the Cold War | KZ | 2 |
| | evolution of the "West" and "East" from the 1500s. Focus on the history in the period between 1850 nad 1950. Milestones and continui | | |
| | century and the beginning of the 20th century. Revolutions, the causes and consequences. Scientific and technological progress, the | - | |
| | Economic and financial history. Social changes. Discussions on texts, sources. | | |
| 16DPY | Vehicle Technology | KZ | 5 |
| Technical nome | enclature in transportation technology. Vehicle in legislation. Design. Operation. Influence on environment. Vehicle and ecology. Tractic | n engine characte | ristics - |
| | combustion engines, electric engines, change of energy principles. Powertrain construction. Power transmission. | | |
| 16DYJ | Vehicle Dynamics | Z,ZK | 3 |
| | nanics. Wheel and axle suspension mechanism. Wheel to road positioning characteristics. Wheel - road contact. Skid and its character | - | - |
| acceleration and de | eceleration. Vertical dynamics, spring suspension, driving characteristics. Directional dynamics, gyroscopical characteristics. Driving sta | ibility conditions. A | erodynamic |
| 16DA\/ | forces. Driving and feedback. ABS, ESP. | 7.71/ | |
| 16PAV | Passive Safety uation. Testing and legislation. Crash tests. Carbody properties. Injury mechanics. Restrain systems. Airbags. Road user safety. Mathe | Z,ZK | 4 |
| Noau accident eval | uation. Testing and legislation. Clash tests. Carbody properties, injury mechanics, restrain systems. Alibags, road user salety, mathe safety systems. | matic modelling. F | OSI COMSION |
| 16UDOP | Introduction into Vehicles | Z | 2 |
| | portation systems. Functionality and setup. Movement and drive principles. Engines and their characteristics. Rail, road, air and water | ı | |
| | of transport. Lifting equipment and conveyors. Legislation. | | |
| 16X31 | Project 1 | Z | 2 |
| 16X32 | Project 2 | Z | 2 |
| 16X33 | Project 3 | Z | 2 |
| 16Y1EN | Energy Requirements of Vehicles | KZ | 2 |
| | driving inertial of the vehicles. Types of energy - kinetic, static, heat, chemical and others. Ways of energy change into kinetic energy | l l | |
| | drive, steam engine, air engine. Energy accumulation means, accumulator, flywheel, fuel cell. Energy recuperation. WTW analysis | _ | , |
| 16Y1IS | Interactive simulators and simulations | KZ | 2 |
| | ry and application of computing equipment. Creating computing models. Mechanical and dynamic systems and their mathematical models. | | |
| | ation of vehicle dynamics, on-land carriage in particular. Virtual reality systems. Practical exercise with simulation software and intera | | |
| 16Y1KS | Quality and Reliability of Vehicles | KZ | 2 |
| | ility theory in design, development, production and operation of vehicles. Definition and possible approach to quality and reliability. Ke | | - |
| Mode and Effects | Analysis), QFD (Quality Function Deployment), DFx (Design for Assamly, Manufacturying, Quality, Services) and other methods us | sed in industrial ap | plications. |
| | Knowledge-based systems of quality and reliability, data collection. | | |
| 16Y1PV | Operation, Construction and Maintenance of Vehicles | KZ | 2 |
| iviethods of vehicle | production. Vehicle maintenance. Vehicle diagnostics. Maintenence and repair plans. Engine maintenance and emission measureme | nτ. Iransmission m | necnanism. |

| 16Y1RE | Control and Electronic Vehicle Systems | KZ | 2 |
|-----------------------|--|-----------------------|----------------|
| Elementary concep | ts of regulation. Tools for analytical solution, linear system description. Basic types of a regulator (PID), properties, advantages, disadva | ntages, function. C | onventional |
| and hybrid drive | $control. \ Electric \ drive. \ Vehicle \ communication \ bus \ (CAN, LIN, FlexRay, ISObus, KWP2000 \ protocole \ etc.). \ Vehicle \ electronic \ control, \ bus \ (CAN, LIN, FlexRay, ISObus, KWP2000 \ protocole \ etc.). \ Vehicle \ electronic \ control, \ bus \ (CAN, LIN, FlexRay, ISObus, KWP2000 \ protocole \ etc.).$ | safety, communica | ation and |
| | comfort systems. | | |
| 16Y1SO | Strategy and innovation in mobility | KZ | 2 |
| | novation, definition. Innovation strategy. Innovation life cycle and ecosystem, main sources and funding opportunities. Successful inno | | - 1 |
| co-financing, evalu | ation. Sprint method and its use. Innovative business model - main patterns and examples, design, strategy, processes and outlook (t | ousiness plan and | possibilities |
| | of use). Creating an innovation strategy. Customer and value map, design and testing. | = | |
| 16Y1VT | Development in Railroad Vehicles | KZ | 2 |
| Railroad venicles | s traction. Railroad vehicle parametres regulation. Control and driving of railroad vehicles. Importance in heavy duty and personal tran | sportation. Critical | situation |
