Study plan

Name of study plan: PIL bak.prez.20/21 (skok ze 2. do 3.ro níku)

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: 180

The role of the block: Z

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

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

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

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

Credits in the group: 30 Note on the group:

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
21TPLV	Theory of the Pilot's Training	Z,ZK	8	4P+4C	Z	Z
21UDVY	Introduction to the Training of Aviation Personnel	Z,ZK	4	2P+2C	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
21LPX1	Flight Training 1 Roman Matyáš	KZ	2	0P+1C	Z,L	Z
TV-1	Physical Education	Z	1		Z	Z

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

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							
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	3				
Vector spaces (linear co	mbinations, linear independence, dimension, basis, coordinates). Matrices and operations. Systems of linear equations and	their solvability. D	eterminants and				
their applications. Scala	ar product. Similarity of matrices (eigenvalues and eigenvectors). Quadratic forms and their classification.						
12ZYDI	Introduction to Transportation Engineering	Z,ZK	2				
Role of transportation in	i land-use planning. Basic terms in transportation engineering. Traffic survey and traffic prognosis. Introduction to topic of roac	ls, public mass tra	insport Negative				
impacts of transportation	on to environment and safety.						
21TPLV	Theory of the Pilot's Training	Z,ZK	8				
Theoretical knowledge	instruction required for entry into the first phase of integrated training. Tuition refers to the syllabus provided in the CZ / ATO-0	010 manuals. Sub	jects and their				
minimum range is in ac	minimum range is in accordance with the requirements of EU regulation no. 1178/2011 and objects are numbered in accordance with Part FCL 010 to 090. The course is finished with						
unclassified assessment and examination. This course is intended only for long-term student, who are in integrated pilots training and study all courses related to Study field PIL							
(Professional Pilot) in all three years.							

21UDVY Introduction to the Training of Aviation Personnel

Z,ZK 4

Pilot training. History. Drive. Meteorology. Airports. Navigation. Aircraft Design. Space technology. Practical training. Flying Rules. Airspace. Presentation ATO. This course is intended only for long-term student, who are in integrated pilots training and study all courses related to Study field PIL (Professional Pilot) in all three years.

11GIE Geometry Differential geometry of curves - parameterization, the arc of the curve, torsion and curvature, Frenet's trihedron. Kinematics - a curve as a trajectory of the motion, the velocity, and acceleration of a particle moving on a curved path. 21LPX1 ΚZ Flight Training 1 2 Practical exercises for improvement of theoretical knowledge in a range of at least PPL(A) of the objects 010 - 090 in accordance with Part FCL. The basics of flight control, dual exercises, solo flights and navigation flights. This course is intended only for long-term student, who are in integrated pilots training and study all courses related to Study field PIL (Professional Pilot) in all three years. TV-1 Physical Education Ζ

Code of the group: 2.S.BPIL 18/19

Name of the group: 2.sem.PIL bak.prez (od) 18/19

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

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

Credits in the group: 30 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
11CAL2	Calculus 2 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+12B	L	Z
21LIVO	Human Performance and Limitations	Z,ZK	5	2P+2C+14B	L	Z
21N	Navigation	ZK	4	4P+0C	L	Z
21PUPE	Instrumentation	ZK	4	4P+0C	L	Z
21ZYL1	Principles of Flight 1 Vladimír Machula	Z,ZK	5	2P+2C+16B	L	Z
21RTFS	Radiotelephony and Communication	KZ	2	1P+1C	L	Z
TV-2	Physical Education	Z	1		L	Z

Characteristics of the courses of this group of Study Plan: Code=2.S.BPIL 18/19 Name=2.sem.PIL bak.prez (od) 18/19

TICALZ	Calculus 2	<u>∠,</u> ∠r\	၂ ၁ ၂						
Indefinite integral, Newtonian integral, Riemannian integral of the function of one variable, improper Riemannian integral, Riemannian integral in Rn. Parametric description of regula									
k-dimensional surfaces	in Rn, Riemannian integral over regular surfaces. Line and surface integrals of the second type, Stokes theorems, ordinary o	ifferential equatio	ns of the first						
order, linear differential	equations with constant coefficients and its systems								

11STAT Z.ZK Statistics Basics of probability Descriptive statistics Population and sample, limit theorem Point estimate, construction and properties Interval estimates Parametric

Regression and correlation analysis 21LIVO

Human Performance and Limitations Z.ZK Human performace & amp; limitations, aptibility & amp; competence, accident statistics, flight safety, basics of flight physiology, man & amp; environment, breathing & amp; circulation, sensory system, health & amp; hygiene, health preservation, intoxication, incapacitation, basics of flight psychology, human information processing, memory & amp; learning, theory

& model of human error, body rhythms & sleep, stress, fatigue, working methods.

Earth - shape, dimensions of the reference ellipsoid and geoid, position reference system (grid), large and small circles. Great-circle distance and the rhumb line. Convergence. Spherical trigonometry, Mathematical determination of elements rhumb line course and Great-circle distance. Agona, isogona. Projection of maps. ICAO and Jeppeson maps. Times - UTC, Zulu,

LT. Time zones. Comparative navigation. Dead reckoning. INS / IRS, FMS. 21PUPE Instrumentation

Basic classification and construction of flight instruments, electric systems, power plant sensors and instruments, airframe sensors and instruments, measurement of air data parameters. Earth's magnetic field, magnetic compass, gyroscopic instruments, inertial navigation and reference systems, radio-navigational systems, radars, monitoring and recording systems. integrated instrument systems.

