Study plan

Name of study plan: Bachelor PIL (EN) Full-Time from 2024/25

Faculty/Institute/Others:
Department:
Branch of study guaranteed by the department: Welcome page
Garantor of the study branch:
Program of study: Professional Pilot
Type of study: Bachelor full-time
Required credits: 178
Elective courses credits: 2
Sum of credits in the plan: 180
Note on the plan:

Name of the block: Compulsory courses
Minimal number of credits of the block: 168
The role of the block: Z

Code of the group: 1S-BP-PIL-EN-23/24
Name of the group: 1st Sem. Bachelor Full-Time PIL (EN) from 2023/24
Requirement credits in the group: In this group you have to gain 30 credits
Requirement courses in the group: In this group you have to complete 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
11CAL1-E	**Calculus 1** *Ondřej Navrátil, Magdalena Hykšová* ***Magdalena Hykšová*** *Ondřej Navrátil (Gar.)*	Z,ZK	7	2P+4C+22B	Z	z
11LA-E	**Linear Algebra** *Martina Bečvářová* ***Martina Bečvářová*** *Martina Bečvářová (Gar.)*	Z,ZK	3	2P+1C+10B	Z	z
21OBN-E	**General Navigation** *Denisa Svobodová* ***Denisa Svobodová***	ZK	5	4P+0C	Z	z
21VFRC-E	**VFR Communication** *Milan Kameník* ***Milan Kameník***	Z,ZK	4	2P+1C	Z	z
21VFRT-E	**Theory for VFR Training** *Filip Bartůněk* ***Filip Bartůněk***	Z,ZK	6	4P+4C	Z	z
11GIE-E	**Geometry** *Šárka Voráčová* ***Šárka Voráčová*** *Šárka Voráčová (Gar.)*	KZ	3	2P+2C+12B	Z	z
15JP1A-E	**Foreign Language - English for PIL 1** *Marek Tomeček, Dana Boušová, Jitka Heřmanová, Eva Rezlerová, Markéta Musilová, Markéta Vojanová, Lenka Monková* ***Markéta Musilová***	Z	2	0P+2C	Z	z

Characteristics of the courses of this group of Study Plan: Code=1S-BP-PIL-EN-23/24 Name=1st Sem. Bachelor Full-Time PIL (EN) from 2023/24

11CAL1-E	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-E	Linear Algebra	Z,ZK	3
Vector spaces (linear combinations, linear independence, dimension, basis, coordinates). Matrices and operations. Systems of linear equations and their solvability. Determinants and their applications. Scalar product. Similarity of matrices (eigenvalues and eigenvectors). Quadratic forms and their classification.			
21OBN-E	General Navigation	ZK	5
The Earth: latitude and longitude. Reference systems. Circles on the Earth and distance. Calculations. Time. Magnetism and sirections. Wind and Speed: Course, heading, track. Calculations: navigation computer conversions, TAS, rates. Calculations: 1 in 60 and navigation computer track and GS. Projections. Charts. VFR navigation. Nav Log preparation and use. Navigation display. Navigation in remote and oceanic areas.			
21VFRC-E	VFR Communication	Z,ZK	4
Course contents are based on PART FCL, part 090. It defines terms and abbreviations used in VFR communication. Phraseology and procedures in standard and non-standard situations.			
21VFRT-E	Theory for VFR Training	Z,ZK	6
Course content is based on PPL(A) theory requirements according to Part-FCL. Lectures cover topics that are necessary to commence the practical part of ATP(A) training, such as principles of flight, airframe and powerplant, aircraft systems, instrumentation, mass and balance, performance, air law and ATC procedures, meteorology, operational procedures, navigation, radionavigation, VFR communication, flight planning and monitoring and human factor.			

11GIE-E	Geometry	KZ	3
Differential geometry of curves - parameterization, the arc of the curve, torsion and curvature, Frenet`s trihedron. Kinematics - a curve as a trajectory of the motion, the velocity, and acceleration of a particle moving on a curved path.			
15JP1A-E	Foreign Language - English for PIL 1	Z	2
Improvement of language skills within spoken and written form of the language with the focus on aviation English. Practice of comprehension of authentic materials. Improvement of pronunciation and fluency of spoken language. Aviation phraseology in combination with general English. Revision and improvement of grammar structures, syntax and vocabulary. Topics related to air transport and occupation of pilot and air staff.			

Code of the group: 2S-BP-PIL-EN-23/24
Name of the group: 2nd Sem. Bachelor Full-Time PIL (EN) from 2023/24
Requirement credits in the group: In this group you have to gain 30 credits
Requirement courses in the group: In this group you have to complete 10 courses
Credits in the group: 30
Note on the group:

Code	Name of the course / Name of the group of courses *(in case of groups of courses the list of codes of their members)* *Tutors,* ***authors*** *and guarantors (gar.)*	Completion	Credits	Scope	Semester	Role
11CAL2-E	**Calculus 2** *Ondřej Navrátil, Magdalena Hykšová* ***Magdalena Hykšová*** *Ondřej Navrátil (Gar.)*	Z,ZK	5	2P+3C	L	z
11STAT-E	**Statistics** *Ivan Nagy, Tetiana Reznychenko* ***Tetiana Reznychenko*** *Evženie Uglickich (Gar.)*	Z,ZK	4	2P+2C	L	z
21HAV-E	**Weight and Balance of Aircraft** *Ota Hajzler* ***Denisa Svobodová*** *Anna Polánecká (Gar.)*	Z,ZK	3	2P+2C	L	z
21LDA1-E	**Aircraft 1** *Vladimír Plos, Max Chopart* ***Max Chopart*** *Vladimír Plos (Gar.)*	Z,ZK	3	2P+1C	L	z
21LEY1-E	**Air Law 1** *Radoslav Zozuľák* ***Radoslav Zozuľák*** *Radoslav Zozuľák (Gar.)*	ZK	3	3P+0C	L	z
21ZYT1-E	**Principles of Flight 1** *Vladimír Machula*	Z,ZK	3	2P+1C	L	z
15JP2A-E	**Foreign Language - English for PIL 2** *Marek Tomeček, Jitka Heřmanová, Eva Rezlerová, Markéta Musilová, Markéta Vojanová, Lenka Monková, Jan Feit, Barbora Horáčková, Marie Michlová, ...*	KZ	3	0P+2C	L	z
21CON-E	**Navigation Calculations** *Milan Kameník, Paul Rousseau* ***Milan Kameník***	KZ	2	0P+2C	L	z
21LPX1-E	**Flight Training 1** *Iveta Kameníková, Jakub Hospodka*	KZ	2	0P+1C	L	z
21LAP1-E	**Aviation English for Professional Pilot 1** *Filip Havrda, Lukáš Zibner* ***Filip Havrda***	Z	2	0P+2C	L	z

Characteristics of the courses of this group of Study Plan: Code=2S-BP-PIL-EN-23/24 Name=2nd Sem. Bachelor Full-Time PIL (EN) from 2023/24

11CAL2-E	Calculus 2	Z,ZK	5
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-E	Statistics	Z,ZK	4
Definition of probability, random variable and its description, known distributions, random vector, function of random variable. Methods of point estimation. Testing of statistical hypothesis. Regression and correlation, linear regression, correlation coefficient, coefficient of determination, the general linear model, statistical inference in linear regression, analysis of variance, multiple regression, the use of matrices in regression.			
21HAV-E	Weight and Balance of Aircraft	Z,ZK	3
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 aircarft performance.			
21LDA1-E	Aircraft 1	Z,ZK	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.			
21LEY1-E	Air Law 1	ZK	3
Air Law; ICAO Doc 7300; ICAO Doc 7500 and 9626; International Organizations: ICAO, IATA, EASA, EUROCONTROL; airworthiness; ICAO Annexes; Commission regulation (EU) 965/2012			
21ZYT1-E	Principles of Flight 1	Z,ZK	3
Aerodynamic drag, relation between drag and speed, streamline, boundary layer, formula of continuity, formula of Bernoulli, lift and drag, air flow and pressures around wing, angle of attack, reactions of wing in air flow, lift and drag of a wing and an aircraft, coefficient of lift and drag, critical angle of attack, wing with final span, induced drag, interference, devices for lift and drag increase.			
15JP2A-E	Foreign Language - English for PIL 2	KZ	3
Improvement of language skills within spoken and written form of the language with the focus on aviation English. Practice of comprehension of authentic materials. Improvement of pronunciation and fluency of spoken language. Aviation phraseology in combination with general English. Revision and improvement of grammar structures, syntax and vocabulary. Topics related to air transport and occupation of pilot and air staff.			
21CON-E	Navigation Calculations	KZ	2
Projection of maps; times - UTC, Zulu, LT; positioning; sunrise and sunset; distance calculation; projection; maps and symbols; declination; speed; wind components and wind drift; VFR route selection; position plotting.			