| 16Y1ZG | assesment. New materials in design. International standardization. | KZ | 2 |
| | Introduction into Applied Computer Graphics s, division and applications with emphasis on transport, including development and research. Colours, colour perception, colour sche | | |
| | on, elementary algorithms for graphic data workout. Visualisation principles and tasks, technics, graphics and visualisation HW basics | • | |
| and the general | graphics software. | | |
| 16Y1ZL | Vehicle Testing, Legislation and Construction | KZ | 2 |
| | otorbike costruction, aggregate computing, driving resistance, build and parameters of traction, constructional arrangement of personal c | | |
| legi | slation in the EU and in the world, technical legislation creation, testing methods, vehicle tests, accelerated tests, mathematical mode | Iling in testing. | |
| 17FID | Financing and Investment in Transport | Z,ZK | 4 |
| Sources of financin | g of transport infrastructure, the role of public administration in the financing and realization of investment in transport, the investment | t project project cy | cle, subsidy |
| ī | programs and their rules, competition, effectiveness and efficiency of spending public funds, evaluation systems of public projects and | d programs. | |
| 17GEDS | Geography of Transport Systems | KZ | 2 |
| - | ntiation of the transport system. Sociogeographic regionalization and its relation to transport. Transport and local and regional develo | | |
| theoretical and met | hodological framework. Mobility research - travel behavior, mode choice and the influence onto "modal-split." Modal competition. Practica | I use of transport-g | eographical |
| | analysis in transportation planning. | = | |
| 17TEDL | Transport Technology and Logistics | KZ | 3 |
| | sport technology and logistics, particular steps of transport planning, line planning, timetabling, planning in pasanger and freight transport beginning in pasanger and freight transport beginning to the planting and their optication unit | | |
| | odus, technologic factors of the side of operator and client, organisation of city transport, logistic technologies and their aplication usi | | |
| 17TGA | Graph Theory and its Applications in Transport graph theory, paths in graphs, flows in networks, location problems, design problems on graphs, optimum routing, use of graphs in c | Z,ZK | 4 |
| | | | |
| 17X31 | Project 1 | | 2 |
| 17X32 | Project 2 | Z | 2 |
| 17X33 | Project 3 | Z | 2 |
| 17Y1EV | Public Sector Economy | KZ | 2 |
| | ncial theory of public sector, public choice theory, externalites, decisions about public finance allocation, economic assessment of public projects funding for | | |
| - | R, state budget, management of public projects a their economic efficiency assessment, way of elaboration of PPP projects, funding fro | | |
| 17Y1LL | Logistics of Passenger and Freight Air Transport ssenger and cargo. Aircraft and airport terminals for passenger and cargo transport. Airlines in terms of logistics systems. Aerial trans | KZ | 2 |
| Logistics airiirie pa | air cargo. Information systems in air transport. Global distribution systems. | sport process pass | eligeis aliu |
| 17Y1MD | Marketing in Transportation | KZ | 2 |
| | of marketing applied to transport issues, marketing tools suitable for transport as a service, specifics of public passenger transport as | | |
| | the application of marketing. | | |
| 17Y10F | Personal Finance | KZ | 2 |
| | budget, financing of basic living needs), debt (loans and credits, payment instruments, interest and fees, debt trap), financing of hous | | |
| | financing), savings and investments (investment horizon, return, risk, investment strategy), insurance (insurance types, suitability and | | |
| | (retirement savings and insurance). | | |
| 17Y1PM | Personnel Management | KZ | 2 |
| Human sour | ces, work group, man as personality, planning, choice, evaluation and education of human sources, work adaptation, teamwork, inter- | cultural communic | ation. |
| 17Y1SK | Urban and Regional Rail Transport Systems | KZ | 2 |
| • | transport demand, modal-split, distribution of passenger flows on public regional transport lines. Optimization of line management, lines. | • | ١ . |
| evaluation of the | e timetable. Vehicle circulation creation. Optimizing driver shifts and arranging them in turnus. Effects of barrier-free and public transposition. | ort preferences. Th | e role of |
| 473/401 | marketing. | 147 | |
| 17Y1SL | Sociology of Human Resources | KZ | 2 |
| Human resources a | and their importance, work group as a special kind of social group, communication, personal management, modern management, hum | an resources plant | ning, cuiture |
| 47V4CT | of the organization. | V7 | 2 |
| 17Y1ST | Titan Simulation gement game simulating the business decisions. Lets 2-8 student groups to produce and compete in the market with the same produce. | KZ | 2 price and |