21ZYL1 Principles of Flight 1 Z.ZK Aerodynamic drag, relation between drag and speed, streamline, boundary layer, formula of continuity, formula of Bernoulli, lift and drag, air flow and pressures around wing, angle of

attack, reactions of wing in air flow, lift and drag of a wing and an aircraft, coefficient of lift and drag, critical angle of attack, wing with final span, induced drag, interference, devices for lift and drag increase. ΚZ 2

21RTFS Radiotelephony and Communication

VFR and IFR communication, basic operational procedures, standard aeronautical frazeology, broadcasting of the numbers, letters, etc., call signs, radio-communication in normal and emergency procedures, loss of communication, weather information, HF communication

TV-2 Physical Education

Code of the group: 3.S.BPIL 19/20

Name of the group: 3.sem.PIL bak.prez.(od) 19/20

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

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

Credits in the group: 30

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
11FYZ	Physics Old ich Hykš, Zuzana Malá, Tomáš Vít , Jana Kuklová Zuzana Malá Zuzana Malá (Gar.)	Z,ZK	5	2P+2C+18B	Z	Z
21LCVL	Human Factors in Aviation Lenka Hanáková Lenka Hanáková	ZK	2	2P+0C	Z	Z
21ZEL1	Electronics Basics 1 Vít Fábera Vít Fábera	Z,ZK	5	3P+2C	Z	Z
21ZYL2	Principles of Flight 2 P emysl Vávra, Marek Veselý P emysl Vávra	Z,ZK	5	2P+2C	Z	Z
21MEO1	Meteorology 1	KZ	4	2P+2C	Z	Z
21ZLKS	Basics of Aircraft Structures and Systems Kate ina Stuchlíková, Pavol Hajla Pavol Hajla	KZ	4	2P+2C	Z	Z
21LRF	Laboratories of Radiotelephony	Z	2	0P+2C	Z	Z
15JZ1A	Foreign Language - English 1 Markéta Vojanová, Dana Boušová, Marie Michlová, Barbora Horá ková, Marek Tome ek, Jan Feit, Markéta Musilová, Peter Morpuss, Lenka Monková,	Z	3	0P+4C+10B	Z	Z