21LPX1-E	Flight Training 1	KZ	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.			
21LAP1-E	Aviation English for Professional Pilot 1	Z	2
Exercises focused on continuous reading specialized texts, vocabulary extension of technical English, terminology in the sphere of aircraft construction, principles of flight, aircraft engines, instruments and systems, analyzes relating to topics of air traffic, operational procedures, relevant legislation and operators procedures.			

Code of the group: 3S-BP-PIL-EN-24/25
Name of the group: 3rd Sem. Bachelor Full-Time PIL (EN) from 2024/25
Requirement credits in the group: In this group you have to gain 30 credits
Requirement courses in the group: In this group you have to complete 9 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-E	**Physics** *Tomáš Vítů, Antonio Cammarata, Jana Kuklová, Zuzana Malá* ***Jana Kuklová*** *Pavel Demo (Gar.)*	Z,ZK	5	2P+2C+18B	Z	z
21LAP2-E	**Aviation English for Professional Pilot 2** *Filip Havrda*	Z,ZK	3	0P+4C	Z	z
21LDA2-E	**Aircraft 2** *Max Chopart, Michal Černý*	Z,ZK	4	2P+1C	Z	z
21LPTY-E	**Aircraft Operations** *Ladislav Capoušek* ***Ladislav Capoušek***	ZK	2	2P+0C	Z	z
21PUP1-E	**Instrumentation 1** *Pavel Hovorka*	ZK	3	2P+0C	Z	z
21RNV-E	**Radionavigation** *Jan Žižka* ***Jan Žižka***	Z,ZK	4	3P+1C	Z	z
21VL-E	**Aircraft Performance** *Denisa Svobodová* ***Anna Polánecká***	Z,ZK	4	2P+2C	Z	z
21LPX2-E	**Flight Training 2** *Iveta Kameníková, Jakub Hospodka, Jakub Charezinski, Roman Matyáš* ***Iveta Kameníková***	KZ	2	0P+1C	Z	z
15JZ3A-E	**Foreign Language - English 3** *Dana Boušová, Jitka Heřmanová, Eva Rezlerová, Markéta Musilová, Markéta Vojanová, Lenka Monková, Jan Feit, Marie Michlová, Peter Morpuss*	Z	3	0P+4C	Z	z

Characteristics of the courses of this group of Study Plan: Code=3S-BP-PIL-EN-24/25 Name=3rd Sem. Bachelor Full-Time PIL (EN) from 2024/25

11FYZ-E	Physics	Z,ZK	5
Kinematics, particle dynamics, dynamics of particle systems and rigid body. Continuum mechanics, thermodynamics.			
21LAP2-E	Aviation English for Professional Pilot 2	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 the airlines.			
21LDA2-E	Aircraft 2	Z,ZK	4
Manufacturers responsibility, responsibilities of operator and professional supervising. Legislation in area of airworthiness. International and national standards. Static solidity of aircraft structures. Aeroelasticity. Inherent and operational reliability of aircraft structure. Fatigue strength. Aircraft structure lifetime presumption.			
21LPTY-E	Aircraft Operations	ZK	2
Aircraft oepration for cruise, approach, final approach , missed approach, hodling, PBN, augmented GNSS, aviation charts for IFR flight			
21PUP1-E	Instrumentation 1	ZK	3
Basic classification and construction of flight instruments, electric systems, power plant sensors and instruments, airframe sensors and instruments, measurement of air data parameters, integrated instrument systems.			
21RNV-E	Radionavigation	Z,ZK	4
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.			
21VL-E	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 and landing performance, after take off and missed approach climb, noise abatement procedures, range of aircraft, drift down, MEL, ETOPS.			
21LPX2-E	Flight Training 2	KZ	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.			
15JZ3A-E	Foreign Language - English 3	Z	3
Grammar structure and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty's fields of study pilot. Focus on improvement in perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral and written form. Technical texts and their features; terminology.			

Code of the group: 4S-BP-PIL-EN-24/25
Name of the group: 4th Sem. Bachelor Full-Time PIL (EN) from 2024/25
Requirement credits in the group: In this group you have to gain 28 credits
Requirement courses in the group: In this group you have to complete 10 courses
Credits in the group: 28
Note on the group:

Code	Name of the course / Name of the group of courses *(in case of groups of courses the list of codes of their members)* *Tutors,* ***authors*** *and guarantors (gar.)*	Completion	Credits	Scope	Semester	Role
11EMO-E	**Electromagnetic Field and Optics** *Tomáš Vítů, Antonio Cammarata, Zuzana Malá* ***Tomáš Vítů*** *Pavel Demo (Gar.)*	Z,ZK	4	2P+1C	L	z
21AFL1-E	**Advanced Flying 1** *Viktor Valenta* ***Viktor Valenta***	Z,ZK	3	2P+1C	L	z
21MEE1-E	**Meteorology 1** *Milan Kameník, Iveta Kameníková* ***Iveta Kameníková***	Z,ZK	3	2P+2C	L	z
21PML-E	**Flight Planning and Monitoring** *Anna Polánecká* ***Anna Polánecká***	Z,ZK	3	2P+2C	L	z
21PRJ2-E	**Instrumentation 2** *Pavel Hovorka* ***Pavel Hovorka***	ZK	3	2P+0C	L,Z	z
14AP-E	**Algorithm and Programming** *Vít Fábera, Michal Jeřábek, Júlia Škovierová* ***Vít Fábera*** *Vít Fábera (Gar.)*	KZ	4	2P+2C	L	z
21IFRC-E	**IFR Communication** *Milan Kameník* ***Milan Kameník***	KZ	2	1P+1C	L	z
21LPX3-E	**Flight Training 3** *Iveta Kameníková, Jakub Hospodka*	KZ	2	0P+1C	L	z
21SBU1-E	**Bachelor Thesis Seminar 1** *Lenka Hanáková* ***Lenka Hanáková***	Z	1	1P+0C	L	z
15JZ4A-E	**Foreign Language - English 4** *Jitka Heřmanová, Eva Rezlerová, Markéta Musilová, Markéta Vojanová, Lenka Monková, Jan Feit, Barbora Horáčková, Marie Michlová, Peter Morpuss*	Z,ZK	3	0P+4C	L	z

Characteristics of the courses of this group of Study Plan: Code=4S-BP-PIL-EN-24/25 Name=4th Sem. Bachelor Full-Time PIL (EN) from 2024/25

