# Study plan

## Name of study plan: Bachelor PIL (CS) Full-Time from 2023/24

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: 176
Elective courses credits: 4
Sum of credits in the plan: 180
Note on the plan:

---

Name of the block: Compulsory courses
Minimal number of credits of the block: 170
The role of the block: Z

---

Code of the group: 1S-BP-PIL-CS-23/24
Name of the group: 1st Sem. Bachelor Full-Time PIL (CS) 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 | **Calculus 1** *Olga Vraštilová, Tomáš Třasák, Magdalena Hykšová, Bohumil Kovář, Ondřej Navrátil* ***Bohumil Kovář*** *Ondřej Navrátil (Gar.)* | Z,ZK | 7 | 2P+4C+22B | Z | z |
| 11LA | **Linear Algebra** *Lucie Kárná, Pavel Provinský, Martina Bečvářová* ***Martina Bečvářová*** *Martina Bečvářová (Gar.)* | Z,ZK | 3 | 2P+1C+10B | Z | z |
| 21OBN | **General Navigation** *Radoslav Zozuľák* ***Radoslav Zozuľák*** | ZK | 5 | 4P+0C | Z | z |
| 21VFRC | **VFR Communication** *Milan Kameník* ***Milan Kameník*** | Z,ZK | 4 | 2P+1C | Z | z |
| 21VFRT | **Theory for VFR Training** *Ladislav Capoušek* ***Ladislav Capoušek*** | Z,ZK | 6 | 4P+4C | Z | z |
| 11GIE | **Geometry** *Pavel Provinský, Oldřich Hykš, Šárka Voráčová* ***Oldřich Hykš*** *Oldřich Hykš (Gar.)* | KZ | 3 | 2P+2C+12B | Z | z |
| 15JP1A | **Foreign Language - English for PIL 1** *Marek Tomeček, Dana Boušová, Peter Morpuss, Lenka Monková, Marie Michlová, Eva Rezlerová, Markéta Musilová, Markéta Vojanová, Jitka Heřmanová, .....* | Z | 2 | 0P+2C | Z | z |

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

| | | | |
|---|---|---|---|
| 11CAL1 | Calculus 1 | Z,ZK | 7 |
| Sequence of real numbers and its limit. Basic properties of mappings. Function of one real variable, its limit and derivative. Indefinite integral, Newton integral, Riemann integral, improper Riemann integral. First-order differential equations, linear differential equations. | | | |
| 11LA | Linear Algebra | Z,ZK | 3 |
| Vector spaces (linear combinations, linear independence, dimension, basis, coordinates). Matrices and operations. Systems of linear equations and their solvability. Determinants and their applications. Scalar product. Similarity of matrices (eigenvalues and eigenvectors). Quadratic forms and their classification. | | | |
| 21OBN | 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 | 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 | 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 | 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 | 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-CS-23/24
Name of the group: 2nd Sem. Bachelor Full-Time PIL (CS) 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<br>*(in case of groups of courses the list of codes of their members)*<br>*Tutors,* ***authors*** *and guarantors (gar.)* | Completion | Credits | Scope | Semester | Role |
|---|---|---|---|---|---|---|
| 11CAL2 | **Calculus 2**<br>*Olga Vraštilová, Tomáš Třasák, Magdalena Hykšová, Ondřej Navrátil, Oldřich Hykš* ***Magdalena Hykšová*** *Ondřej Navrátil (Gar.)* | Z,ZK | 5 | 2P+3C+20B | L | z |
| 11STAT | **Statistics**<br>*Pavel Provinský, Evženie Uglickich, Pavla Pecherková, Michal Matowicki, Natálie Blahitka, Ivan Nagy, Jana Kuklová* ***Pavla Pecherková*** *Evženie Uglickich (Gar.)* | Z,ZK | 4 | 2P+2C+12B | L | z |
| 21HAV-E | **Weight and Balance of Aircraft**<br>*Ota Hajzler* ***Denisa Svobodová*** *Anna Polánecká (Gar.)* | Z,ZK | 3 | 2P+2C | L | z |
| 21LDA1 | **Aircraft 1**<br>*Karel Mündel* ***Karel Mündel*** *Vladimír Plos (Gar.)* | Z,ZK | 3 | 2P+1C | L | z |
| 21LEY1 | **Air Law 1**<br>*Radoslav Zozuľák* ***Radoslav Zozuľák*** *Radoslav Zozuľák (Gar.)* | ZK | 3 | 3P+0C | L | z |
| 21ZYT1 | **Principles of Flight 1**<br>*Přemysl Vávra, Jakub Trýb* ***Přemysl Vávra*** *Vladimír Socha (Gar.)* | Z,ZK | 3 | 2P+1C | L | z |
| 15JP2A | **Foreign Language - English for PIL 2**<br>*Marek Tomeček, Peter Morpuss, Lenka Monková, Marie Michlová, Eva Rezlerová, Markéta Musilová, Markéta Vojanová, Jitka Heřmanová, Jan Feit, .....* | KZ | 3 | 0P+2C | L | z |
| 21CON-E | **Navigation Calculations**<br>*Milan Kameník, Paul Rousseau* ***Milan Kameník*** | KZ | 2 | 0P+2C | L | z |
| 21LPX1 | **Flight Training 1**<br>*Iveta Kameníková, Jakub Hospodka* | KZ | 2 | 0P+1C | Z,L | z |
| 21LAP1 | **Aviation English for Professional Pilot 1**<br>*Lukáš Zibner, Filip Havrda* ***Filip Havrda*** | Z | 2 | 0P+2C | L | z |

