Study plan

Name of study plan: Bachelor TUL 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: Technology of Aviation Maintenance

Type of study: Bachelor full-time

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

Note on the plan:

Name of the block: Compulsory courses Minimal number of credits of the block: 57

The role of the block: Z

Code of the group: 5S-BP-TUL-26/27

Name of the group: 5th Sem. Bachelor Full-Time TUL from 2026/27

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 8 courses

Credits in the group: 28 Note on the group:

14010 011 1110 8	<u> </u>					
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
21KSY1	Aircraft Construction and Systems 1 Kate ina Stuchliková, Karel Mündel Karel Mündel	Z,ZK	7	4P+3C	Z	Z
21RATE	Radiotechnology Vladimír Machula Vladimír Machula	ZK	2	2P+0C	Z	Z
21LES2	Aviation Legislation 2 Ji i uk Ji i uk	KZ	2	2P+0C	Z	Z
21PYD2	Aircraft Maintenance Technology 2 Martin Novák Martin Novák	KZ	4	3P+1C	Z	Z
21TUM1	Turbine Engines 1 Tomáš Hejna, Jakub Kraus, Ond ej Vítovec, Daniel Hanus Daniel Hanus	KZ	7	3P+3C	Z	Z
21KTVL	Aircraft Structures and Production Technology Jakub Kraus Jakub Kraus Jakub Kraus (Gar.)	Z	3	0P+2C	Z	Z
21LAU1	Aviation English 1 for Technology of Maintenance Jitka He manová Jitka He manová	Z	2	0P+2C	Z	Z
21SBU2	Bachelor Thesis Seminar 2 Lenka Hanáková, Vladimír Socha Vladimír Socha	Z	1	1P+0C	Z	Z

21KSY1	Aircraft Construction and Systems 1	Z,ZK	7
Aircraft construction re	uirements and functions - fuselage, wings, flight controls, undercarriage, aircraft pylon, nacelle. Aircraft systems requiremen	its and functions - d	rainage, wate
distribution systems an	d aircraft ligthing.		
21RATE	Radiotechnology	ZK	2
EM field, radio waves,	propagation, radio spectrum, information transmission, signal processing, modulations, signal coding, radio transceivers, ant	ennas, and applicat	ion of radio
systems in aviation.			
21LES2	Aviation Legislation 2	KZ	2
Commission regulation	(EU) 1321/2014, Part 66, Part 145, Part 147, Part CAMO, Part CAO, Commission regulation (EU) 965/2012	·	
21PYD2	Aircraft Maintenance Technology 2	KZ	4
The second part of the	course introduces all currently used inspection methods, including non-destructive ones, that are used in aviation. Focus is al	so on the issues of r	material fatigu
and corrosion. Students	s are also introduced to aircraft handling methods and the effect of the environment on the operation of the aircraft. Methods of	weighing and balar	ıcing an aircra
	g the determination of its centre of gravity.		
are introduced, includir	5		

21KTVL Aircraft Structures and Production Technology
Practical knowledge of the construction and technology of aircraft production, within which excursions to production and maintenance organizations will be carried out. The individual parts will focus on the production technologies of aircraft, aircraft components, engines and propellers from traditional (metal) and modern (composite) materials.

21LAU1 Aviation English 1 for Technology of Maintenance
Lectures include various types of the language exercises and are focused on the following topics - aircraft construction components, aircraft systems and principles, maintenance technology, maintenance organizations, maintenance tools and equipment, material science.