11FYZ	Physics	Z,ZK	5
Kinematics, particle	dynamics, dynamics of particle systems and rigid body. Continuum mechanics, thermodynamics.		1
21LCVL	Human Factors in Aviation	ZK	2
Human performace	& limitations, aptibility & competence, accident statistics, flight safety, basics of flight physiology, man & environme	ent, breathing &a	mp; circulatior
sensory system, hea	alth & hygiene, health preservation, intoxication, incapacitation, basics of flight psychology, human information processing, r	memory & le	arning, theory
Ramp; model of hun	nan error, body rhythms & sleep, stress, fatigue, working methods.		
21ZEL1	Electronics Basics 1	Z,ZK	5
Electron theory. Stat	ic electricity, electrical conductivity and terminology. Production of electricity and the DC power source. DC Circuits. Electrical resi	stance, resistor a	nd performan
Capacity and capac	itor. Magnetism. Inductance and inductor. DC motors and generators. Theory AC, resistive, capacitive, inductive circuits. Transfor	mers. Brushless r	motors and
enerators. Frequen	cy filters.		
· · ·	principles of Flight 2	Z,ZK	5
21ZYL2	·	,	_
21ZYL2 Static & dynam	Principles of Flight 2	np; lateral stabilit	y, control – pit
longitudinal), yaw (Principles of Flight 2 ic longitudinal stability, neutral point, location of centre of gravity, static directional & principles amp; lateral stability, dynamic directional & principles are consistent as a stability of the principles of Flight 2 ic longitudinal stability, neutral point, location of centre of gravity, static directional & principles are consistent as a stability of the principles of Flight 2 ic longitudinal stability, neutral point, location of centre of gravity, static directional & principles are consistent as a stability of the princi	np; lateral stabilit	y, control – pito
21ZYL2 Static & dynam longitudinal), yaw (deating, operating li	Principles of Flight 2 ic longitudinal stability, neutral point, location of centre of gravity, static directional & point, location of centre of gravity, static directional & point, location of centre of gravity, static directional & point, lateral stability, dynamic directional & directional) & point (lateral), roll/yaw interaction, trimming, speed of sound, Mach number, compressibility, shock waves, critical points (lateral), roll/yaw interaction, trimming, speed of sound, Mach number, compressibility, shock waves, critical points (lateral), roll/yaw interaction, trimming, speed of sound, Mach number, compressibility, shock waves, critical points (lateral), roll/yaw interaction, trimming, speed of sound, Mach number, compressibility, shock waves, critical points (lateral), roll/yaw interaction, trimming, speed of sound, Mach number, compressibility, shock waves, critical points (lateral), roll/yaw interaction, trimming, speed of sound, Mach number, compressibility, shock waves, critical points (lateral), roll/yaw interaction, trimming, speed of sound, Mach number, compressibility, shock waves, critical points (lateral), roll/yaw interaction, trimming, speed of sound, Mach number, compressibility, shock waves, critical points (lateral), roll/yaw interaction, roll points (lateral), roll points	np; lateral stabilit	y, control – pit
21ZYL2 Static & dynam longitudinal), yaw (oneating, operating line	Principles of Flight 2 ic longitudinal stability, neutral point, location of centre of gravity, static directional & place and stability, dynamic directional & ard directional) & amp; roll (lateral), roll/yaw interaction, trimming, speed of sound, Mach number, compressibility, shock waves, critical mitations, manoeuvring envelope, gust-load diagram.	np; lateral stabilit al Mach number, a KZ	y, control – pit aerodynamic
21ZYL2 Static & Description of the static and position of the station of the stat	Principles of Flight 2 ic longitudinal stability, neutral point, location of centre of gravity, static directional & point, location of centre of gravity, static directional & point, location, location of centre of gravity, static directional & point, location, directional & point, location, lo	np; lateral stability al Mach number, a KZ and standing wa	y, control – pit aerodynamic 4 ves. Moisture
21ZYL2 Static & Department of the static and possible of the static and pos	Principles of Flight 2 ic longitudinal stability, neutral point, location of centre of gravity, static directional & point, location of centre of gravity, static directional & point, location, location of centre of gravity, static directional & point, location, directional & point, location, location, trimming, speed of sound, Mach number, compressibility, shock waves, critical mitations, manoeuvring envelope, gust-load diagram. Meteorology 1	np; lateral stability al Mach number, a KZ and standing wa	y, control – pit aerodynamic 4 ves. Moisture
21ZYL2 Static & Department of the static and position of the static processes and adiabatic processes 21ZLKS	Principles of Flight 2 ic longitudinal stability, neutral point, location of centre of gravity, static directional & lateral stability, dynamic directional &ardirectional) & roll (lateral), roll/yaw interaction, trimming, speed of sound, Mach number, compressibility, shock waves, critical mitations, manoeuvring envelope, gust-load diagram. Meteorology 1 Indicating the atmosphere of the atmos	np; lateral stability al Mach number, a KZ and standing wa nticyclones, non-f	y, control – pit aerodynamic 4 ves. Moisture
21ZYL2 Static & Department of the control of the co	Principles of Flight 2 ici longitudinal stability, neutral point, location of centre of gravity, static directional & lateral stability, dynamic directional &ardirectional) & roll (lateral), roll/yaw interaction, trimming, speed of sound, Mach number, compressibility, shock waves, critical mitations, manoeuvring envelope, gust-load diagram. Meteorology 1 Indivertical structure of the atmosphere. QNH, QFE, QFF, QNE, density and height measurements. Wind, turbulence, jet streams. Creating and types of cloud, fog, haze. Precipitation. Types of air masses, frontal interface. Distribution of pressure, cyclones, at Basics of Aircraft Structures and Systems, technical drawing, technological and operational signs. Hydraulic, pneumatic, fuel, electricity and block diagrams in aviation.	np; lateral stability al Mach number, a KZ and standing wa nticyclones, non-f	y, control – pit aerodynamic 4 ves. Moisture
21ZYL2 Static & Department of the control of the co	Principles of Flight 2 ici longitudinal stability, neutral point, location of centre of gravity, static directional & lateral stability, dynamic directional &ardirectional) & roll (lateral), roll/yaw interaction, trimming, speed of sound, Mach number, compressibility, shock waves, critical mitations, manoeuvring envelope, gust-load diagram. Meteorology 1 Indivertical structure of the atmosphere. QNH, QFE, QFF, QNE, density and height measurements. Wind, turbulence, jet streams. Creating and types of cloud, fog, haze. Precipitation. Types of air masses, frontal interface. Distribution of pressure, cyclones, at Basics of Aircraft Structures and Systems	np; lateral stability al Mach number, KZ and standing wa nticyclones, non-f	y, control – pit aerodynamic 4 ves. Moisture frontal cyclone 4
21ZYL2 Static & Department of the common of	Principles of Flight 2 ici longitudinal stability, neutral point, location of centre of gravity, static directional & lateral stability, dynamic directional &ardirectional) & roll (lateral), roll/yaw interaction, trimming, speed of sound, Mach number, compressibility, shock waves, critical mitations, manoeuvring envelope, gust-load diagram. Meteorology 1 Indivertical structure of the atmosphere. QNH, QFE, QFF, QNE, density and height measurements. Wind, turbulence, jet streams and vertical structure of cloud, fog, haze. Precipitation. Types of air masses, frontal interface. Distribution of pressure, cyclones, at Basics of Aircraft Structures and Systems technical drawing, technological and operational signs. Hydraulic, pneumatic, fuel, electricity and block diagrams in aviation. Laboratories of Radiotelephony	np; lateral stability al Mach number, KZ and standing wa nticyclones, non-f	y, control – pit aerodynamic 4 ves. Moisture frontal cyclone 4
21ZYL2 Static & Department of the common of	Principles of Flight 2 ici longitudinal stability, neutral point, location of centre of gravity, static directional & lateral stability, dynamic directional &ardirectional) & roll (lateral), roll/yaw interaction, trimming, speed of sound, Mach number, compressibility, shock waves, critical mitations, manoeuvring envelope, gust-load diagram. Meteorology 1 Indivertical structure of the atmosphere. QNH, QFE, QFF, QNE, density and height measurements. Wind, turbulence, jet streams and vertical structure of cloud, fog, haze. Precipitation. Types of air masses, frontal interface. Distribution of pressure, cyclones, at a Basics of Aircraft Structures and Systems In technical drawing, technological and operational signs. Hydraulic, pneumatic, fuel, electricity and block diagrams in aviation. Laboratories of Radiotelephony unication, basic opertional procedures, standard aeronautical frazeology, broadcasting of the numbers, letters, etc., call signs, radiotelephony	np; lateral stability al Mach number, KZ and standing wa nticyclones, non-f	y, control – pit aerodynamic 4 ves. Moisture frontal cyclon 4