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

| | | | |
|---|---|---|---|
| 11CAL2 | Calculus 2 | Z,ZK | 5 |
| Linear differential equations and their systems, differential calculus of functions of several real variables. Riemann integral in Rn. Line and surface integrals. | | | |
| 11STAT | Statistics | Z,ZK | 4 |
| Basics of probability Descriptive statistics Population and sample, limit theorem Point estimate, construction and properties Interval estimates Parametric tests Nonparametric tests Regression and correlation analysis | | | |
| 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 | 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 | 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 | 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 | 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 | 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 | 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-CS-24/25
Name of the group: 3rd Sem. Bachelor Full-Time PIL (CS) 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 | **Physics** *Oldřich Hykš, Jana Kuklová, Pavel Demo, Zuzana Malá, Tomáš Vítů* ***Jana Kuklová*** *Pavel Demo (Gar.)* | Z,ZK | 5 | 2P+2C+18B | Z | z |
| 21LAP2 | **Aviation English for Professional Pilot 2** *Lukáš Zibner* ***Lukáš Zibner*** | Z,ZK | 3 | 0P+4C | Z | z |
| 21LDA2 | **Aircraft 2** *Karel Mündel* ***Karel Mündel*** | Z,ZK | 4 | 2P+1C | Z | z |
| 21LPTY-E | **Aircraft Operations** *Ladislav Capoušek* ***Ladislav Capoušek*** | ZK | 2 | 2P+0C | Z | z |
| 21PUP1 | **Instrumentation 1** *Pavel Hovorka* | ZK | 3 | 2P+0C | Z | z |
| 21RNV | **Radionavigation** *Milan Kameník* ***Milan Kameník*** | Z,ZK | 4 | 3P+1C | Z | z |
| 21VL-E | **Aircraft Performance** *Denisa Svobodová* ***Denisa Svobodová*** | Z,ZK | 4 | 2P+2C | Z | z |
| 21LPX2 | **Flight Training 2** *Iveta Kameníková, Jakub Hospodka, Jakub Charezinski, Roman Matyáš* ***Iveta Kameníková*** | KZ | 2 | 0P+1C | L,Z | z |
| 15JZ3A | **Foreign Language - English 3** *Dana Boušová, Peter Morpuss, Lenka Monková, Marie Michlová, Eva Rezlerová, Markéta Musilová, Markéta Vojanová, Jitka Heřmanová, Jan Feit* | Z | 3 | 0P+4C | Z | z |