| _ | ntity and capacity of production, plan budgets for marketing, research and development. They become familiar with the consequences | | |
| actoriumo are qua. | of financial corporate reports and they use this information for other business decisions. | or aron docionorio | J, |
| 18DKS | Dynamics of Structures and Systems | Z,ZK | 4 |
| | ns with multiple degrees of freedom. Natural modes and natural frequencies. Method of stiffness constants, method of elastic constar | | |
| | nuously distributed mass. Matrix form of equations of vibration. Finite element method in dynamics of structures. Solving vibrations by s | | |
| , | Subspace iteration methods. Introduction to nonlinear vibrations. | | |
| 18KAD | Kinematics and Dynamics | Z,ZK | 4 |
| | , motion along a curve. Kinematics of rigid plane, kinematics of rigid body. Point mass kinematics, system of point masses. Point mass | ' | tem of point |
| masses, equatio | n of motion. Method of Newton. Princle of D'Alembert. Free and forced vibration with one degree of freedom. Viscous damping. Impact | ct theory. Introducti | on to the |
| | solution of vibration with multiple degrees of freedom. | | |
| 18MTY | Materials Science and Engineering | Z,ZK | 3 |
| | terials science and engineering explains mechanical properties of structural materials based on their bonding forces and microstructural materials based on the properties of the pr | | |
| is paid to metals as | to the most important engineering materials, also other major classes of materials are presented, namely ceramics, polymers and comes to degradation processes in materials, to defectoscopy and to main mechanical tests. | iposites. Attention | is also paid |
| | to deciracation processes in materials, to detectoscopy and to main mechanical tests. | | |

| spatial discretization schem 18POM The knowledge gained in pr concepts. Special processe 18PZP Tension and compression. E 18SAT General system of forces Principle of virtual work. Kine 18TED Technical standards, inter 18TK Deformation in plane, princi | umerical methods in structural mechanics. Central difference method, finite element method, finite volume method, boundary element methods. Finite element method: derivation of the basic equations. Stiffness matrix, mass matrix, damping matrix for element and structure. Methods systems of algebraic equations. Numerical integration. Programming the FEM. Advanced Materials KZ imary materials course is further developed. In greater physical detail it explains dynamics of structure defects, phase diagrams of binary systs of structure control are discussed. The gained knowledge is utilized on description of contemporary technologies of material production for applications. Elasticity and Strength Z,ZK tending of beam. Shear stress in bending of beam. Design and analysis of cross section of beam. Design of riveted, bolted and welded join Analysis of deflection curve of beams. Torsion of circular cross sections. Combined loading. Stability. Structural Analysis in plane and space. Calculation of reactions of bodies and structures. Assessment of internal forces on statically determinate beams and structure method for calculation of reactions of statically determinate systems. Determination of axial forces in truss constructions. Cross-sectional of planar shapes. Fiber polygons and chains. Technical Documentation KZ Tractional standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensional and geometric arrangement of drawing sheets. Theory of Structures KZ | 2 stems and or or key indust 3 ts of structu 4 imple girder |
|--|---|--|
| 18POM The knowledge gained in processes and processes are also and compression. Enter a system of forces are also are al | systems of algebraic equations. Numerical integration. Programming the FEM. Advanced Materials Image: Materials course is further developed. In greater physical detail it explains dynamics of stricture defects, phase diagrams of binary systs of structure control are discussed. The gained knowledge is utilized on description of contemporary technologies of material production for applications. Elasticity and Strength Elasticity and Strength Analysis of deflection curve of beams. Design and analysis of cross section of beam. Design of riveted, bolted and welded join Analysis of deflection curve of beams. Torsion of circular cross sections. Combined loading. Stability. Structural Analysis Structural Analysis Technical Documentation of planar shapes. Fiber polygons and chains. Technical Documentation Technical drawings, representation of technical objects, technical diagrams and charts, dimensional and geometric arrangement of drawing sheets. Theory of Structures KZ KZ | 2 stems and or by key industrial at soft structured and characterises 2 |