11EMO-E	Electromagnetic Field and Optics	Z,ZK	4
Electric field. Electric current. Magnetic field. Electromagnetic field. Optics. Basics of solid-state physics.			
21AFL1-E	Advanced Flying 1	Z,ZK	3
This course supplements Learning objectives laid down in Commission Regulation (EU) No 1178/2011. Instrument flying introduction, threat and error management, procedures for instrument departures, enroute flight, holdings and arrivals, instrument approaches, performance based navigation, weather consideration, flight planning and monitoring, effective briefings, phraseology differences, lost communication procedures, CFIT prevention, decompresion			
21MEE1-E	Meteorology 1	Z,ZK	3
Composition, size and vertical structure of the atmosphere. QNH, QFE, QFF, QNE, density and height measurements. Wind, moisture and adiabatic processes. Creating and types of cloud, fog, haze. Precipitation. Types of air masses, atmospheric fronts. Distribution of pressure, cyclones, anticyclones, non-frontal cyclone.			
21PML-E	Flight Planning and Monitoring	Z,ZK	3
Flight planning for VFR flights for small, single- and multi-engine aeroplanes			
21PRJ2-E	Instrumentation 2	ZK	3
Compass, gyroscopic instruments (turn indicator, attitude indicator, directional gyro), inertial instruments, recording and monitoring systems, warning systems (TCAS, GPWS), AFCS (autopilot, flight director, autothrust), FMS, flight envelope protection, communication systems, flight computers			
14AP-E	Algorithm and Programming	KZ	4
Computers, data representation, algorithms (conditions, loops), high level programming languages, introduction to Python language, lists, searching and sorting algorithms, abstract data types (set, tupple, dictionary), regular expressions, libraries to process date and time, set arrays, functions and procedures, working with files, instroduction into object oriented programming			
21IFRC-E	IFR Communication	KZ	2
Definitions, Terms, Abbreviations, Q-codes, Transport message categories, Transmission technique,, Transmission of letters, numbers, time and symbols, Standard words and phrases for IFR flights, Radar procedural phraseology, Standard phraseology and Morse code, Practical IFR radiotelephony procedures in normal and emergency situations.			
21LPX3-E	Flight Training 3	KZ	2
Deepening of theoretical knowledge and practical examination of progress in professional competence in pilot skills and knowledge			
21SBU1-E	Bachelor Thesis Seminar 1	Z	1
Types of thesis (review, applied research, basic research, thesis dealing with design proposals). Working with citation sources (citation sources, citation databases, citation styles, how to cite). Analyzing the state of the art (standards of research writing). Defining the limitations of the state of the art. Introduction to the thesis methodology.			
15JZ4A-E	Foreign Language - English 4	Z,ZK	3
Grammar structure and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty's fields of study - pilot. Focus on improvement in perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral and written form. Technical texts and their features; terminology.			

Code of the group: 5S-BP-PIL-EN-25/26
Name of the group: 5th Sem. Bachelor Full-Time PIL (EN) from 2025/26
Requirement credits in the group: In this group you have to gain 24 credits
Requirement courses in the group: In this group you have to complete 8 courses

Credits in the group: 24
Note on the group:

Code	Name of the course / Name of the group of courses *(in case of groups of courses the list of codes of their members)* *Tutors, **authors** and guarantors (gar.)*	Completion	Credits	Scope	Semester	Role
21LEY2-E	**Air Law 2**	ZK	3	3P+0C	Z	z
21LILE-E	**Human Factors in Aviation**	KZ	3	4P+0C	Z	z
21MET2-E	**Meteorology 2** *Iveta Kameníková **Iveta Kameníková***	Z,ZK	5	2P+2C	Z	z
21PPY1-E	**Operational Procedures 1** *Ladislav Capoušek **Ladislav Capoušek***	Z,ZK	3	2P+1C	Z	z
21PRKP-E	**Practical Flight Planning** *Anna Polánecká, Jakub Hospodka **Ota Hajzler***	Z,ZK	4	2P+2C	Z	z
21ZYT2-E	**Principles of Flight 2** ***Vladimír Machula***	Z,ZK	3	2P+1C	Z	z
21LPX4-E	**Flight Training 4** *Iveta Kameníková, Jakub Hospodka, Jakub Charezinski, Roman Matyáš **Iveta Kameníková***	KZ	2	0P+1C	Z	z
21SBU2-E	**Bachelor Thesis Seminar 2**	Z	1	1P+0C	Z	z

Characteristics of the courses of this group of Study Plan: Code=5S-BP-PIL-EN-25/26 Name=5th Sem. Bachelor Full-Time PIL (EN) from 2025/26

21LEY2-E	Air Law 2	ZK	3
The course is focused on the issue of commercial commercial air transport in accordance with applicable European legislation. Within the course, the issue of EC regulations is analyzed in detail File no. 965/2012, regulation no. 1321/2014 and ICAO Annexes, which significantly affect the form, method and structure of commercial air transport and transportation.			
21LILE-E	Human Factors in Aviation	KZ	3
Human factors in aviation. Breathing, atmosphere. Heart and circulation. Radiation. Human sensory organs, nervous system. Vision, hearing, illusions. Health and hygiene, fatigue, wakefulness and sleep. Information processing, human error. Cockpit management. Behaviour and workload. Automation. Core competencies.			
21MET2-E	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.			
21PPY1-E	Operational Procedures 1	Z,ZK	3
Annex 6, PART-OPS, Air operator, Aircraft operation, Operating procedures, Airplane equipment, Flight management, Airspace			
21PRKP-E	Practical Flight Planning	Z,ZK	4
1. mass and balance 2. fuel planning, PDP, RIF,RCF 3. ATC FPL 4. Preflight procedure and briefing-NOTAM + weather(METAR,SIGMET..) 5. Jeppesen charts 6. VFR flight planning-theory 7. VFR flight planning- ICAO mapa, softwary 8. IFR flight planning- theory 9. PBN- RNAV, RNP 10. IFR flight planning- softwary 11. MRJT- OFP 12. ETOPS a NAT HLA 13. PET, PSR, PNR 14. practical VFR a IFR flight planning			
21ZYT2-E	Principles of Flight 2	Z,ZK	3
Ways of producing thrust, propeller, jet propulsion, thrust and momentum, propulsion efficiency, aerodynamics of fixed and variable pitch propeller, propeller operation modes, propeller airstream effect, gyroscopic effect, balance of forces in horizontal flight, glide and landing, performances, take off an climb, acceleration, positive load, manoevures, stability and controllability, transsonic speeds.			
21LPX4-E	Flight Training 4	KZ	2
Deepening of theoretical knowledge and practical examination of progress in professional competence in pilot skills and knowledge			
21SBU2-E	Bachelor Thesis Seminar 2	Z	1
Methodology of thesis writing (introduction, analysis of the current state, specification of the problem, objectives and hypotheses). Definition of materials and methods, approach to obtaining results, presentation and discussion of results, formulation of thesis conclusions. Basics of LaTeX, working with LaTeX and Word template.			

Code of the group: 6S-BP-PIL-EN-25/26
Name of the group: 6th Sem. Bachelor Full-Time PIL (EN) from 2025/26
Requirement credits in the group: In this group you have to gain 26 credits
Requirement courses in the group: In this group you have to complete 9 courses
Credits in the group: 26
Note on the group:

Code	Name of the course / Name of the group of courses *(in case of groups of courses the list of codes of their members)* *Tutors, **authors** and guarantors (gar.)*	Completion	Credits	Scope	Semester	Role
11MSP-E	**Modeling of Systems and Processes** ***Jana Kuklová***	Z,ZK	4	2P+2C	L	z
21ELDO-E	**Air Transport Economy**	Z,ZK	3	3P+1C	L	z
21KPSL-E	**Communication and Surveillance Systems in Aviation** *Jakub Steiner **Jakub Steiner***	ZK	3	2P+0C	L	z
21LCM-E	**Aircraft Engines** *Vladimír Machula Jakub Kraus (Gar.)*	Z,ZK	3	2P+1C	L	z
21LEIS-E	**Aerodromes** *Ladislav Capoušek, Slobodan Stojić **Ladislav Capoušek***	Z,ZK	3	2P+1C	L	z