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

| | | | |
|---|---|---|---|
| 11FYZ | Physics | Z,ZK | 5 |
| Kinematics, dynamics, Newton's laws, force fields, mechanics of continuum, thermodynamics, introduction to electrostatics and electric current. | | | |
| 21LAP2 | 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 | 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 | Instrumentation 1 | ZK | 3 |
| Basic construction principles of instrumentation, electronic displays, basics of measurement - sensitivity and errors, engine instrumentation (pressure gauges, thermometers, fuel quantity and fuel flow measurement, torque and EPR measurement), indication in other aircraft systems (position, fire and icing indication, vibration monitoring, pressurisation system monitoring, aerometric instruments (sensors, altimeter, air speed indicator, VSI, ADC). | | | |
| 21RNV | 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 | 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 | 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-CS-24/25
Name of the group: 4th Sem. Bachelor Full-Time PIL (CS) 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 | **Electromagnetic Field and Optics** *Oldřich Hykš, Jana Kuklová, Zuzana Malá, Tomáš Vítů **Zuzana Malá** Zuzana Malá (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 | **Meteorology 1** *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 | **Instrumentation 2** *Pavel Hovorka **Pavel Hovorka*** | ZK | 3 | 2P+0C | L,Z | z |
| 14AP | **Algorithm and Programming** *Vít Fábera, Michal Jeřábek **Michal Jeřábek** Vít Fábera (Gar.)* | KZ | 4 | 2P+2C | L | z |
| 21IFRC | **IFR Communication** *Milan Kameník **Milan Kameník*** | KZ | 2 | 1P+1C | L | z |
| 21LPX3 | **Flight Training 3** *Iveta Kameníková, Jakub Hospodka* | KZ | 2 | 0P+1C | L | z |
| 21SBU1 | **Bachelor Thesis Seminar 1** *Lenka Hanáková **Lenka Hanáková** Lenka Hanáková (Gar.)* | Z | 1 | 1P+0C | L | z |
| 15JZ4A | **Foreign Language - English 4** *Peter Morpuss, Lenka Monková, Marie Michlová, Eva Rezlerová, Markéta Musilová, Markéta Vojanová, Jitka Heřmanová, Jan Feit, Barbora Horáčková* | Z,ZK | 3 | 0P+4C | L | z |

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

| | | | |
|---|---|---|---|
| 11EMO | 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 | 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 | 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 | 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 | 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 | Flight Training 3 | KZ | 2 |

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

| | | | |
|---|---|---|---|
| 21SBU1 | 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 | 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-CS-23/24
Name of the group: 5th Sem. Bachelor Full-Time PIL (CS) from 2023/24
Requirement credits in the group: In this group you have to gain 26 credits
Requirement courses in the group: In this group you have to complete 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 |
|---|---|---|---|---|---|---|
| 21LTP2 | **Air Law 2** *Radoslav Zozuľák* ***Radoslav Zozuľák*** | Z,ZK | 3 | 3P+0C | Z | z |
| 21MET2 | **Meteorology 2** *Iveta Kameníková* ***Iveta Kameníková*** | Z,ZK | 5 | 2P+2C | L,Z | z |
| 21PKL2 | **Advanced Flying 2** *Viktor Valenta* ***Viktor Valenta*** | ZK | 2 | 2P+0C | Z | z |
| 21PPY1 | **Operational Procedures 1** *Ladislav Capoušek* ***Ladislav Capoušek*** | Z,ZK | 3 | 2P+1C | Z | z |
| 21PRKP | **Practical Flight Planning** *Anna Polánecká, Jakub Hospodka* ***Jakub Hospodka*** | Z,ZK | 4 | 2P+2C | Z | z |
| 21ZKL2 | **Principles of Flight 2** *Přemysl Vávra, Jakub Trýb* ***Jakub Trýb*** | ZK | 3 | 2P+1C | Z | z |
| 21LPX4 | **Flight Training 4** *Iveta Kameníková, Jakub Hospodka, Jakub Charezinski, Roman Matyáš* ***Iveta Kameníková*** | KZ | 2 | 0P+1C | Z | z |
| 21SBP | **Bachelor's Thesis Seminar** *Vladimír Socha, Lenka Hanáková, Marta Urbanová* ***Marta Urbanová*** | Z | 1 | 0P+1C | Z | z |
| 15JZ3A | **Foreign Language - English 3** *Dana Boušová, Peter Morpuss, Lenka Monková, Marie Michlová, Eva Rezlerová, Markéta Musilová, Markéta Vojanová, Jitka Heřmanová, Jan Feit* | Z | 3 | 0P+4C | Z | z |