Code of the group: 4.S.BPIL 16/17

Name of the group: 4.sem.PIL bak.prez. (od) 16/17

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:

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	Z
21HVL	Weight and Balance of Aircraft Denisa Svobodová	Z,ZK	4	2P+1C	L	Z
21MET2	Meteorology 2 Iveta Kameníková Iveta Kameníková	Z,ZK	5	2P+2C	L,Z	Z
21RNG	Radionavigation	Z,ZK	7	3P+4C	L	Z
21LL1	Aircraft 1	KZ	3	2P+1C+10B	L	Z

21LPX2	Flight Training 2 Roman Matyáš, Jakub Charezinski Roman Matyáš	KZ	2	0P+1C	L,Z	Z
21ULCT	Aircraft Maintenance Tomáš Parýzek	Z	2	2P+0C+8B	L	Z
15JZ2A	Foreign Language - English 2 Markéta Vojanová, Dana Boušová, Marie Michlová, Barbora Horá ková, Marek Tome ek, Jan Feit, Markéta Musilová, Peter Morpuss, Lenka Monková,	Z,ZK	3	0P+4C+10B		Z

Characteristics of the courses of this group of Study Plan: Code=4.S.BPIL 16/17 Name=4.sem.PIL bak.prez. (od) 16/17

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.

21HVL Weight and Balance of Aircraft

Z,ZK

4

Basic terms of mass and balance, basic aircraft masses, weighing and maximum aircrafts masses, overloading of aircraft, standard weights of passenger, baggage and crew, determination of load of aircraft, flight documentation - loadsheet, trimsheet, securing of load, determination of centre of gravity, influence of centre of gravity position on aircaft performance.

21MET2 Meteorology 2

Z.ZK

5

Climatic zones, tropical climatology, meteorological situation of mid-latitudes. Icing, turbulence, wind shear, thunderstorms, tornadoes, flying in the stratosphere, mountain areas, reducing visibility phenomena. Observation, weather maps, important information for flight planning.

21RNG Radionavigation

Z,ZK

7

Ground direction finder (VDF), ADF, VOR and Doppler VOR, DME, ILS, MLS, ground ATC radar, weather Radar, SSR and transponder. Radar utilization for navigation during the flight. Area navigation (RNAV) - general philosophy, gauges and equipment, indication and sensors for RNAV, VOR/DME (RNAV). Autopilot and flight director. Satellite navigation, systems and backups.

21LL1 Aircraft 1

KZ

3

Aircraft structural and conceptual design types - definitions and basic knowledge of the problem. Development of requirements, aircraft definitions and categorisation. Aircraft loadings. Systems of primary and secondary airframe structure. Airframe and propulsion unit. Lectures are devoted to aeroplane topics.

21LPX2 | Flight Training 2

ΚZ

2

Practical exercises for improvement of theoretical knowledge in a range MEP land and IFR from the relevant subjects in accordance with Part FCL. The basics of instrument flying, dual exercises, emergency procedures, descents and navigation flights. This course is intended only for long-term student, who are in integrated pilots training and study all courses related to Study field PIL (Professional Pilot) in all three years.

21ULCT Aircraft Maintenance

7

2

Aircraft operations and technical operations. Maintenance and work processes. Defects search methods, status check diagnostic tools. Selection and qualification of aviation personnel. Basic documentation for maintenance. Optimization of time maintenance intervals. Regulation no. 1321/2014 Part 145. Human factors of aircraft maintenance. Regulation of director EASA for aircraft maintenance. Seminars will be focused on practical application.

15JZ2A Foreign Language - English 2

Z,ZK

2

Grammatical structures and style. Selection of conversation topics relating to transportation sciences. Extending vocabulary, developing perceptive and communicative skills. Elementary stylistics forms. Oral and written presentation of original research. Academic text principles and reading comprehension. Principles of rhetoric.

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

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

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 7 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
21LCM	Aircraft Engines Daniel Hanus, Tomáš Parýzek Daniel Hanus	Z,ZK	3	2P+1C	Z,L	Z
21LGPS	Legislation and Operational Regulations	Z,ZK	8	4P+2C	Z	Z
21LTA2	Aircraft 2 Karel Mündel Karel Mündel	Z,ZK	2	2P+1C	Z	Z
21VL	Aircraft Performance Denisa Svobodová Denisa Svobodová	Z,ZK	4	2P+2C	Z	Z
21ZLS	ATM Systems Vladimír Machula Vladimír Machula	Z,ZK	5	2P+2C	Z	Z
21PDLT	Airport Design and Operation Ladislav Capoušek	KZ	5	2P+2C	Z	Z
21APL1	Aviation English 1 for Professional Pilot Lukáš Zibner. Marek Šudoma Lukáš Zibner	Z	3	0P+4C	Z	Z

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

21LCM | Aircraft Engines
Aircraft piston engine, theoretical background, operational characteristics and construction schemes. Propellers, operational characterictics. Turbine engine, theoretical background, thermal cycles, construction schemes, operational characteristics. Turbojet and turbofan engines, basic construction modules, and their operational characteristics. Engine control.