| he knowledge gained in proncepts. Special processe 18PZP ension and compression. E 18SAT General system of forces rinciple of virtual work. Kine 18TED Technical standards, inter 18TK eformation in plane, princi | Advanced Materials Advanced Material Production of texture of contemporary technologies of binary systems Advanced Materials Advanced Materials Advanced Materials Advanced Materials Advanced Material Production of contemporary technologies of binary systems Advanced Material Production of contemporary technologies of binary systems of binary systems of cross section of contemporary technologies of binary systems of binary systems of cross section of contemporary technologies of binary systems of cross section of contemporary technologies of binary systems of contemporary technologies of binary systems of contemporary technologies of beam. Paterial production | stems and or stems and or key industrial ts of structures and or structures and or structures and characteristatic |
| he knowledge gained in proncepts. Special processe 18PZP ension and compression. E 18SAT General system of forces rinciple of virtual work. Kine 18TED Technical standards, inter 18TK eformation in plane, princi | imary materials course is further developed. In greater physical detail it explains dynamics of stricture defects, phase diagrams of binary systs of structure control are discussed. The gained knowledge is utilized on description of contemporary technologies of material production for applications. Elasticity and Strength Z,ZK | stems and or stems and or key industrial ts of structures and or structures and or structures and characteristatic |
| 18PZP ension and compression. E 18SAT General system of forces rinciple of virtual work. Kine 18TED Technical standards, inter 18TK leformation in plane, princi | Elasticity and Strength Jending of beam. Shear stress in bending of beam. Design and analysis of cross section of beam. Design of riveted, bolted and welded join Analysis of deflection curve of beams. Torsion of circular cross sections. Combined loading. Stability. Structural Analysis Structural Analysis Technical Documentation Technical drawings, representation of technical objects, technical diagrams and charts, dimensional and geometria arrangement of Structures KZ KZ KZ KZ KZ KZ KZ KZ KZ K | 3 ts of structu 4 imple girder |
| 18SAT General system of forces Principle of virtual work. Kine 18TED Technical standards, inter 18TK Deformation in plane, princi | sending of beam. Shear stress in bending of beam. Design and analysis of cross section of beam. Design of riveted, bolted and welded join Analysis of deflection curve of beams. Torsion of circular cross sections. Combined loading. Stability. Structural Analysis Z,ZK in plane and space. Calculation of reactions of bodies and structures. Assessment of internal forces on statically determinate beams and structure method for calculation of reactions of statically determinate systems. Determination of axial forces in truss constructions. Cross-sections of planar shapes. Fiber polygons and chains. Technical Documentation KZ Inational standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensional and geometric arrangement of drawing sheets. Theory of Structures KZ | 4 imple girder al characteris |
| 18SAT General system of forces rinciple of virtual work. Kines 18TED Technical standards, interest 18TK Deformation in plane, princi | Analysis of deflection curve of beams. Torsion of circular cross sections. Combined loading. Stability. Structural Analysis In plane and space. Calculation of reactions of bodies and structures. Assessment of internal forces on statically determinate beams and structure method for calculation of reactions of statically determinate systems. Determination of axial forces in truss constructions. Cross-sectional of planar shapes. Fiber polygons and chains. Technical Documentation KZ Inational standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensional and geometric arrangement of drawing sheets. Theory of Structures KZ | 4 imple girder al characteris |
| General system of forces rinciple of virtual work. Kine 18TED Technical standards, inter 18TK deformation in plane, princi | in plane and space. Calculation of reactions of bodies and structures. Assessment of internal forces on statically determinate beams and standard method for calculation of reactions of statically determinate systems. Determination of axial forces in truss constructions. Cross-sectional of planar shapes. Fiber polygons and chains. Technical Documentation KZ The analogue of technical objects, technical diagrams and charts, dimensional and geometric arrangement of drawing sheets. Theory of Structures KZ | imple girder |