**Characteristics of the courses of this group of Study Plan: Code=5S-BP-PIL-CS-23/24 Name=5th Sem. Bachelor Full-Time PIL (CS) from 2023/24**

| | | | |
|---|---|---|---|
| 15JZ3A | 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. | | | |
| 21LTP2 | Air Law 2 | Z,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. | | | |
| 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. | | | |
| 21PKL2 | 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 | | | |
| 21PPY1 | Operational Procedures 1 | Z,ZK | 3 |
| Annex 6, PART-OPS, Air operator, Aircraft operation, Operating procedures, Airplane equipment, Flight management, Airspace | | | |
| 21PRKP | 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 | | | |
| 21ZKL2 | Principles of Flight 2 | ZK | 3 |
| Static & dynamic longitudinal stability, neutral point, location of centre of gravity, static directional & lateral stability, dynamic directional & lateral stability, control pitch (longitudinal), yaw (directional) & roll (lateral), roll/yaw interaction, trimming, speed of sound, Mach number, compressibility, shock waves, critical Mach number, aerodynamic heating, operating limitations, manoeuvring envelope, gust-load diagram. | | | |
| 21LPX4 | Flight Training 4 | KZ | 2 |
| Deepening of theoretical knowledge and practical examination of progress in professional competence in pilot skills and knowledge | | | |
| 21SBP | Bachelor's Thesis Seminar | Z | 1 |
| Work with information sources. Citation, citation formats. The methodology of writing the thesis. Presentation of results. Formal requirements for thesis. Presentation of thesis. Requirements for journal articles. Publication ethics. | | | |

Code of the group: 6S-BP-PIL-CS-23/24
Name of the group: 6th Sem. Bachelor Full-Time PIL (CS) from 2023/24
Requirement credits in the group: In this group you have to gain 26 credits
Requirement courses in the group: In this group you have to complete 9 courses
Credits in the group: 26
Note on the group:

| Code | Name of the course / Name of the group of courses<br>*(in case of groups of courses the list of codes of their members)*<br>*Tutors,* ***authors*** *and guarantors (gar.)* | Completion | Credits | Scope | Semester | Role |
|---|---|---|---|---|---|---|
| 21KPSL | **Communication and Surveillance Systems in Aviation**<br>*Stanislav Pleninger* ***Stanislav Pleninger*** | ZK | 3 | 2P+0C | L | z |
| 21KSAV | **KSA Assessment**<br>*Radoslav Zozuľák* ***Radoslav Zozuľák*** | Z,ZK | 2 | 0P+2C | L | z |
| 21LCM | **Aircraft Engines**<br>*Tomáš Parýzek, Daniel Hanus, Vladimír Machula* ***Daniel Hanus*** | Z,ZK | 3 | 2P+1C | Z,L | z |
| 21LEIS | **Aerodromes**<br>*Ladislav Capoušek, Petr Líkař, Slobodan Stojić* ***Ladislav Capoušek*** *Slobodan Stojić (Gar.)* | Z,ZK | 3 | 2P+1C | L | z |
| 21PPY2 | **Operational Procedures 2**<br>*Ladislav Capoušek* ***Ladislav Capoušek*** | ZK | 4 | 3P+0C | L | z |
| 14AP | **Algorithm and Programming**<br>*Vít Fábera, Michal Jeřábek* ***Michal Jeřábek*** *Vít Fábera (Gar.)* | KZ | 4 | 2P+2C | L | z |
| 21LPX5 | **Flight Training 5**<br>*Iveta Kameníková, Jakub Hospodka* | KZ | 2 | 0P+1C | L | z |
| 21LVPK | **MCC - Multicrew Cooperation**<br>*Vladislav Pružina* | Z | 2 | 2P+1C | L | z |
| 15JZ4A | **Foreign Language - English 4**<br>*Peter Morpuss, Lenka Monková, Marie Michlová, Eva Rezlerová, Markéta Musilová, Markéta Vojanová, Jitka Heřmanová, Jan Feit, Barbora Horáčková* | Z,ZK | 3 | 0P+4C | L | z |

**Characteristics of the courses of this group of Study Plan: Code=6S-BP-PIL-CS-23/24 Name=6th Sem. Bachelor Full-Time PIL (CS) from 2023/24**

| | | | |
|---|---|---|---|
| 14AP | 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 | | | |
| 15JZ4A | 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. | | | |
| 21KPSL | 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. | | | |
| 21KSAV | KSA Assessment | Z,ZK | 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. | | | |
| 21LCM | 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 | 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. | | | |
| 21PPY2 | Operational Procedures 2 | ZK | 4 |
| Flight documentation and manuals, Icing and protection of the aircraft against icing, noise abatement procedures, Abnormal and emergency situations and procedures, Runway contamination | | | |
| 21LPX5 | Flight Training 5 | KZ | 2 |
| Deepening of theoretical knowledge and practical examination of progress in professional competence in pilot skills and knowledge | | | |
| 21LVPK | 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 process, communication, effect of stress to the multi-crew performance, standard operational procedures, automation. | | | |