21PKL2-E	**Advanced Flying 2** *Viktor Valenta* ***Viktor Valenta***	ZK	2	2P+0C	L,Z	Z
21PRY2-E	**Operational Procedures 2**	ZK	3	3P+0C	L	Z
21KSA-E	**KSA Assessment**	KZ	2	0P+2C	L	Z
21LPX5-E	**Flight Training 5** *Iveta Kameníková, Jakub Hospodka*	KZ	2	0P+1C	L	Z
21LVIP-E	**MCC - Multicrew Cooperation**	KZ	2	2P+1C	L	Z
21SBU3-E	**Bachelor Thesis Seminar 3**	Z	1	1P+0C	L	Z

Characteristics of the courses of this group of Study Plan: Code=6S-BP-PIL-EN-25/26 Name=6th Sem. Bachelor Full-Time PIL (EN) from 2025/26

11MSP-E	Modeling of Systems and Processes	Z,ZK	4
Mathematical methods and algorithms as a basis for system analysis. Methods for modelling and evaluating the systems in continuous and discrete time domain. Laplace transform, z-transform, and the recursive algorithms in solution of differential and difference equations, as an instrument for system description. Practical use of technical computing environment (MATLAB).			
21ELDO-E	Air Transport Economy	Z,ZK	3
Economic terminology used in air transport. Basic microeconomic laws. Division of the economic disciplines. Economy carrier. Economic indicators in the management of air transport. Business activities in air transport.			
21KPSL-E	Communication and Surveillance Systems in Aviation	ZK	3
The course acquaints students with communication and surveillance systems both from the perspective of the air segment (aircraft systems) and from the perspective of ground infrastructure (ground systems), which together create the necessary prerequisites for ensuring safe, efficient and economical air transport.			
21LCM-E	Aircraft Engines	Z,ZK	3
Aircraft piston engine, theoretical background, operational characteristics and construction schemes. Propellers, operational characterictics. Turbine engine, theoretical background, thermal cycles, construction schemes, operational characteristics. Turbojet and turbofan engines, basic construction modules, and their operational characteristics. Engine control.			
21LEIS-E	Aerodromes	Z,ZK	3
Basic definitions. Applicability. Airport design. Reference code. Declared distances of runways (RWY). Taxiways and aprons. Clearway. Stopway. Markings of movement areas. Markings. Signs. Markers. Visual aids for denoting obstacles. Obstacle restriction, removal. Visual aids for navigation, lights, approach lighting systems. Visual approach slope indicator systems. Runway lights. Taxiway lights. Visual aids for denoting obstacles.			
21PKL2-E	Advanced Flying 2	ZK	2
Learning objectives are based on requirements laid down in Commission Regulation (EU) No 1178/2011, subjects 081 and 100. Multi engine aircraft and jet aircraft characteristics, energy management, stabilized approach and landing errors, jet - performance - engine out flight, jet - handling - engine out flight go around, UPRT, volcanic ash, cold weather operations, operation manuals, MEL procedures and deviations, flight time limitation			
21PRY2-E	Operational Procedures 2	ZK	3
Flight documentation and manuals, Icing and protection of the aircraft against icing, noise abatement procedures, Abnormal and emergency situations and procedures, Runway contamination			
21KSA-E	KSA Assessment	KZ	2
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.			
21LPX5-E	Flight Training 5	KZ	2
Deepening of theoretical knowledge and practical examination of progress in professional competence in pilot skills and knowledge			
21LVIP-E	MCC - Multicrew Cooperation	KZ	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 process, communication, effect of stress to the multi-crew performance, standard operational procedures, automation.			
21SBU3-E	Bachelor Thesis Seminar 3	Z	1
Formal and graphic design of the thesis. Data collection and presentation, basic statistical reasoning, validation of results and designs. Achieving the objectives of the thesis and evaluation of hypothesis tests. Preparation of the presentation, principles of presentation of the thesis.			

Name of the block: Semestrální projekt
Minimal number of credits of the block: 6
The role of the block: ZP

Code of the group: X1-BP-PIL-EN-22/23
Name of the group: Research Groups Bachelor Full-Time PIL (EN) from 2022/23
Requirement credits in the group: In this group you have to gain 6 credits
Requirement courses in the group: In this group you have to complete 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-E	**Project 1**	Z	2	0P+1C	L	ZP
12X31-E	**Project 1**	Z	2	0P+1C	L	ZP
14X31-E	**Project 1**	Z	2	0P+1C	L	ZP
15X31-E	**Project 1**	Z	2	0P+1C	L	ZP

16X31-E	**Project 1**	Z	2	0P+1C	L	ZP
17X31-E	**Project 1**	Z	2	0P+1C	L	ZP
18X31-E	**Project 1**	Z	2	0P+1C	L	ZP
20X31-E	**Project 1**	Z	2	0P+1C	L	ZP
21X31-E	**Project 1** *Jakub Hospodka, Lenka Hanáková, Jakub Kraus, Slobodan Stojić, Peter Vittek, Natalia Guskova, Kateřina Grötschelová, Terézia Pilmannová, Lukáš Popek*	Z	2	0P+1C	L	ZP
22X31-E	**Project 1**	Z	2	0P+1C	L	ZP
23X31-E	**Project 1**	Z	2	0P+1C	L	ZP
11X32-E	**Project 2**	Z	2	0P+2C	Z	ZP
12X32-E	**Project 2**	Z	2	0P+2C	Z	ZP
14X32-E	**Project 2**	Z	2	0P+2C	Z	ZP
15X32-E	**Project 2**	Z	2	0P+2C	Z	ZP
16X32-E	**Project 2**	Z	2	0P+2C	Z	ZP
17X32-E	**Project 2**	Z	2	0P+2C	Z	ZP
18X32-E	**Project 2**	Z	2	0P+2C	Z	ZP
20X32-E	**Project 2**	Z	2	0P+2C	Z	ZP
21X32-E	**Project 2** *Jakub Hospodka, Lenka Hanáková, Peter Vittek, Terézia Pilmannová, Bo Stloukal, Andrej Lališ*	Z	2	0P+2C	Z	ZP
22X32-E	**Project 2**	Z	2	0P+2C	Z	ZP
23X32-E	**Project 2**	Z	2	0P+2C	Z	ZP
11X33-E	**Project 3**	Z	2	0P+1C	L	ZP
12X33-E	**Project 3**	Z	2	0P+1C	L	ZP
14X33-E	**Project 3**	Z	2	0P+1C	L	ZP
15X33-E	**Project 3**	Z	2	0P+1C	L	ZP
16X33-E	**Project 3**	Z	2	0P+1C	L	ZP
17X33-E	**Project 3**	Z	2	0P+1C	L	ZP
18X33-E	**Project 3**	Z	2	0P+1C	L	ZP
20X33-E	**Project 3**	Z	2	0P+1C	L	ZP
21X33-E	**Project 3** *Max Chopart, Jakub Hospodka, Lenka Hanáková, Peter Vittek, Kateřina Grötschelová, Terézia Pilmannová, Bo Stloukal, Andrej Lališ, Vladimír Socha*	Z	2	0P+1C	L	ZP
22X33-E	**Project 3**	Z	2	0P+1C	L	ZP
23X33-E	**Project 3**	Z	2	0P+1C	L	ZP

Characteristics of the courses of this group of Study Plan: Code=X1-BP-PIL-EN-22/23 Name=Research Groups Bachelor Full-Time PIL (EN) from 2022/23

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

12X33-E	Project 3	Z	2
14X33-E	Project 3	Z	2
15X33-E	Project 3	Z	2
16X33-E	Project 3	Z	2
17X33-E	Project 3	Z	2
18X33-E	Project 3	Z	2
20X33-E	Project 3	Z	2
21X33-E	Project 3	Z	2
22X33-E	Project 3	Z	2
23X33-E	Project 3	Z	2