| 18TED Technical standards, inter 18TK Peformation in plane, princi | ematic method for calculation of reactions of statically determinate systems. Determination of axial forces in truss constructions. Cross-sectional of planar shapes. Fiber polygons and chains. Technical Documentation KZ mational standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensional and geometric arrangement of drawing sheets. Theory of Structures KZ | al characteris |
| Technical standards, inter 18TK Deformation in plane, princi | rnational standardization, technical drawings, representation of technical objects, technical diagrams and charts, dimensional and geometri arrangement of drawing sheets. Theory of Structures KZ | ı |
| 18TK Deformation in plane, princi | arrangement of drawing sheets. Theory of Structures KZ | cal accurac |
| eformation in plane, princi | Theory of Structures KZ | |
| eformation in plane, princi | , | 2 |
| nethod. Mathematical found | ole of virtual work. Force (flexibility) method. Aplication of force method to frame analysis. Displacement (stiffness) method. Simplified and g | ı |
| | lations of elasticity. Static analysis of complex statically indeterminate structure. Energy methods for beam analysis. Lagrange variational properties of elastic foundation. Pasternak model of elastic foundation. | rinciple. Win |
| 18X31 | Project 1 Z | 2 |
| 18X32 | Project 2 Z | 2 |
| 18X33 | Project 3 Z | 2 |
| 18Y1AM | Anatomy, Mobility and Safety of Man KZ | 2 |
| | al structure and growth of bones. Articular joint. Remodelling of bone tissue. Anatomical structure of muscles. Blood circulation and nervous sy | |
| nd biomechanics of muscu | llar-skeletal system. Injury of human organs and musculo-skeletal system during traffic accidents. Mobility of ill and injured man and his tre joint prostheses. Protective means and traffic safety regulations. | atment. Hun |
| 18Y1EM | Experimental Methods in Mechanics KZ | 2 |
| | perimental mechanics. Sensors for mechanical testing. Overview of experimental methods. Destructive and non-destructive testing of mate and sample preparation. Tensile and bending tests. Electrical resistance strain gages. Optical based strain measurement. Fatigue and lifeting tests are strain gages. | _ |
| 40)/41/47 | Instrumented hardness testing. Introduction to electron microscopy. Errors in measurement. | |
| 18Y1MT | Engineering Materials KZ n classes of materials used in technical design. In addition to main classes of materials, i. e. metals, ceramics, polymers and composites, a | 2 attention is n |
| | aterials and to biomimetics. Integral approach to material selection process is also demonstrated based on so called Ashby's selection char | - |
| 18Y1PS | Computer Simulations in Mechanics KZ | 2 |
| • | ools for stress analysis of structures. Numerical methods in mechanics, finite element method. Geometric model development and adaptati | ū |
| rom other CAE systems. As | signment of material properties. The types of elements and their use. Discretization of solid model. Boundary conditions and application of tasks of structural and modal analysis. Introduction to complex nonlinear problems. | the load. Ba |
| 18Y1UK | Introduction of Rail Vehicles KZ | 2 |
| | arameters rail transport systems - railway and urban transport. Basis driving mechanics rail vehicles - equation of motion train and unit train | - |
| • | ng resistance. Acceleration force. Analyzing driving cycle rail vehicle. Speed-power diagrams and characteristics rail vehicle - hydromechanic and electric drive. Design concept rail vehicles and drive of wheel set. | _ |
| 20SYSA | Systems Analysis Z,ZK | 5 |
| = | ces, system viewpoint, terminology, typical system analysis tasks, system identification, system interface and interface tasks, processes, sy nctions and processes, genetic code, system identity, system architecture. Tools for system analysis - Petri nets, decision tables, algorithms | |
| OOLUTO | tasks. Soft and hard systems, methods for soft system analysis. | |
| ٠, ٠ | Introduction to Intelligent Transport Systems Z,ZK ramework telematics systems and their architecture. Telematics systems in practice and their operation. Fundamentals of information and tele and technical support measurement of traffic data, localization and navigation. Practical work with traffic data. Real examples of possible apprinciples of ITS. | |
| 20X31 | Project 1 Z | 2 |
| 20X32 | Project 2 Z | 2 |
| 20X33 | Project 3 Z | 2 |
| 20Y1AE | Applied Electronics KZ | 2 |
| | uctor components, their principles, characteristics and typical connection diagrams. Semiconductor PN junction diodes, transistors, thyristo | or, operation |
| | s. Functions of basic electronic circuits and methods for their designs (rectifiers, voltage regulator with Zener diode, transistor as an amplifi amplifier as an inverting and noninverting amplifier). | |
| 20Y1AF | Alternative Forms of Transportation Project Financing KZ | 2 |