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-CS-22/23
Name of the group: Research Groups Bachelor Full-Time PIL (CS) 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<br>*(in case of groups of courses the list of codes of their members)*<br>*Tutors,* ***authors*** *and guarantors (gar.)* | Completion | Credits | Scope | Semester | Role |
|---|---|---|---|---|---|---|
| 11X31 | **Project 1**<br>*Michal Matowicki* ***Michal Matowicki*** | Z | 2 | 0P+1C | L | ZP |
| 12X31 | **Project 1**<br>*Dagmar Kočárková, Martin Höfler* | Z | 2 | 0P+1C | L | ZP |
| 14X31 | **Project 1** | Z | 2 | 0P+1C | L | ZP |
| 15X31 | **Project 1** | Z | 2 | 0P+1C | L | ZP |
| 16X31 | **Project 1** | Z | 2 | 0P+1C | L | ZP |
| 17X31 | **Project 1**<br>*Roman Štěrba, Milan Kříž, Václav Baroch, Daniel Pilát, Michal Drábek, Alexandra Dvořáčková, Veronika Faifrová, Petr Fridrišek, Rudolf Franz Heidu, ..... Václav Baroch (Gar.)* | Z | 2 | 0P+1C | L | ZP |
| 18X31 | **Project 1** | Z | 2 | 0P+1C | L | ZP |
| 20X31 | **Project 1** | Z | 2 | 0P+1C | L | ZP |
| 21X31 | **Project 1**<br>*Jakub Hospodka, Lenka Hanáková, Stanislav Pleninger, Slobodan Stojić, Jakub Kraus, Andrej Lališ, Terézia Pilmannová, Peter Vittek, Natalia Guskova, .....* | Z | 2 | 0P+1C | L | ZP |
| 22X31 | **Project 1** | Z | 2 | 0P+1C | L | ZP |
| 23X31 | **Project 1** | Z | 2 | 0P+1C | L | ZP |
| 11X32 | **Project 2** | Z | 2 | 0P+2C | Z | ZP |
| 12X32 | **Project 2** | Z | 2 | 0P+2C | Z | ZP |
| 14X32 | **Project 2**<br>*Jana Kaliková, Jan Krčál* | Z | 2 | 0P+2C | Z | ZP |
| 15X32 | **Project 2** | Z | 2 | 0P+2C | Z | ZP |
| 16X32 | **Project 2**<br>*Petr Bouchner, Tereza Kunclová* | Z | 2 | 0P+2C | Z | ZP |
| 17X32 | **Project 2**<br>*Milan Kříž, Václav Baroch, Daniel Pilát, Michal Drábek, Alexandra Dvořáčková, Veronika Faifrová, Rudolf Franz Heidu, Tomáš Horák, Vít Janoš, .....* | Z | 2 | 0P+2C | Z | ZP |
| 18X32 | **Project 2** | Z | 2 | 0P+2C | Z | ZP |
| 20X32 | **Project 2**<br>*Vladimír Faltus* | Z | 2 | 0P+2C | Z | ZP |
| 21X32 | **Project 2**<br>*Radoslav Zozuľák, Vladimír Socha, Iveta Kameníková, Jakub Hospodka, Viktor Valenta, Lenka Hanáková, Stanislav Pleninger, Slobodan Stojić, Jakub Kraus, .....* | Z | 2 | 0P+2C | Z | ZP |
| 22X32 | **Project 2** | Z | 2 | 0P+2C | Z | ZP |
| 23X32 | **Project 2** | Z | 2 | 0P+2C | Z | ZP |
| 11X33 | **Project 3** | Z | 2 | 0P+1C | L | ZP |
| 12X33 | **Project 3**<br>*Dagmar Kočárková, Martin Höfler, Josef Kocourek, Tomáš Padělek* | Z | 2 | 0P+1C | L | ZP |
| 14X33 | **Project 3**<br>*Jana Kaliková, Jan Krčál* | Z | 2 | 0P+1C | L | ZP |
| 15X33 | **Project 3** | Z | 2 | 0P+1C | L | ZP |
| 16X33 | **Project 3**<br>*Petr Bouchner, Dmitrij Rožděstvenský* | Z | 2 | 0P+1C | L | ZP |
| 17X33 | **Project 3**<br>*Roman Štěrba, Milan Kříž, Václav Baroch, Daniel Pilát, Michal Drábek, Alexandra Dvořáčková, Veronika Faifrová, Petr Fridrišek, Rudolf Franz Heidu, ..... Václav Baroch (Gar.)* | Z | 2 | 0P+1C | L | ZP |
| 18X33 | **Project 3**<br>*Tomáš Fíla* | Z | 2 | 0P+1C | L | ZP |
| 20X33 | **Project 3** | Z | 2 | 0P+1C | L | ZP |
| 21X33 | **Project 3**<br>*Milan Kameník, Iveta Kameníková, Viktor Valenta, Lenka Hanáková, Stanislav Pleninger, Slobodan Stojić, Andrej Lališ, Terézia Pilmannová, Natalia Guskova, .....* | Z | 2 | 0P+1C | L | ZP |
| 22X33 | **Project 3** | Z | 2 | 0P+1C | L | ZP |
| 23X33 | **Project 3** | Z | 2 | 0P+1C | L | ZP |