21SBU2 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-TUL-26/27

Name of the group: 6th Sem. Bachelor Full-Time TUL from 2026/27

Requirement credits in the group: In this group you have to gain 29 credits

Requirement courses in the group: In this group you have to complete 7 courses

Credits in the group: 29 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
11MSP	Modeling of Systems and Processes Bohumil Ková, Lucie Kárná Bohumil Ková Bohumil Ková (Gar.)	Z,ZK	4	2P+2C+12E	L	Z
21AVIA	Avionics Jan Rohá , Martin Šipoš Jan Rohá Jan Rohá (Gar.)	Z,ZK	3	2P+2C	L	Z
21KSY2	Aircraft Construction and Systems 2 Karel Mündel Karel Mündel	Z,ZK	7	4P+3C	L	Z
21TUM2	Turbine Engines 2 Tomáš Hejna, Daniel Hanus Daniel Hanus	Z,ZK	7	3P+3C	L	Z
21PYD3	Aircraft Maintenance Technology 3 Pavol Hajla	KZ	5	3P+1C	L	Z
21LAU2	Aviation English 2 for Technology of Maintenance Jitka He manová Jitka He manová	Z	2	0P+2C	L	Z
21SBU3	Bachelor Thesis Seminar 3 Lenka Hanáková Lenka Hanáková	Z	1	1P+0C	L	Z

Characteristics of the courses of this group of Study Plan: Code=6S-BP-TUL-26/27 Name=6th Sem. Bachelor Full-Time TUL from 2026/27

11MSP	Modeling of Systems and Processes	Z,ZK	4
System and subsysten	, external and internal system description, continuous and discrete system, mathematics as a tool, examples of formulation of diff	ferential and differ	ential equations
Linear and nonlinear s	ystem, stationary and non-stationary system, causality. Convolutional integral. Laplace and Z transformations. Transfer functior	n. Stability of LTI	systems.
Discretization of contin	uous systems. System interconnection.		
21AVIA	Avionics	Z,ZK	3
Aircraft instrumentation	, electromagnetic compatibility, aircraft pilot-navigation instrumentation, central electronic aircraft monitoring system, electronic fl	ight instrument sy	stem, integrated
modular avionics, fligh	t control and optimization system, on-board and information systems.		
21KSY2	Aircraft Construction and Systems 2	Z,ZK	7
Aircraft systems requir	ements and functions - air condition, pressurization, oxygen systems, tyres, hydraulics, fuel systems, electrical systems, deicir	ng system, fire pr	otection system.
21TUM2	Turbine Engines 2	Z,ZK	7
Second part of the cou	urse is focused on the explanation and description of the purpose, operation and construction characteristics of following aircri	ft turbine engines	s utility systems
- lubrication system, co	poling and internal air systems, fuel systems, starting and ignition, controls and instrumentation. Purpose, operation principles	and construction	schemes of
turboprop engines, tur	boshaft and auxiliary power units.		
21PYD3	Aircraft Maintenance Technology 3	KZ	5
Course provides stude	nts with a detailed overview of organisations involved in heavy aircraft maintenance, maintenance planning and also technical	documentation. L	ast but not least
this course introduces	now to deal with various aircraft system failures as well as various structural damage and aircraft modifications. Students are also i	ntroduced to the s	elf managemen
system and storage pr	ocedures in heavy aircraft maintenance.		
21LAU2	Aviation English 2 for Technology of Maintenance	Z	2
Lectures include vario	us types of the language exercises and are focused on the following topics - aicraft systems and principles, maintenance technic	ology, maintenand	e organizations
maintenance tools and	equipment, material science and manterials application, ecology.		
21SBU3	Bachelor Thesis Seminar 3	Z	1
Formal and graphic de	sign of the thesis. Data collection and presentation, basic statistical reasoning, validation of results and designs. Achieving the	objectives of the	thesis and
evaluation of hypothes	is tests. Preparation of the presentation, principles of presentation of the thesis.		