21LGPS Legislation and Operational Regulations Z,ZK 8
Introduction into aviation regulations. The scope of international and national organizations in civil aviation. Analysis and interpretation of the ICAO Annexes 1-19, ICAO Docs. 4444, 7030, 8168, analyses and interpretation of the European Parliament and Council Regulations (EC), European Commission Regulations (EU) and the Decisions of the Executive Director

of EASA.

21LTA2	Aircraft 2	Z,ZK	2			
Manufacturers resp	nsibility, responsibilities of operator and professional supervising. Legislation in area of airworthiness. International and national	standards. Static s	solidity of aircraft			
structures. Aeroelas	icity. Inherent and operational reliability of aircraft structure. Fatigue strength. Aircraft structure lifetime presumption.					
21VL	Aircraft Performance	Z,ZK	4			
Basic terms of aircraft performance, basic characteristic speeds, runway characteristics, single and multiengine aircraft performance class B, aircraft performance class A, take off ar						
landing performance	, after take off and missed approach climb, noise abatement procedures, range of aircraft, drift down, MEL, ETOPS.					
21ZLS	ATM Systems	Z,ZK	5			
The course introduc	es classical and modern facilities, systems and technologies designated for ATS. Student obtains knowledge of technical princip	les and solutions	as far as			
communication, nav	gation and surveillance aviation systems are concerned.					
21PDLT	Airport Design and Operation	KZ	5			
Methods for the new	airports design. Existing airports development. A closer look at the development of the airports operational areas. Certification of t	he operating areas	and procedures			
by ICAO Airports M	nual. Development planning and project preparation, regulatory basis.					
21APL1	Aviation English 1 for Professional Pilot	Z	3			
Exercises focused of	n continuous reading specialized texts, vocabulary extension of technical English, terminology in the sphere of aircraft construc	tion, principles of f	light, aircraft			
engines instrument	and evetame, analyzes relating to topics of air traffic operational procedures, relevant logislation and operators procedures					

Code of the group: 6.S.BPIL 20/21

Name of the group: 6.sem.PIL bak.prez. (od) 20/21

Knowledge, Skills and Attitudes

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:

21ZDP

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
21APL2	Aviation English 2 for Professional Pilot Lukáš Zibner, Marek Šudoma	Z,ZK	3	0P+4C	L	Z
21EBLP	European Air Transport Safety Attitude	Z,ZK	4	2P+2C	L	Z
21PAP	Flight Planning and Performance Ladislav Capoušek Anna Polánecká (Gar.)	Z,ZK	4	2P+2C+14B	L	Z
21PPLP	Operational Procedures and IFR Flights	Z,ZK	7	4P+2C	L	Z
21ZDP	Knowledge, Skills and Attitudes	Z,ZK	5	2P+2C	L	Z
21DKL	Aviation Data Link Communication Vladimír Machula, Jakub Steiner, Stanislav Pleninger	KZ	3	2P+1C	L	Z
21LPX3	Flight Training 3 Roman Matyáš	KZ	2	0P+1C	L	Z
21LVP	MCC - Multicrew Cooperation	Z	2	2P+0C	L	Z

Characteristics of the courses of this group of Study Plan: Code=6.S.BPIL 20/21 Name=6.sem.PIL bak.prez. (od) 20/21								
21APL2	Aviation English 2 for Professional Pilot	Z,ZK	3					
Exercises focused on repetition and smoother communication within VFR and IFR communication, communication with technical staff at the airport, a fluent conversation within								
airlines.								
21EBLP	European Air Transport Safety Attitude	Z,ZK	4					
Reliability and life cycle	systems, reliability theory, mathematics tools for reliability, reliability analysis, maintenance systems, theory of operational sa	fety and quality, th	ne basic concept					
of security, safety mana	gement, security management strategy, hazard, risk, risk management.							
21PAP	Flight Planning and Performance	Z,ZK	4					
Mass and balance. Load	d of aircraft. Determination of centre of gravity - loadsheet, trimsheet. Aircraft weighing. Overloading of aircraft. Basic characterist	ic speeds. Runwa	y characteristics.					
Take off and landing pe	rformance. Drift down. ETOPS. MEL. Flight planning and monitoring. Routing. FL and speeds selection. Charts. ICAO ATC FP	L. Aerodrom oper	ation minimums.					
Fuel plan. Operational t	light plan.							
21PPLP	Operational Procedures and IFR Flights	Z,ZK	7					
Documentation Jeppesen. IFR approach segments. Precision approach ILS/PAR, MLS. Low Visibility Operation (LVO). Non precision approach - ILS without GP, VOR/DME, NDB and								
SRA. Airport's operational minima. Circuit approach. Holding patterns, SID and STAR. GNSS approach. Altimeter setting procedures. IFR flight procedures. RNAV approach procedures								
and other operation CDFA procedures and principles of increasing airspace capacity								

Communication. Management of flight path. Automation of flight. Leadership and teamwork. Problem solving. Decision making. Situation awarness. Workload management. Upset preventation and recovery training. Mental math.