| • | ns of financing in transportation and telecomunications, where the public sector body perform the final debtor, i. e. debt payments come fror the transaction and it is not the counterparty of the financial institute which provides the funding. Issue of securities as an alt of transportation and telecomunication projects. | _ |
| 20Y1EA | Environmental Aspects of Transport KZ | 2 |
| | eather observation network, weather in transportation, road meteorology. Weather forecasting, data assimilation, probabilistic forecasts, fore | 1 |
| • | ts and their effects, atmospheric chemistry, traffic emissions. Greenhouse gasses, carbon cycle, a role of energy and transportation in clim | |
| 20Y1EK | Qualification in Electrical Engineering KZ | 2 |
| ractical experience with m | easurements in laboratories, electrical equipment, power supply, electrical installation of low voltage, electric shock hazard, symbols and la currents, electrical equipment protection against short circuit and overload protection, control and revision, first aid, legislation, standards a in relation to health and safety and electrical engineering. | _ |

| 20Y1KP | Communication and presentation skills | KZ | 2 |
|---------------------------------------|---|----------------------|----------------|
| | es and their fulfillment, current communication networks, work with various sources, formal requirements of emails and final theses, b | | |
| - | tional intelligence, manipulation and way of working with it, coping with stressful situations, formal requirements of presentations, way | | |
| | presentation, presentation skills, presentation skills in online environment. | | |
| 20Y1LN | Location and Navigation | KZ | 2 |
| Description and | examples of road networks, localization on the network. Routing algorithms, their properties and implementation. Description and examples of road networks, localization on the network. Routing algorithms, their properties and implementation. Description and examples of road networks, localization on the network. | mples of datasets | for finding |
| | transport connections, routing algorithms, their properties and implementation. | | |
| 20Y1OI | Fare Collection and Information Systems | KZ | 2 |
| | ystems in public transport and their components (on-board units, validators, turnstiles,). Information systems and their components | | es, maps, |
| | nels) and operators (cycles, location or current delay of vehicles,). The issue of tariff systems. Other examples of clearance systems | ems (parking). | |
| 20Y1OK | Road Lighting | KZ | 2 |
| | tities and terms, street lighting components (luminaires, control cabinets for street lighting, street lighting cables), characteristics of lumin | , | |
| light distribution), | standards, measurement of illuminance and luminance in road lighting, tunnels, conceptual approach to street lighting design, lighting | g calculations in D | IALux and |
| | Relux, street lighting control systems. | | |
| 20Y1PK | Product Quality Management Processes | KZ | 2 |
| | of organization management. Management systems and international standards; quality management systems. Quality products, pro | - | |
| of standards for sys | stems management, management principles. Principles of process management, monitoring and measurement systems management. U | niform framework o | of standards |
| 00)/400 | for systems management. Process management principles. Metrology and testing. Product certification. | 1/7 | |
| 20Y1SC | Sensors and Actuators | KZ | 2 |
| Principles of sensor | rs and actuators. Basics of measuring theory and actuating influence. The respective technologies and construction principles. Sensors of | | o-magnetic, |
| 041/04 | state (temperature, humidity), chemical and particle flow values. Electrical, pneumatic and hydraulic actuators and solid phase ele | | |
| 21X31 | Project 1 | Z | 2 |
| 21X32 | Project 2 | Z | 2 |
| 21X33 | Project 3 | Z | 2 |
| 21Y1AM | Aeronautical Information Management (AIM) | KZ | 2 |
| Definition and basi | ic overview of AIS and AIM. Transition from AIS to AIM. Regulatory base. Provision of AIS/AIM in the Czech Rep. AIP (Aeronautical In | f. Publication). VFF | R Manual of |
| the Czech Rep. A | IRAC System. NOTAM messages.PIB (Pre-flight Informtion Bulletin). AIC (Aeoronautical Inf. Circulars). Aeronautical Charts. EAD (Eu | ropena AIS Databa | ase). QMS |
| | (Quality Mng. System). ADQ (Aeronautical Data Quality). AIXM (Aeronautical Inf. Exchnage Format). | | |
| 21Y1BS | Unmanned aircraft systems 1 | KZ | 2 |
| Unmanned Aviatio | n Development. Aircraft design. Legislation in force in the Czech Republic. Planning and execution of the flight. Airspace division. Open | erational risks and | operational |
| | procedures. Practical flights. | | |
| 21Y1LJ | Aeronautical Radio and Flight Instruments | KZ | 2 |
| | istory of aircraft instrumentation, aerometric instrumentation, Earth magnetism, aircraft electric equipment, gyroscopic instrumentation | | |