Name of the block: Compulsory elective courses
Minimal number of credits of the block: 4
The role of the block: PV

Code of the group: Y1-BP-PIL-EN-24/25
Name of the group: Comp. Sel. Courses Bachelor Full-Time PIL (EN) from 2024/25
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 2 courses
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
15Y1EH-E	**European Integration within Historical Context** *Jan Feit*	KZ	2	2P+0C	Z	PV
15Y1HE-E	**Work Hygiene and Ergonomics in Traffic**	KZ	2	2P+0C	Z	PV
15Y1ZV-E	**East-West dichotomy: Prelude to the Cold War** *Marie Michlová*	KZ	2	2P+0C	Z	PV
18Y1AM-E	**Anatomy, Mobility and Safety of Man**	KZ	2	2P+0C	Z	PV
18Y1EM-E	**Experimental Methods in Mechanics**	KZ	2	2P+0C	Z	PV
21Y1MJ-E	**Matlab for projects**	KZ	2	2P+0C	Z	PV
21Y1MP-E	**Matlab for project-oriented study** *Lenka Hanáková, Vladimír Socha* ***Vladimír Socha***	KZ	2	2P+0C	Z	PV
21Y1OH-E	**Airline Business and Operations** *Peter Olexa, Eva Endrizalová* ***Peter Olexa***	KZ	2	2P+0C	Z	PV
15Y1BO-E	**Work Safety and Health Protection in Transportation**	KZ	2	2P+0C	L	PV
15Y1HL-E	**History of Civil Aviation**	KZ	2	2P+0C	L	PV
17Y1LL-E	**Logistics of Passenger and Freight Air Transport**	KZ	2	2P+0C	L	PV
18Y1MT-E	**Engineering Materials**	KZ	2	2P+0C	L	PV
18Y1MX-E	**Materials in Transportation**	KZ	2	2P+0C	L	PV
18Y1PD-E	**Computer Simulations in Transportation**	KZ	2	2P+0C	L	PV
18Y1PS-E	**Computer Simulations in Mechanics** *Petr Zlámal*	KZ	2	2P+0C	L	PV
21Y1BC-E	**Aviation safety and security**	KZ	2	2P+0C	L	PV
21Y1BS-E	**Unmanned aircraft systems 1** *Michal Černý, Jakub Kraus, Tomáš Tlučhoř*	KZ	2	2P+0C	L	PV
21Y1RZ-E	**Human Resources Management**	KZ	2	2P+0C	L	PV
00Y1XB	**Active participation in a scientific project, workshop, short-term trip abroad** *Patrik Horažďovský* ***Patrik Horažďovský*** *Patrik Horažďovský (Gar.)*	KZ	2	2P+0C		PV

Characteristics of the courses of this group of Study Plan: Code=Y1-BP-PIL-EN-24/25 Name=Comp. Sel. Courses Bachelor Full-Time PIL (EN) from 2024/25

15Y1EH-E	European Integration within Historical Context	KZ	2
Versailles system, formation of new states. Europe and the powers, League of Nations. European policy in the 1920s. Fascism, nacism, communism. Little Entente, its principles and goals. Europe after Hitler's getting to power, system of bilateral agreements. Decline of the LN. Rearrangement of powers during WWII. Cold war and its consequences for Europe. New quality of French-German relationship - a driving power of starting European integration.			
15Y1HE-E	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 factors on health of workers. Creation and protection of working conditions that do not damage public health. Mutual links: man-machine-environment. Adaptation of technology to possibilities and skills of a man. Practical examples from the field of transportation; relevant legislature.			

15Y1ZV-E	East-West dichotomy: Prelude to the Cold War	KZ	2
Historical prologue, evolution of the "West" and "East" from the 1500s. Focus on the history in the period between 1850 nad 1950. Milestones and continuity of the international relations in the end of 19th century and the beginning of the 20th century. Revolutions, the causes and consequences. Scientific and technological progress, the causes and consequences. Economic and financial history. Social changes. Discussions on texts, sources.			
18Y1AM-E	Anatomy, Mobility and Safety of Man	KZ	2
Survey of tissues. Anatomical structure and growth of bones. Articular joint. Remodelling of bone tissue. Anatomical structure of muscles. Blood circulation and nervous system. Structure 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 joint prostheses. Protective means and traffic safety regulations.			
18Y1EM-E	Experimental Methods in Mechanics	KZ	2
The purpose and role of experimental mechanics. Sensors for mechanical testing. Overview of experimental methods. Destructive and non-destructive testing of materials. Design of experimental procedures and sample preparation. Tensile and bending tests. Electrical resistance strain gages. Optical based strain measurement. Fatigue and lifetime prediction. Instrumented hardness testing. Introduction to electron microscopy. Errors in measurement.			
21Y1MJ-E	Matlab for projects	KZ	2
The subject's syllabus is focused on the problem-solving during bachelor's thesis preparation and it is based on students' requests. Individual exercises will be prepared according to particular examples, based on actual students' needs and suggestions. The subject will have a flexible form, which is expected to bring an improvement of students' Matlab skills.			
21Y1MP-E	Matlab for project-oriented study	KZ	2
The subject's syllabus is focused on the problem-solving during bachelor's thesis preparation and it is based on students' requests. Individual exercises will be prepared according to particular examples, based on actual students' needs and suggestions. The subject will have a flexible form, which is expected to bring an improvement of students' Matlab skills.			
21Y1OH-E	Airline Business and Operations	KZ	2
The course provides a comprehensive view of the commercial, operational and transportation activities of air transport companies. It focuses on the organizational structure of companies, various aspects of their strategy, economic and operational indicators. It introduces students in detail to operational processes and the essentials of transportation processes. It provides a basic view of the economic aspects of air transport.			
15Y1BO-E	Work Safety and Health Protection in Transportation	KZ	2
Fundamental legislative, definition of terms, risks and possible health damage, working conditions and health protection with focus on transportation. Health protection programmes, health insurance of home and foreign business trips, statistics, working practice.			
15Y1HL-E	History of Civil Aviation	KZ	2
Aeronautics. Beginnings of aircrafts heavier than air. Czechoslovak aviation pioneers. Development of airports in the Czech Republic. World airports. Airlines of the world. Helicopters. CSA airplanes. Famous aviators. Classic era of aviation. Golden era of civil aviation. Supersonic flying. Modern era of civil aviation. Flying in the world.			
17Y1LL-E	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 transport process passengers and air cargo. Information systems in air transport. Global distribution systems.			
18Y1MT-E	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 and composites, attention is paid to biological materials and to biomimetics. Integral approach to material selection process is also demonstrated based on so called Ashby's selection charts.			
18Y1MX-E	Materials in Transportation	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 and composites, attention is paid to biological materials and to biomimetics. Integral approach to material selection process is also demonstrated based on so called Ashby's selection charts.			
18Y1PD-E	Computer Simulations in Transportation	KZ	2
Principles and overview of programs for stress analysis of structures. Numerical methods in mechanics, finite element method. Geometric model development and adaptation of geometry from other CAE systems. Assignment of material properties. The types of elements and their use. Discretization of solid model. Boundary conditions and application of the load. Basic tasks of structural and modal analysis. Introduction to complex nonlinear problems.			
18Y1PS-E	Computer Simulations in Mechanics	KZ	2
Principles and overview of programs for stress analysis of structures. Numerical methods in mechanics, finite element method. Geometric model development and adaptation of geometry from other CAE systems. Assignment of material properties. The types of elements and their use. Discretization of solid model. Boundary conditions and application of the load. Basic tasks of structural and modal analysis. Introduction to complex nonlinear problems.			
21Y1BC-E	Aviation safety and security	KZ	2
History of safety and security development in aviation. Modern tools for safety and security management. Research and development of safe and secure systems.			
21Y1BS-E	Unmanned aircraft systems 1	KZ	2
Unmanned Aviation Development. Aircraft design. Legislation in force in the Czech Republic. Planning and execution of the flight. Airspace division. Operational risks and operational procedures. Practical flights.			
21Y1RZ-E	Human Resources Management	KZ	2
The position of human resources in the organization and related disciplines file. Substance, importance and challenges of human resources management. Internal and external environment of human resource management. Human resource planning. Search, recruitment and selection of employees. Motivation, evaluation and remuneration of staff. Positioning, dismissal and redundancies of employees. Education of employees. Planning career management.			
00Y1XB	Active participation in a scientific project, workshop, short-term trip abroad	KZ	2