21DKL Aviation Data Link Communication KZ 3

21LPX3 Flight Training 3 KZ 2

Deepening of theoretical knowledge and practical examination of progress in professional competence in pilot skills and knowledge

21LVP MCC - Multicrew Cooperation Z 2

Flight safety analysis in relation to human factor. MCC - basic principles, phases and methods within the area of air transport. CRM - leadership, situational awareness, decision making

Z,ZK

5

process, communication, effect of stress to the multi-crew performance, standard operational procedures, automation.

List of courses of this pass:

Indefinite integral. Newtonian integral, Riemannian integral of the function of one variable, improper Riemannian integral pain Rn. Parametric description of togs. Administrational surfaces in Rn. Riemannian integral over regular surfaces. Lie and surface integrals of the second type. Stokes theorems, ordinary differential equations of the fire order, linear differential equations with constant coefficients and its systems. 11FYZ Physics Riemanlics, particle dynamics, dynamics of particle systems and rigid body. Continuum mechanics, thermodynamics. Kinematics, particle dynamics, dynamics of particle systems and rigid body. Continuum mechanics, thermodynamics. Kinematics or a particle dynamics of particle systems and rigid body. Continuum mechanics, thermodynamics. Kinematics or a particle dynamics of particle systems and rigid body. Continuum mechanics, thermodynamics. Linear Algobra. 11LA Linear Algobra. Linear Algobra	Code	Name of the course	Completion	Credits
Cartesian coordinate system. Geometric meaning of the differential of functions sinceral real variables. Totalular 2 TICALUS 2 Calculus	11CAL1	Calculus 1	Z,ZK	7
Indefinition langual, Newtonian integral. Namananian integral of the function of one variable, improper Remainanian integral. Remainant integral ow require various confess in the Administration surfaces in R., Remainant integral ower require various under integral ower require various integral various of the formation surfaces in R., Remainant integral ower require various various integral various vario				-
kedimensional surfaces in Rn. Remannian integral over regular surfaces. Line and surface integrals of the second type, States theorems, ordinary differential equations of the foods, fine differential equations with Constant Conflicions and its systems. 11FVZ Simulation, States and S	11CAL2	Calculus 2	Z,ZK	5
11FYZ Kinematics, particle dyshmics, dynamics of particle systems and right body. Confinuum mechanics, thermodynamics. 11GIE Geometry 11GIE	Indefinite integral,	Newtonian integral, Riemannian integral of the function of one variable, improper Riemannian integral, Riemannian integral in Rn. Para	ametric descriptio	n of regular
11GIE Geometry Government	k-dimensional su		rential equations	of the first
Horizontal geometry of curves - parameterization, the air of the curve, torsion and curvature, Frene's trihedron, Kinematics - a curve as a trajectory of the motion, the velocity, a nonclearation of a particle moving on a curved path. 11LA	11FYZ	Physics	Z,ZK	5
Differential geometry of curves - parameterization, the arc of the curve, losson and curvature, Freef's tribedfont, Kinematics - a curve as a trajectory of the motion, the velocity, a curved path. 11.A Linear Algebra Linear and subsystems of linear equations and their classification. Linear and nonlinear systems discontinuous and discrete systems, analysis, Laplace and 2 transformations. Transfer function. Stability of LTI systems. Linear and nonlinear system, activation of continuous and discrete systems, mathematics as a tool, examples of formulation of differential equations. Linear and nonlinear systems, attaining systems, analysis, Consolidation allergable, Laplace and 2 transfermations. Transfer function. Stability of LTI systems. Discretization of continuous systems interconnection. 11STAT Statistics Linear Algebra Statistics Linear Algebra Statistics Linear Algebra Linear Al		Kinematics, particle dynamics, dynamics of particle systems and rigid body. Continuum mechanics, thermodynamics.		
Vector spaces (fineira combinations, linear independence, dimension, basis, coordinates), Matrices and operations. Systems of linear equations and their solvability, Determinants their applications. Scalar products. Similarly of matrices (eigenvalues and eigenvectors). Quadratic forms and their solvability. Determinants their applications. Scalar products. Similarly of matrices (eigenvalues and eigenvectors). Quadratic forms and their displaces and Systems and subsystem, outernal and internal system design of their control of t	Differential geome	etry of curves - parameterization, the arc of the curve, torsion and curvature, Frenet's trihedron. Kinematics - a curve as a trajectory of	the motion, the ve	
ThIMSP MOdelling of Systems and Processes System and subsystem, external and internal system description, continuous and discrete system, mathematics as a tool, examples of formulation of differential equalitations and subsystems, external and internal system description, continuous and discrete system, mathematics as a tool, examples of formulation of differential equalitations and nonlinear systems, stationary and non-stationary system. Causality Convolutional integral Laplaces and 2 transformations. Transfer function. Stability of LTI systems. Discretization of continuous systems. System interconnection. 2, 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. 12ZYDI Introduction to Transportation in Engineering Z, ZK 2 Role of transportation in land-use planning. Basic terms in transportation engineering, Taffic survey and traffic proposes. Introduction to topic of roads, public mass transports. Noga impacts of transportation in environment and sately. 15JZIA Foreign Language - English 1 5JZIA Foreign Language - English 1 5JZZA Systems and style. Selection of conversation topics relating to transportation sciences. Extending vocabulary, developing perceptive and communicative skills. Element systems of the style of the				3
11NSP Modeling of Systems and Processes System in disabsystem, external and internal system description, continuous and discrete systems, mathematics as a tool, examples of formulation of differential explaints. Linear and nonlinear systems, stationary and non-stationary systems, causality, Convolutional integrals, Leplace and Z transformations. Transfer function. Stability of LTI systems. Discretization of continuous systems. System interconnection. 11STAT Statistics Repeated and properties Interval estimates Parametric tests Nonparametric tests Nonparametric tests Properties Interval estimates Parametric tests Nonparametric tests Nonparametric tests of the Statistics of Control of	Vector spaces (line			minants and
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Discretization of continuous systems. System interconnection. 11STAT Statistics S.Z.K 4				•
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 12ZYDI Introduction to Transportation Engineering Time (and correlation analysis Z,ZK 2 Role of transportation in land-use planning. Basic terms in transportation engineering. Time (as survey and traffic prognosis. Introduction to topic of roads, public meass transports (as many population) Z,ZK 2 Role of transportation to environment and safety. 15JZ1A Foreign Language - English 1 Z 3 Grammatical Structures and Style Selection of conversation topics relating to transportation sciences. Extending vocabulary, developing enceptive and communicative skills. Element syligistics forms. Oral and written presentation of original research. Academic text principles and reading comprehension. Principles of retexts. 15JZ2A Foreign Language - English 2 Z,ZK 3 Grammatical structures and style. Selection of conversation topics relating to transportation sciences. Extending vocabulary, developing perceptive and communicative skills. Element syligistics forms. Oral and written presentation of original research. Academic text principles and reading comprehension. Principles of retexts. 21APL1 Aviation English 1 for Professional Pilot Z Z X X X X X X X X	Linear and no		Judnity Of LITS	, 5101115.
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122YDI	. , . ,		,	
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21EBLP	0451/1		1/7	0
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	Aircraft structural		-	art loadings