| | aft equipment, engine instrumentation, warning and recording systems, instrumentation operational requirements, radiocommunication | | |
| 21Y1LS | Air Traffic Services | KZ | 2 |
| Airspace structure | in Czech Republic and other countries. Introduction and description of ATS units in Czech Republic. Practical examples of TWR, APP | | story of ATS |
| 04)/4145 | at USA and Czechoslovakia. ATS - Model of financing. Training System of Air Traffic Controllers. Future development of ATS | | |
| 21Y1MP | Matlab for project-oriented study | KZ | 2 |
| | bus is focused on the problem-solving during bachelor's thesis preparation and it is based on students' requests. Individual exercises | | - 1 |
| | bles, based on actual students' needs and suggestions. The subject will have a flexible form, which is expected to bring an improveme | | |
| 21Y1OH | Airline Business and Operations | KZ | 2 |
| • | es a comprehensive view of the commercial, operational and transportation activities of air transport companies. It focuses on the organiz their strategy, economic and operational indicators. It introduces students in detail to operational processes and the essentials of transp | | |
| various aspects or | a basic view of the economic aspects of air transport. | ortation processes | . It provides |
| 21V1DA | Air Traffic Control Operating Procedures | KZ | 2 |
| 21Y1PA | an Traffic Control Operating Procedures on the ATC simulator with the following focus - getting familiar with the simulation environment, acquiring basic habits, aircraft identif | · · | 2 vectoring |
| | C clearance, use of RNAV points. Practical exercises focused on the basis of vectoring, timely application of vertical spacing, EST and | | - 1 |
| iovoi onangoo, 7ti c | Exercises in the APPROACH airspace, arrivals, departures and conflict solutions. | TTE V moodago ac | |
| 21Y1PC | ATC Procedures and Activities | KZ | 2 |
| | procedures, basics of communication and phraseology, aircraft identification, spacing and traffic coordination. In addition, the course | · · | |
| | rts and low visibility operational procedures. Students will during the course learn basic safety management applications applied acro | | |
| 21Y1PL | Operational Aspects of Aerodromes | KZ | 2 |
| | cts of aerodromes. Location of aerodrome and orientation of runways. Requirements for apron. Capacity of airports runways and term | | |
| | conditions. Firefighting units. Protection against unlawful interference. Local transport connection. Environmental protection | | |
| 21Y1RZ | Human Resources Management | KZ | 2 |
| | human resources in the organization and related disciplines file. Substance, importance and challenges of human resources manage | · · | |
| · · · · · · · · · · · · · · · · · · · | nan resource management. Human resource planning. Search, recruitment and selection of employees. Motivation, evaluation and ren | | |
| | dismissal and redundancies of employees. Education of employees. Planning career management. | | - |
| 21Y1SI | ATC Simulator | KZ | 2 |
| | with the simulation environment, acquiring basic habits, aircraft identification procedures, vectoring, level changes, ATC clearance, us | · · | |
| | ng on basic vectoring, early application of vertical separation, EST and REV message passing. Practical exercises in the APPROACH | · · | |
| | departure management procedures, conflict resolution. | | |
| 21Y1TH | Aircraft Technical Handling | KZ | 2 |
| | and pushing tractors. GPU. Air conditioning and heating units. Aircraft fuel equipment. De-acing and anti-icing units. Loading and unlo | I | |
| pa | assangers onboarding and offboarding. Operational processes of aircraft technical handling and regulations. Modernization and technical | ical progress. | |
| 21Y1UL | Aircraft Maintenance | KZ | 2 |
| | and technical operations. Maintenance and work processes. Defects search methods, status check diagnostic tools. Selection and qua | | |
| Basic documentat | ion for maintenance. Optimization of time maintenance intervals. Regulation no. 1321/2014 Part 145. Human factors of aircraft maintenance | nance. Regulation | of director |
| | EASA for aircraft maintenance. Seminars will be focused on practical application. | | |

| 21ZALD | Basics of Air Transport | KZ | 2 |
|-------------------------|--|----------------------|------------------|
| History, definitions, t | terminology, basic rules. VFR/IFR. Basics of aerodynamics. Propulsion of aircraft. Aircraft design. Basics of navigation, radio navigation. | Weight, balance, | performance. |
| Flight planning, opti | imization of speed and heights, minimum fuel. Limitations of operation, maintenance, service life of aircraft. Traffic management, grou | nd handling, secu | ırity. Air crew. |
| | Airlines and economics. Space technologies. | | |