Name of the block: Elective courses
Minimal number of credits of the block: 0
The role of the block: V

Code of the group: VP-BP-PIL-EN
Name of the group: Bachelor Full-Time PIL (EN) voluntary
Requirement credits in the group:
Requirement courses in the group:
Credits in the group: 0
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
11SEMO-E	**Seminar of Electromagnetic Field and Optics** *Tomáš Vítů, Antonio Cammarata, Zuzana Malá* ***Tomáš Vítů*** *Tomáš Vítů (Gar.)*	Z	0	0P+2C	L	v
11SCFZ-E	**Seminar of Physics** *Tomáš Vítů, Antonio Cammarata, Jana Kuklová, Zuzana Malá* ***Tomáš Vítů*** *Tomáš Vítů (Gar.)*	Z	0	0P+2C	Z	v

Characteristics of the courses of this group of Study Plan: Code=VP-BP-PIL-EN Name=Bachelor Full-Time PIL (EN) voluntary

11SEMO-E	Seminar of Electromagnetic Field and Optics	Z	0
Solving problems on electric and magnetic field, electromagnetic field, optics and basics of solid-state physics.			
11SCFZ-E	Seminar of Physics	Z	0
Solving problems on kinematics, particle dynamics, dynamics of particle systems and rigid body. Continuum mechanics, thermodynamics.			

List of courses of this pass:

Code	Name of the course	Completion	Credits
00Y1XB	Active participation in a scientific project, workshop, short-term trip abroad	KZ	2
11CAL1-E	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-E	Calculus 2	Z,ZK	5
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			
11EMO-E	Electromagnetic Field and Optics	Z,ZK	4
Electric field. Electric current. Magnetic field. Electromagnetic field. Optics. Basics of solid-state physics.			
11FYZ-E	Physics	Z,ZK	5
Kinematics, particle dynamics, dynamics of particle systems and rigid body. Continuum mechanics, thermodynamics.			
11GIE-E	Geometry	KZ	3
Differential geometry of curves - parameterization, the arc of the curve, torsion and curvature, Frenet`s trihedron. Kinematics - a curve as a trajectory of the motion, the velocity, and acceleration of a particle moving on a curved path.			
11LA-E	Linear Algebra	Z,ZK	3
Vector spaces (linear combinations, linear independence, dimension, basis, coordinates). Matrices and operations. Systems of linear equations and their solvability. Determinants and their applications. Scalar product. Similarity of matrices (eigenvalues and eigenvectors). Quadratic forms and their classification.			
11MSP-E	Modeling of Systems and Processes	Z,ZK	4
Mathematical methods and algorithms as a basis for system analysis. Methods for modelling and evaluating the systems in continuous and discrete time domain. Laplace transform, z-transform, and the recursive algorithms in solution of differential and difference equations, as an instrument for system description. Practical use of technical computing environment (MATLAB).			
11SCFZ-E	Seminar of Physics	Z	0
Solving problems on kinematics, particle dynamics, dynamics of particle systems and rigid body. Continuum mechanics, thermodynamics.			
11SEMO-E	Seminar of Electromagnetic Field and Optics	Z	0
Solving problems on electric and magnetic field, electromagnetic field, optics and basics of solid-state physics.			
11STAT-E	Statistics	Z,ZK	4
Definition of probability, random variable and its description, known distributions, random vector, function of random variable. Methods of point estimation. Testing of statistical hypothesis. Regression and correlation, linear regression, correlation coefficient, coefficient of determination, the general linear model, statistical inference in linear regression, analysis of variance, multiple regression, the use of matrices in regression.			
11X31-E	Project 1	Z	2
11X32-E	Project 2	Z	2
11X33-E	Project 3	Z	2
12X31-E	Project 1	Z	2
12X32-E	Project 2	Z	2
12X33-E	Project 3	Z	2
14AP-E	Algorithm and Programming	KZ	4
Computers, data representation, algorithms (conditions, loops), high level programming languages, introduction to Python language, lists, searching and sorting algorithms, abstract data types (set, tupple, dictionary), regular expressions, libraries to process date and time, set arrays, functions and procedures, working with files, instroduction into object oriented programming			
14X31-E	Project 1	Z	2
14X32-E	Project 2	Z	2
14X33-E	Project 3	Z	2

15JP1A-E	Foreign Language - English for PIL 1	Z	2
Improvement of language skills within spoken and written form of the language with the focus on aviation English. Practice of comprehension of authentic materials. Improvement of pronunciation and fluency of spoken language. Aviation phraseology in combination with general English. Revision and improvement of grammar structures, syntax and vocabulary. Topics related to air transport and occupation of pilot and air staff.			
15JP2A-E	Foreign Language - English for PIL 2	KZ	3
Improvement of language skills within spoken and written form of the language with the focus on aviation English. Practice of comprehension of authentic materials. Improvement of pronunciation and fluency of spoken language. Aviation phraseology in combination with general English. Revision and improvement of grammar structures, syntax and vocabulary. Topics related to air transport and occupation of pilot and air staff.			
15JZ3A-E	Foreign Language - English 3	Z	3
Grammar structure and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty's fields of study pilot. Focus on improvement in perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral and written form. Technical texts and their features; terminology.			
15JZ4A-E	Foreign Language - English 4	Z,ZK	3
Grammar structure and stylistics. Conversational and specialised topics selected according to the language group level and with regard to the Faculty's fields of study - pilot. Focus on improvement in perceptive and communicative skills; widening the vocabulary. Basic kinds of compositions. Presentations of own findings in both oral and written form. Technical texts and their features; terminology.			
15X31-E	Project 1	Z	2
15X32-E	Project 2	Z	2
15X33-E	Project 3	Z	2
15Y1BO-E	Work Safety and Health Protection in Transportation	KZ	2
Fundamental legislative, definition of terms, risks and possible health damage, working conditions and health protection with focus on transportation. Health protection programmes, health insurance of home and foreign business trips, statistics, working practice.			
15Y1EH-E	European Integration within Historical Context	KZ	2
Versailles system, formation of new states. Europe and the powers, League of Nations. European policy in the 1920s. Fascism, nacism, communism. Little Entente, its principles and goals. Europe after Hitler's getting to power, system of bilateral agreements. Decline of the LN. Rearrangement of powers during WWII. Cold war and its consequences for Europe. New quality of French-German relationship - a driving power of starting European integration.			
15Y1HE-E	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 factors on health of workers. Creation and protection of working conditions that do not damage public health. Mutual links: man-machine-environment. Adaptation of technology to possibilities and skills of a man. Practical examples from the field of transportation; relevant legislature.			
15Y1HL-E	History of Civil Aviation	KZ	2
Aeronautics. Beginnings of aircrafts heavier than air. Czechoslovak aviation pioneers. Development of airports in the Czech Republic. World airports. Airlines of the world. Helicopters. CSA airplanes. Famous aviators. Classic era of aviation. Golden era of civil aviation. Supersonic flying. Modern era of civil aviation. Flying in the world.			
15Y1ZV-E	East-West dichotomy: Prelude to the Cold War	KZ	2
Historical prologue, evolution of the "West" and "East" from the 1500s. Focus on the history in the period between 1850 nad 1950. Milestones and continuity of the international relations in the end of 19th century and the beginning of the 20th century. Revolutions, the causes and consequences. Scientific and technological progress, the causes and consequences. Economic and financial history. Social changes. Discussions on texts, sources.			
16X31-E	Project 1	Z	2
16X32-E	Project 2	Z	2
16X33-E	Project 3	Z	2
17X31-E	Project 1	Z	2
17X32-E	Project 2	Z	2
17X33-E	Project 3	Z	2
17Y1LL-E	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 transport process passengers and air cargo. Information systems in air transport. Global distribution systems.			
18X31-E	Project 1	Z	2
18X32-E	Project 2	Z	2
18X33-E	Project 3	Z	2
18Y1AM-E	Anatomy, Mobility and Safety of Man	KZ	2
Survey of tissues. Anatomical structure and growth of bones. Articular joint. Remodelling of bone tissue. Anatomical structure of muscles. Blood circulation and nervous system. Structure 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 joint prostheses. Protective means and traffic safety regulations.			
18Y1EM-E	Experimental Methods in Mechanics	KZ	2
The purpose and role of experimental mechanics. Sensors for mechanical testing. Overview of experimental methods. Destructive and non-destructive testing of materials. Design of experimental procedures and sample preparation. Tensile and bending tests. Electrical resistance strain gages. Optical based strain measurement. Fatigue and lifetime prediction. Instrumented hardness testing. Introduction to electron microscopy. Errors in measurement.			
18Y1MT-E	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 and composites, attention is paid to biological materials and to biomimetics. Integral approach to material selection process is also demonstrated based on so called Ashby's selection charts.			
18Y1MX-E	Materials in Transportation	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 and composites, attention is paid to biological materials and to biomimetics. Integral approach to material selection process is also demonstrated based on so called Ashby's selection charts.			
18Y1PD-E	Computer Simulations in Transportation	KZ	2
Principles and overview of programs for stress analysis of structures. Numerical methods in mechanics, finite element method. Geometric model development and adaptation of geometry from other CAE systems. Assignment of material properties. The types of elements and their use. Discretization of solid model. Boundary conditions and application of the load. Basic tasks of structural and modal analysis. Introduction to complex nonlinear problems.			