21LPX1 Practical exercis	Flight Training 1 es for improvement of theoretical knowledge in a range of at least PPL(A) of the objects 010 - 090 in accordance with Part FCL. The	KZ basics of flight cor	2 ntrol, dual
exercises, solo fli	ghts and navigation flights. This course is intended only for long-term student, who are in integrated pilots training and study all cours (Professional Pilot) in all three years.	es related to Stud	y field PIL
21LPX2	Flight Training 2	KZ	2
	, , , , , , , , , , , , , , , , , , , ,		1
	s for improvement of theoretical knowledge in a range MEP land and IFR from the relevant subjects in accordance with Part FCL. The regency procedures, descents and navigation flights. This course is intended only for long-term student, who are in integrated pilots		
	related to Study field PIL (Professional Pilot) in all three years.		
21LPX3	Flight Training 3 Deepening of theoretical knowledge and practical examination of progress in professional competence in pilot skills and knowl	KZ edge	2
21LRF	Laboratories of Radiotelephony	Z	2
	nunication, basic opertional procedures, standard aeronautical frazeology, broadcasting of the numbers, letters, etc., call signs, radio emergency procedures, loss of communication, weather information, HF communication.		1
21LTA2	Aircraft 2	Z,ZK	2
	consibility, responsibilities of operator and professional supervising. Legislation in area of airworthiness. International and national star structures. Aeroelasticity. Inherent and operational reliability of aircraft structure. Fatigue strength. Aircraft structure lifetime presu	dards. Static solid	
241.\/D		Z	
21LVP	MCC - Multicrew Cooperation	_	2
	is in relation to human factor. MCC - basic principles, phases and methods within the area of air transport. CRM - leadership, situation process, communication, effect of stress to the multi-crew performance, standard operational procedures, automation.	ai awareness, deci	sion making
21MEO1	Meteorology 1	KZ	4
	e and vertical structure of the atmosphere. QNH, QFE, QFF, QNE, density and height measurements. Wind, turbulence, jet streams a	nd standing waves	s. Moisture
adiabatic processe	es. Creating and types of cloud, fog, haze. Precipitation. Types of air masses, frontal interface. Distribution of pressure, cyclones, antic	cyclones, non-fron	tal cyclone.
21MET2	Meteorology 2	Z.ZK	5
	ropical climatology, meteorological situation of mid-latitudes. Icing, turbulence, wind shear, thunderstorms, tornadoes, flying in the str	-,	
	reducing visibility phenomena. Observation, weather maps, important information for flight planning.		
21N	Navigation	ZK	4
Earth - shape, dime	ensions of the reference ellipsoid and geoid, position reference system (grid), large and small circles. Great-circle distance and the rhum	b line. Convergend	ce. Spherical
trigonometry. Mathe	ematical determination of elements rhumb line course and Great-circle distance. Agona, isogona. Projection of maps. ICAO and Jeppe LT. Time zones. Comparative navigation. Dead reckoning. INS / IRS, FMS.	eson maps. Times	- UTC, Zulu,
21PAP	Flight Planning and Performance	Z.ZK	4
	Load of aircraft. Determination of centre of gravity - loadsheet, trimsheet. Aircraft weighing. Overloading of aircraft. Basic characteristic s	,	
	g performance. Drift down. ETOPS. MEL. Flight planning and monitoring. Routing. FL and speeds selection. Charts. ICAO ATC FPL. A Fuel plan. Operational flight plan.		
21PDLT	Airport Design and Operation	KZ	5
	v airports design. Existing airports development. A closer look at the development of the airports operational areas. Certification of the object preparation, regulatory basis.		-
O4 DDL D		7 71/	
21PPLP	Operational Procedures and IFR Flights	Z,ZK	7
•	opesen. IFR approach segments. Precision approach ILS/PAR, MLS. Low Visibility Operation (LVO). Non precision approach - ILS wit		
	ational minima. Circuit approach. Holding patterns, SID and STAR. GNSS approach. Altimeter setting procedures. IFR flight procedure and other operation. CDFA procedures and principles of increasing airspace capacity.	s. RNAV approach	procedures
21PUPE	Instrumentation	ZK	4
Basic classification	and construction of flight instruments, electric systems, power plant sensors and instruments, airframe sensors and instruments, measu	rement of air data	parameters.
Earth's magnetic fi	ield, magnetic compass, gyroscopic instruments, inertial navigation and reference systems, radio-navigational systems, radars, moni integrated instrument systems.	oring and recording	ng systems,
21RNG	Radionavigation	Z,ZK	7
	nder (VDF), ADF, VOR and Doppler VOR, DME, ILS, MLS, ground ATC radar, weather Radar, SSR and transponder. Radar utilization		ng the flight.
	tNAV) - general philosophy, gauges and equipment, indication and sensors for RNAV, VOR/DME (RNAV). Autopilot and flight director and backups.	=	
21RTFS	Radiotelephony and Communication	KZ	2
	nunication, basic operational procedures, standard aeronautical frazeology, broadcasting of the numbers, letters, etc., call signs, radio emergency procedures, loss of communication, weather information, HF communication.		
21TPLV	Theory of the Pilot's Training	Z,ZK	8
	ITTEGLY OF THE PHOTS TRAITING edge instruction required for entry into the first phase of integrated training. Tuition refers to the syllabus provided in the CZ / ATO-010		
		=	
_	n accordance with the requirements of EU regulation no. 1178/2011 and objects are numbered in accordance with Part FCL 010 to 0		
unclassified asse	essment and examination. This course is intended only for long-term student, who are in integrated pilots training and study all cours (Professional Pilot) in all three years.	es related to Study	/ field PIL
21UDVY	Introduction to the Training of Aviation Personnel	Z,ZK	4
Pilot training. Histo	ry. Drive. Meteorology. Airports. Navigation. Aircraft Design. Space technology. Practical training. Flying Rules. Airspace. Presentatior	ATO. This course	is intended
-	nly for long-term student, who are in integrated pilots training and study all courses related to Study field PIL (Professional Pilot) in all		
21ULCT	Aircraft Maintenance	Z	2
=	and technical operations. Maintenance and work processes. Defects search methods, status check diagnostic tools. Selection and qua		•
Basic documentati	ion for maintenance. Optimization of time maintenance intervals. Regulation no. 1321/2014 Part 145. Human factors of aircraft maintenance. Seminars will be focused on practical application.	enance. Regulation	of director
21VL	Aircraft Performance	Z,ZK	4
	raft performance, basic characteristic speeds, runway characteristics, single and multiengine aircraft performance class B, aircraft per		1
	landing performance, after take off and missed approach climb, noise abatement procedures, range of aircraft, drift down, MEL, E	TOPS.	
21ZDP	Knowledge, Skills and Attitudes	Z,ZK	5
Communication.	Management of flight path. Automation of flight. Leadership and teamwork. Problem solving. Decision making. Situation awarness. W	orkload managem	ent. Upset
	preventation and recovery training. Mental math.		