Name of the block: Semestrální projekt Minimal number of credits of the block: 4

The role of the block: ZP

Code of the group: X1-BP-TUL-23/24

Name of the group: Research Groups Bachelor Full-Time TUL from 2023/24 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 3 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	-	Semester	Role
11X31U	Project 1 TUL	Z	1	0P+1C	L	ZP
12X31U	Project 1 TUL	Z	1	0P+1C	L	ZP
14X31U	Project 1 TUL	Z	1	0P+1C	L	ZP
15X31U	Project 1 TUL	Z	1	0P+1C	L	ZP
16X31U	Project 1 TUL	Z	1	0P+1C	L	ZP
17X31U	Project 1 TUL	Z	1	0P+1C	L	ZP
18X31U	Project 1 TUL	Z	1	0P+1C	L	ZP
20X31U	Project 1 TUL	Z	1	0P+1C	L	ZP
21X31U	Project 1 TUL Jakub Kraus, Lenka Hanáková, Andrej Lališ, Kate ina Grötschelová, Natalia Guskova, Jakub Hospodka, Terézia Pilmannová, Slobodan Stoji, Lukáš Popek	Z	1	0P+1C	L	ZP
22X31U	Project 1 TUL	Z	1	0P+1C	L	ZP
11X32U	Project 2 TUL	Z	2	0P+3C	Z	ZP
12X32U	Project 2 TUL	Z	2	0P+3C	Z	ZP
14X32U	Project 2 TUL	Z	2	0P+3C	Z	ZP
15X32U	Project 2 TUL	Z	2	0P+3C	Z	ZP
16X32U	Project 2 TUL	Z	2	0P+3C	Z	ZP
17X32U	Project 2 TUL	Z	2	0P+3C	Z	ZP
18X32U	Project 2 TUL	Z	2	0P+3C	Z	ZP
20X32U	Project 2 TUL	Z	2	0P+3C	Z	ZP
21X32U	Project 2 TUL Jakub Kraus, Andrej Lališ, Natalia Guskova, Terézia Pilmannová, Daniel Urban	Z	2	0P+3C	Z	ZP
22X32U	Project 2 TUL	Z	2	0P+3C	Z	ZP
11X33U	Project 3 TUL	Z	1	0P+2C	L	ZP
12X33U	Project 3 TUL	Z	1	0P+2C	L	ZP
14X33U	Project 3 TUL	Z	1	0P+2C	L	ZP
15X33U	Project 3 TUL	Z	1	0P+2C	L	ZP
16X33U	Project 3 TUL	Z	1	0P+2C	L	ZP
17X33U	Project 3 TUL	Z	1	0P+2C	L	ZP
18X33U	Project 3 TUL Nela Kr má ová	Z	1	0P+2C	L	ZP
20X33U	Project 3 TUL	Z	1	0P+2C	L	ZP
21X33U	Project 3 TUL Kate ina Stuchlíková, Jakub Kraus, Andrej Lališ, Natalia Guskova, Jakub Hospodka, Terézia Pilmannová, Daniel Urban, Martin Kála, Tomáš Tlu ho	Z	1	0P+2C	L	ZP
22X33U	Project 3 TUL	Z	1	0P+2C	L	ZP

Characteristics of the courses of this group of Study Plan: Code=X1-BP-TUL-23/24 Name=Research Groups Bachelor Full-Time TUL from 2023/24