18Y1PS-E	Computer Simulations in Mechanics	KZ	2
Principles and overview of programs for stress analysis of structures. Numerical methods in mechanics, finite element method. Geometric model development and adaptation of geometry from other CAE systems. Assignment of material properties. The types of elements and their use. Discretization of solid model. Boundary conditions and application of the load. Basic tasks of structural and modal analysis. Introduction to complex nonlinear problems.			
20X31-E	Project 1	Z	2
20X32-E	Project 2	Z	2
20X33-E	Project 3	Z	2
21AFL1-E	Advanced Flying 1	Z,ZK	3
This course supplements Learning objectives laid down in Commission Regulation (EU) No 1178/2011. Instrument flying introduction, threat and error management, procedures for instrument departures, enroute flight, holdings and arrivals, instrument approaches, performance based navigation, weather consideration, flight planning and monitoring, effective briefings, phraseology differences, lost communication procedures, CFIT prevention, decompresion			
21CON-E	Navigation Calculations	KZ	2
Projection of maps; times - UTC, Zulu, LT; positioning; sunrise and sunset; distance calculation; projection; maps and symbols; declination; speed; wind components and wind drift; VFR route selection; position plotting.			
21ELDO-E	Air Transport Economy	Z,ZK	3
Economic terminology used in air transport. Basic microeconomic laws. Division of the economic disciplines. Economy carrier. Economic indicators in the management of air transport. Business activities in air transport.			
21HAV-E	Weight and Balance of Aircraft	Z,ZK	3
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 aircarft performance.			
21IFRC-E	IFR Communication	KZ	2
Definitions, Terms, Abbreviations, Q-codes, Transport message categories, Transmission technique,, Transmission of letters, numbers, time and symbols, Standard words and phrases for IFR flights, Radar procedural phraseology, Standard phraseology and Morse code, Practical IFR radiotelephony procedures in normal and emergency situations.			
21KPSL-E	Communication and Surveillance Systems in Aviation	ZK	3
The course acquaints students with communication and surveillance systems both from the perspective of the air segment (aircraft systems) and from the perspective of ground infrastructure (ground systems), which together create the necessary prerequisites for ensuring safe, efficient and economical air transport.			
21KSA-E	KSA Assessment	KZ	2
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.			
21LAP1-E	Aviation English for Professional Pilot 1	Z	2
Exercises focused on continuous reading specialized texts, vocabulary extension of technical English, terminology in the sphere of aircraft construction, principles of flight, aircraft engines, instruments and systems, analyzes relating to topics of air traffic, operational procedures, relevant legislation and operators procedures.			
21LAP2-E	Aviation English for Professional Pilot 2	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 the airlines.			
21LCM-E	Aircraft Engines	Z,ZK	3
Aircraft piston engine, theoretical background, operational characteristics and construction schemes. Propellers, operational characterictics. Turbine engine, theoretical background, thermal cycles, construction schemes, operational characteristics. Turbojet and turbofan engines, basic construction modules, and their operational characteristics. Engine control.			
21LDA1-E	Aircraft 1	Z,ZK	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.			
21LDA2-E	Aircraft 2	Z,ZK	4
Manufacturers responsibility, responsibilities of operator and professional supervising. Legislation in area of airworthiness. International and national standards. Static solidity of aircraft structures. Aeroelasticity. Inherent and operational reliability of aircraft structure. Fatigue strength. Aircraft structure lifetime presumption.			
21LEIS-E	Aerodromes	Z,ZK	3
Basic definitions. Applicability. Airport design. Reference code. Declared distances of runways (RWY). Taxiways and aprons. Clearway. Stopway. Markings of movement areas. Markings. Signs. Markers. Visual aids for denoting obstacles. Obstacle restriction, removal. Visual aids for navigation, lights, approach lighting systems. Visual approach slope indicator systems. Runway lights. Taxiway lights. Visual aids for denoting obstacles.			
21LEY1-E	Air Law 1	ZK	3
Air Law; ICAO Doc 7300; ICAO Doc 7500 and 9626; International Organizations: ICAO, IATA, EASA, EUROCONTROL; airworthiness; ICAO Annexes; Commission regulation (EU) 965/2012			
21LEY2-E	Air Law 2	ZK	3
The course is focused on the issue of commercial commercial air transport in accordance with applicable European legislation. Within the course, the issue of EC regulations is analyzed in detail File no. 965/2012, regulation no. 1321/2014 and ICAO Annexes, which significantly affect the form, method and structure of commercial air transport and transportation.			
21LILE-E	Human Factors in Aviation	KZ	3
Human factors in aviation. Breathing, atmosphere. Heart and circulation. Radiation. Human sensory organs, nervous system. Vision, hearing, illusions. Health and hygiene, fatigue, wakefulness and sleep. Information processing, human error. Cockpit management. Behaviour and workload. Automation. Core competencies.			
21LPTY-E	Aircraft Operations	ZK	2
Aircraft oepration for cruise, approach, final approach , missed approach, hodling, PBN, augmented GNSS, aviation charts for IFR flight			
21LPX1-E	Flight Training 1	KZ	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.			
21LPX2-E	Flight Training 2	KZ	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.			
21LPX3-E	Flight Training 3	KZ	2
Deepening of theoretical knowledge and practical examination of progress in professional competence in pilot skills and knowledge			