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

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

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

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

Code of the group: VP-BP-PIL-CS
Name of the group: Bachelor Full-Time PIL (CS) 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 | **Seminar of Electromagnetic Field and Optics** *Oldřich Hykš, Zuzana Malá, Tomáš Vítů* ***Zuzana Malá*** *Zuzana Malá (Gar.)* | Z | 0 | 0P+2C | L | v |
| 11SCFZ | **Seminar of Physics** *Oldřich Hykš, Jana Kuklová, Zuzana Malá, Tomáš Vítů* ***Zuzana Malá*** *Zuzana Malá (Gar.)* | Z | 0 | 0P+2C | Z | v |

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

| | | | |
|---|---|---|---|
| 11SEMO | 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 | 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 |
|---|---|---|---|
| 11CAL1 | Calculus 1 | Z,ZK | 7 |
| Sequence of real numbers and its limit. Basic properties of mappings. Function of one real variable, its limit and derivative. Indefinite integral, Newton integral, Riemann integral, improper Riemann integral. First-order differential equations, linear differential equations. | | | |
| 11CAL2 | Calculus 2 | Z,ZK | 5 |
| Linear differential equations and their systems, differential calculus of functions of several real variables. Riemann integral in Rn. Line and surface integrals. | | | |
| 11EMO | Electromagnetic Field and Optics | Z,ZK | 4 |
| Electric field. Electric current. Magnetic field. Electromagnetic field. Optics. Basics of solid-state physics. | | | |
| 11FYZ | Physics | Z,ZK | 5 |
| Kinematics, dynamics, Newton's laws, force fields, mechanics of continuum, thermodynamics, introduction to electrostatics and electric current. | | | |
| 11GIE | Geometry | KZ | 3 |
| Differential geometry of curves - parameterization, the arc of the curve, torsion and curvature, Frenet`s trihedron. Kinematics - a curve as a trajectory of the motion, the velocity, and acceleration of a particle moving on a curved path. | | | |
| 11LA | Linear Algebra | Z,ZK | 3 |
| Vector spaces (linear combinations, linear independence, dimension, basis, coordinates). Matrices and operations. Systems of linear equations and their solvability. Determinants and their applications. Scalar product. Similarity of matrices (eigenvalues and eigenvectors). Quadratic forms and their classification. | | | |
| 11SCFZ | Seminar of Physics | Z | 0 |
| Solving problems on kinematics, particle dynamics, dynamics of particle systems and rigid body. Continuum mechanics, thermodynamics. | | | |
| 11SEMO | 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 | 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 | | | |
| 11X31 | Project 1 | Z | 2 |
| 11X32 | Project 2 | Z | 2 |
| 11X33 | Project 3 | Z | 2 |
| 12X31 | Project 1 | Z | 2 |
| 12X32 | Project 2 | Z | 2 |
| 12X33 | Project 3 | Z | 2 |
| 14AP | 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 | Project 1 | Z | 2 |
| 14X32 | Project 2 | Z | 2 |
| 14X33 | Project 3 | Z | 2 |
| 15JP1A | 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 | 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 | 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 | 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 | Project 1 | Z | 2 |
| 15X32 | Project 2 | Z | 2 |
| 15X33 | Project 3 | Z | 2 |
| 16X31 | Project 1 | Z | 2 |
| 16X32 | Project 2 | Z | 2 |
| 16X33 | Project 3 | Z | 2 |
| 17X31 | Project 1 | Z | 2 |
| 17X32 | Project 2 | Z | 2 |
| 17X33 | Project 3 | Z | 2 |
| 18X31 | Project 1 | Z | 2 |