21ZEL1	Electronics Basics 1	Z,ZK	5
Electron theory. Sta	atic electricity, electrical conductivity and terminology. Production of electricity and the DC power source. DC Circuits. Electrical resistal	nce, resistor and p	erformance.
Capacity and ca	pacitor. Magnetism. Inductance and inductor. DC motors and generators. Theory AC, resistive, capacitive, inductive circuits. Transforn	ners. Brushless m	otors and
	generators. Frequency filters.		
21ZLKS	Basics of Aircraft Structures and Systems	KZ	4
	Basics of screening, technical drawing, technological and operational signs. Hydraulic, pneumatic, fuel, electricity and block diagrams	in aviation.	' i
21ZLS	ATM Systems	Z,ZK	5
The course intr	oduces classical and modern facilities, systems and technologies designated for ATS. Student obtains knowledge of technical princip	les and solutions	as far as
	communication, navigation and surveillance aviation systems are concerned.		
21ZYL1	Principles of Flight 1	Z,ZK	5
Aerodynamic drag,	relation between drag and speed, streamline, boundary layer, formula of continuity, formula of Bernoulli, lift and drag, air flow and pro-	essures around w	ng, angle of
attack, reactions of	wing in air flow, lift and drag of a wing and an aircraft, coefficient of lift and drag, critical angle of attack, wing with final span, induced	drag, interference	, devices for
	lift and drag increase.		
21ZYL2	Principles of Flight 2	Z,ZK	5
Static & dyna	mic longitudinal stability, neutral point, location of centre of gravity, static directional & (amp; lateral stability, dynamic directional & (amp;	lateral stability, co	ntrol – pitch
(longitudinal), ya	w (directional) & mp; roll (lateral), roll/yaw interaction, trimming, speed of sound, Mach number, compressibility, shock waves, critical	Mach number, ae	rodynamic
	heating, operating limitations, manoeuvring envelope, gust-load diagram.		
TV-1	Physical Education	Z	1
TV-2	Physical Education	Z	1

For updated information see http://bilakniha.cvut.cz/en/FF.html Generated: day 2024-05-20, time 11:04.