21LPX4-E	Flight Training 4	KZ	2
	Deepening of theoretical knowledge and practical examination of progress in professional competence in pilot skills and knowledge		
21LPX5-E	Flight Training 5	KZ	2
	Deepening of theoretical knowledge and practical examination of progress in professional competence in pilot skills and knowledge		
21LVIP-E	MCC - Multicrew Cooperation	KZ	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 process, communication, effect of stress to the multi-crew performance, standard operational procedures, automation.		
21MEE1-E	Meteorology 1	Z,ZK	3
	Composition, size and vertical structure of the atmosphere. QNH, QFE, QFF, QNE, density and height measurements. Wind, moisture and adiabatic processes. Creating and types of cloud, fog, haze. Precipitation. Types of air masses, atmospheric fronts. Distribution of pressure, cyclones, anticyclones, non-frontal cyclone.		
21MET2-E	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.		
21OBN-E	General Navigation	ZK	5
	The Earth: latitude and longitude. Reference systems. Circles on the Earth and distance. Calculations. Time. Magnetism and sirections. Wind and Speed: Course, heading, track. Calculations: navigation computer conversions, TAS, rates. Calculations: 1 in 60 and navigation computer track and GS. Projections. Charts. VFR navigation. Nav Log preparation and use. Navigation display. Navigation in remote and oceanic areas.		
21PKL2-E	Advanced Flying 2	ZK	2
	Learning objectives are based on requirements laid down in Commission Regulation (EU) No 1178/2011, subjects 081 and 100. Multi engine aircraft and jet aircraft characteristics, energy management, stabilized approach and landing errors, jet - performance - engine out flight, jet - handling - engine out flight go around, UPRT, volcanic ash, cold weather operations, operation manuals, MEL procedures and deviations, flight time limitation		
21PML-E	Flight Planning and Monitoring	Z,ZK	3
	Flight planning for VFR flights for small, single- and multi-engine aeroplanes		
21PPY1-E	Operational Procedures 1	Z,ZK	3
	Annex 6, PART-OPS, Air operator, Aircraft operation, Operating procedures, Airplane equipment, Flight management, Airspace		
21PRJ2-E	Instrumentation 2	ZK	3
	Compass, gyroscopic instruments (turn indicator, attitude indicator, directional gyro), inertial instruments, recording and monitoring systems, warning systems (TCAS, GPWS), AFCS (autopilot, flight director, autothrust), FMS, flight envelope protection, communication systems, flight computers		
21PRKP-E	Practical Flight Planning	Z,ZK	4
	1. mass and balance 2. fuel planning, PDP, RIF,RCF 3. ATC FPL 4. Preflight procedure and briefing-NOTAM + weather(METAR,SIGMET..) 5. Jeppesen charts 6. VFR flight planning-theory 7. VFR flight planning- ICAO mapa, softwary 8. IFR flight planning- theory 9. PBN- RNAV, RNP 10. IFR flight planning- softwary 11. MRJT- OFP 12. ETOPS a NAT HLA 13. PET, PSR, PNR 14. practical VFR a IFR flight planning		
21PRY2-E	Operational Procedures 2	ZK	3
	Flight documentation and manuals, Icing and protection of the aircraft against icing, noise abatement procedures, Abnormal and emergency situations and procedures, Runway contamination		
21PUP1-E	Instrumentation 1	ZK	3
	Basic classification and construction of flight instruments, electric systems, power plant sensors and instruments, airframe sensors and instruments, measurement of air data parameters, integrated instrument systems.		
21RNV-E	Radionavigation	Z,ZK	4
	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.		
21SBU1-E	Bachelor Thesis Seminar 1	Z	1
	Types of thesis (review, applied research, basic research, thesis dealing with design proposals). Working with citation sources (citation sources, citation databases, citation styles, how to cite). Analyzing the state of the art (standards of research writing). Defining the limitations of the state of the art. Introduction to the thesis methodology.		
21SBU2-E	Bachelor Thesis Seminar 2	Z	1
	Methodology of thesis writing (introduction, analysis of the current state, specification of the problem, objectives and hypotheses). Definition of materials and methods, approach to obtaining results, presentation and discussion of results, formulation of thesis conclusions. Basics of LaTeX, working with LaTeX and Word template.		
21SBU3-E	Bachelor Thesis Seminar 3	Z	1
	Formal and graphic design of the thesis. Data collection and presentation, basic statistical reasoning, validation of results and designs. Achieving the objectives of the thesis and evaluation of hypothesis tests. Preparation of the presentation, principles of presentation of the thesis.		
21VFRC-E	VFR Communication	Z,ZK	4
	Course contents are based on PART FCL, part 090. It defines terms and abbreviations used in VFR communication. Phraseology and procedures in standard and non-standard situations.		
21VFRT-E	Theory for VFR Training	Z,ZK	6
	Course content is based on PPL(A) theory requirements according to Part-FCL. Lectures cover topics that are necessary to commence the practical part of ATP(A) training, such as principles of flight, airframe and powerplant, aircraft systems, instrumentation, mass and balance, performance, air law and ATC procedures, meteorology, operational procedures, navigation, radionavigation, VFR communication, flight planning and monitoring and human factor.		
21VL-E	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 and landing performance, after take off and missed approach climb, noise abatement procedures, range of aircraft, drift down, MEL, ETOPS.		
21X31-E	Project 1	Z	2
21X32-E	Project 2	Z	2
21X33-E	Project 3	Z	2
21Y1BC-E	Aviation safety and security	KZ	2
	History of safety and security development in aviation. Modern tools for safety and security management. Research and development of safe and secure systems.		
21Y1BS-E	Unmanned aircraft systems 1	KZ	2
	Unmanned Aviation Development. Aircraft design. Legislation in force in the Czech Republic. Planning and execution of the flight. Airspace division. Operational risks and operational procedures. Practical flights.		

21Y1MJ-E	Matlab for projects	KZ	2
The subject's syllabus is focused on the problem-solving during bachelor's thesis preparation and it is based on students' requests. Individual exercises will be prepared according to particular examples, based on actual students' needs and suggestions. The subject will have a flexible form, which is expected to bring an improvement of students' Matlab skills.			
21Y1MP-E	Matlab for project-oriented study	KZ	2
The subject's syllabus is focused on the problem-solving during bachelor's thesis preparation and it is based on students' requests. Individual exercises will be prepared according to particular examples, based on actual students' needs and suggestions. The subject will have a flexible form, which is expected to bring an improvement of students' Matlab skills.			
21Y1OH-E	Airline Business and Operations	KZ	2
The course provides a comprehensive view of the commercial, operational and transportation activities of air transport companies. It focuses on the organizational structure of companies, various aspects of their strategy, economic and operational indicators. It introduces students in detail to operational processes and the essentials of transportation processes. It provides a basic view of the economic aspects of air transport.			
21Y1RZ-E	Human Resources Management	KZ	2
The position of human resources in the organization and related disciplines file. Substance, importance and challenges of human resources management. Internal and external environment of human resource management. Human resource planning. Search, recruitment and selection of employees. Motivation, evaluation and remuneration of staff. Positioning, dismissal and redundancies of employees. Education of employees. Planning career management.			
21ZYT1-E	Principles of Flight 1	Z,ZK	3
Aerodynamic drag, relation between drag and speed, streamline, boundary layer, formula of continuity, formula of Bernoulli, lift and drag, air flow and pressures around wing, angle of attack, reactions of wing in air flow, lift and drag of a wing and an aircraft, coefficient of lift and drag, critical angle of attack, wing with final span, induced drag, interference, devices for lift and drag increase.			
21ZYT2-E	Principles of Flight 2	Z,ZK	3
Ways of producing thrust, propeller, jet propulsion, thrust and momentum, propulsion efficiency, aerodynamics of fixed and variable pitch propeller, propeller operation modes, propeller airstream effect, gyroscopic effect, balance of forces in horizontal flight, glide and landing, performances, take off an climb, acceleration, positive load, manoevures, stability and controllability, transsonic speeds.			
22X31-E	Project 1	Z	2
22X32-E	Project 2	Z	2
22X33-E	Project 3	Z	2
23X31-E	Project 1	Z	2
23X32-E	Project 2	Z	2
23X33-E	Project 3	Z	2

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