| | | | |
|---|---|---|---|
| 18X32 | Project 2 | Z | 2 |
| 18X33 | Project 3 | Z | 2 |
| 20X31 | Project 1 | Z | 2 |
| 20X32 | Project 2 | Z | 2 |
| 20X33 | 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. | | | |
| 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 | 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 | 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. | | | |
| 21KSAV | KSA Assessment | Z,ZK | 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 | 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 | 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 | 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 | 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 | 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 | 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 | 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. | | | |
| 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 | 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 | 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 | Flight Training 3 | KZ | 2 |
| Deepening of theoretical knowledge and practical examination of progress in professional competence in pilot skills and knowledge | | | |
| 21LPX4 | Flight Training 4 | KZ | 2 |
| Deepening of theoretical knowledge and practical examination of progress in professional competence in pilot skills and knowledge | | | |
| 21LPX5 | Flight Training 5 | KZ | 2 |
| Deepening of theoretical knowledge and practical examination of progress in professional competence in pilot skills and knowledge | | | |
| 21LTP2 | Air Law 2 | Z,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. | | | |
| 21LVPK | 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 process, communication, effect of stress to the multi-crew performance, standard operational procedures, automation. | | | |

| | | | |
|---|---|---|---|
| 21MEE1 | 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 | 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 | 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 | 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 | Operational Procedures 1 | Z,ZK | 3 |
| Annex 6, PART-OPS, Air operator, Aircraft operation, Operating procedures, Airplane equipment, Flight management, Airspace | | | |
| 21PPY2 | Operational Procedures 2 | ZK | 4 |
| Flight documentation and manuals, Icing and protection of the aircraft against icing, noise abatement procedures, Abnormal and emergency situations and procedures, Runway contamination | | | |
| 21PRJ2 | 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 | 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 | | | |
| 21PUP1 | Instrumentation 1 | ZK | 3 |
| Basic construction principles of instrumentation, electronic displays, basics of measurement - sensitivity and errors, engine instrumentation (pressure gauges, thermometers, fuel quantity and fuel flow measurement, torque and EPR measurement), indication in other aircraft systems (position, fire and icing indication, vibration monitoring, pressurisation system monitoring, aerometric instruments (sensors, altimeter, air speed indicator, VSI, ADC). | | | |
| 21RNV | 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. | | | |
| 21SBP | Bachelor's Thesis Seminar | Z | 1 |
| Work with information sources. Citation, citation formats. The methodology of writing the thesis. Presentation of results. Formal requirements for thesis. Presentation of thesis. Requirements for journal articles. Publication ethics. | | | |
| 21SBU1 | 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. | | | |
| 21VFRC | 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 | 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 | Project 1 | Z | 2 |
| 21X32 | Project 2 | Z | 2 |
| 21X33 | Project 3 | Z | 2 |
| 21ZKL2 | Principles of Flight 2 | ZK | 3 |
| Static & dynamic longitudinal stability, neutral point, location of centre of gravity, static directional & lateral stability, dynamic directional & lateral stability, control pitch (longitudinal), yaw (directional) & roll (lateral), roll/yaw interaction, trimming, speed of sound, Mach number, compressibility, shock waves, critical Mach number, aerodynamic heating, operating limitations, manoeuvring envelope, gust-load diagram. | | | |
| 21ZYT1 | Principles of Flight 1 | Z,ZK | 3 |
| Aerodynamic drag, relation between drag and speed, streamline, boundary layer, formula of continuity, formula of Bernoulli, lift and drag, air flow and pressures around wing, angle of attack, reactions of wing in air flow, lift and drag of a wing and an aircraft, coefficient of lift and drag, critical angle of attack, wing with final span, induced drag, interference, devices for lift and drag increase. | | | |
| 22X31 | Project 1 | Z | 2 |
| 22X32 | Project 2 | Z | 2 |
| 22X33 | Project 3 | Z | 2 |
| 23X31 | Project 1 | Z | 2 |
| 23X32 | Project 2 | Z | 2 |
| 23X33 | Project 3 | Z | 2 |