| 22MEMT | Measurement Methods and Technology in Transportation | KZ | 4 |
| Measurement met | thods in transport, their meaning and use;Geodetic basics in the Czech Republic; Angular, length and height measurements;Principl | es of mapping, ac | curacy and |
| errors of geode | tic measurements; Surveying and setting out; Challenges of localization, navigation and Global Navigation Satellite Systems; Laser so | anning (terrestria | I, mobile, |
| | UAV);Technical photography and photogrammetry;Dynamic measurements of vehicles;High-speed cameras; | | |
| 22PRES | Road Traffic Accidents Prevention | KZ | 4 |
| Basic relation caus | ses - prevention, collision diagrams, causes of not giving way, initial speed and breaking influence on speed of impact, downhill grad | e, load transport a | and fixation, |
| collisions with ped | estrians, cyclists and motorcyclists, construction of vehicle breaks, winter conditions, inconvenient road parameters, visibility, anti-sli | de properties of re | oad surface, |
| | solid barriers, assist systems, technical fault of vehicles. | | |
| 22UAN | Road Traffic Accidents Analysis Introduction | KZ | 2 |
| | iers of road infrastructure, typical vehicle dimensions, distance-time diagram, response time components, backward projection of acc | | - |
| post-crash deforma | ation, impact influence on passengers, video documentation, problem who was the driver, documentation, marks analysis, limits of a critical maneuvring, technical view hindrances, visibility and discriminability, nightfall. | ccidental analysis | s, cornering, |
| 22X31 | Project 1 | Z | 2 |
| 22X32 | Project 2 | Z | 2 |
| 22X33 | Project 3 | Z | 2 |
| 23X31 | Project 1 | Z | 2 |
| | , | | |
| 23X32 | Project 2 | Z | 2 |
| 23X33 | Project 3 | Z | 2 |
| 23Y1EH | Electronics and hardware in security of transportation | KZ | 2 |
| Types and parame | eters of signals. Passive circuits, properties, basic measurements. Passive filters, semiconductors. Operational amplifiers, basic circu | its, parameters. A | ctive filters. |
| 23Y1KB | in electronics. Cyber security in transportation | KZ | 2 |
| | security and cyber security, legal status in the field of cyber security, virtual cyberspace and communities, taxonomy of crimes in cyb | | - |
| | g, cyber attack technology, information security, cyber attacks on telematics systems, security of systems with artificial intelligence, | | _ |
| 23Y1KM | Crisis Management | KZ | 2 |
| | ame of crisis management with direction to Rescue system (IZS). After introduction to safety domain, there are terms and knowledge | | sition of crisi |
| | gement and its targets; IZS-crisis management-crisis planning; and basic legislation. Practical part is concentrated to responsibility n | | |
| 23Y1KO | Quantum Physics and Optoelectronics | KZ | 2 |
| | Ground of quantum physics. Application of quantum physics in practice. Optoelectronics. Production of optoelectronics compo | | |
| 23Y1MK | Crisis Situation Management in Critical Infrastructure | KZ | 2 |
| | ritical infrastructute elements on all levels, their protection systems, responsibilities of particular agencies of the state administration | - | rnment, and |
| | responsibilities to anounce particular safety provisions. Physical and cyber protection of critical infrastructure with special attention to | | _ |
| 23Y1MU | Emergency Events Management Solution in Transport Infrastructure | KZ | 2 |
| Basic solutions of e | mergency events with emphasis of the transport infrastructure events and their solution management. Knowledge in the emergency pl | anning and specia | al procedure |
| | in liquidation work within the transport infrastructure. | | T |
| 23Y1OK | Protection of Critical Objects and Infrastructures | KZ | 2 |
| Types of technologic | cal systems, critical item, risks and their courses, criticality, vulnerability, connectivity, dependability, resilience, failure, protection, safe | ty of critical objec | ts and critica |
| | infrastructures. | | |
| 23Y1TP | Criminal Law in IT and Transportation | KZ | 2 |
| Introduction of crir | minal law into legal order, conception of culpability and criminal delict, consequency of other legal standards. international treaty and | criminal law, inve | stigation of |
| | crime, specific indicia of criminal court cases, practical examples. | | |
| 23Y1VS | Negotiation and Cooperation | KZ | 2 |
| | r negotiation. The influence of personality traits on the negotiations. Negotiation and commanding. Teamwork. Variants teams. Inform | | |
| Principles of negotia | ation, the essence of negotiation, the differences in negotiation in business and in crisis situations, the principle of "win both", specifi trust. | cations and biddir | ng, the role o |
| TV-1 | | | |
| 1 V-1 | Physical Education | Z | 1 |

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