11X31U Project 1 TUL Z 1 12X31U Project 1 TUL Z 1 14X31U Project 1 TUL Z 1 15X31U Project 1 TUL Z 1 16X31U Project 1 TUL Z 1 17X31U Project 1 TUL Z 1 18X31U Project 1 TUL Z 1 20X31U Project 1 TUL Z 1 21X31U Project 1 TUL Z 1 22X31U Project 1 TUL Z 1 11X32U Project 2 TUL Z 2 12X32U Project 2 TUL Z 2 15X32U Project 2 TUL Z 2 16X32U Project 2 TUL Z 2 17X32U Project 2 TUL Z 2				
14X31U Project 1 TUL Z 1 15X31U Project 1 TUL Z 1 16X31U Project 1 TUL Z 1 17X31U Project 1 TUL Z 1 18X31U Project 1 TUL Z 1 20X31U Project 1 TUL Z 1 21X31U Project 1 TUL Z 1 22X31U Project 2 TUL Z 2 11X32U Project 2 TUL Z 2 12X32U Project 2 TUL Z 2 15X32U Project 2 TUL Z 2 16X32U Project 2 TUL Z 2 16X32U Project 2 TUL Z 2	11X31U	Project 1 TUL	Z	1
15X31U Project 1 TUL Z 1 16X31U Project 1 TUL Z 1 17X31U Project 1 TUL Z 1 18X31U Project 1 TUL Z 1 20X31U Project 1 TUL Z 1 21X31U Project 1 TUL Z 1 22X31U Project 1 TUL Z 1 11X32U Project 2 TUL Z 2 12X32U Project 2 TUL Z 2 15X32U Project 2 TUL Z 2 16X32U Project 2 TUL Z 2 16X32U Project 2 TUL Z 2	12X31U	Project 1 TUL	Z	1
16X31U Project 1 TUL Z 1 17X31U Project 1 TUL Z 1 18X31U Project 1 TUL Z 1 20X31U Project 1 TUL Z 1 21X31U Project 1 TUL Z 1 22X31U Project 2 TUL Z 1 11X32U Project 2 TUL Z 2 12X32U Project 2 TUL Z 2 15X32U Project 2 TUL Z 2 15X32U Project 2 TUL Z 2 16X32U Project 2 TUL Z 2 16X32U Project 2 TUL Z 2	14X31U	Project 1 TUL	Z	1
17X31U Project 1 TUL Z 1 18X31U Project 1 TUL Z 1 20X31U Project 1 TUL Z 1 21X31U Project 1 TUL Z 1 22X31U Project 2 TUL Z 1 11X32U Project 2 TUL Z 2 12X32U Project 2 TUL Z 2 15X32U Project 2 TUL Z 2 15X32U Project 2 TUL Z 2 16X32U Project 2 TUL Z 2 16X32U Project 2 TUL Z 2	15X31U	Project 1 TUL	Z	1
18X31U Project 1 TUL Z 1 20X31U Project 1 TUL Z 1 21X31U Project 1 TUL Z 1 22X31U Project 1 TUL Z 1 11X32U Project 2 TUL Z 2 12X32U Project 2 TUL Z 2 14X32U Project 2 TUL Z 2 15X32U Project 2 TUL Z 2 16X32U Project 2 TUL Z 2 16X32U Project 2 TUL Z 2	16X31U	Project 1 TUL	Z	1
20X31U Project 1 TUL Z 1 21X31U Project 1 TUL Z 1 22X31U Project 1 TUL Z 1 11X32U Project 2 TUL Z 2 12X32U Project 2 TUL Z 2 14X32U Project 2 TUL Z 2 15X32U Project 2 TUL Z 2 16X32U Project 2 TUL Z 2 16X32U Project 2 TUL Z 2	17X31U	Project 1 TUL	Z	1
21X31U Project 1 TUL Z 1 22X31U Project 1 TUL Z 1 11X32U Project 2 TUL Z 2 12X32U Project 2 TUL Z 2 14X32U Project 2 TUL Z 2 15X32U Project 2 TUL Z 2 16X32U Project 2 TUL Z 2 16X32U Project 2 TUL Z 2	18X31U	Project 1 TUL	Z	1
22X31U Project 1 TUL Z 1 11X32U Project 2 TUL Z 2 12X32U Project 2 TUL Z 2 14X32U Project 2 TUL Z 2 15X32U Project 2 TUL Z 2 16X32U Project 2 TUL Z 2 16X32U Project 2 TUL Z 2	20X31U	Project 1 TUL	Z	1
11X32U Project 2 TUL Z 2 12X32U Project 2 TUL Z 2 14X32U Project 2 TUL Z 2 15X32U Project 2 TUL Z 2 16X32U Project 2 TUL Z 2 16X32U Project 2 TUL Z 2	21X31U	Project 1 TUL	Z	1
12X32U Project 2 TUL Z 2 14X32U Project 2 TUL Z 2 15X32U Project 2 TUL Z 2 16X32U Project 2 TUL Z 2 2 2 2 2 16X32U Project 2 TUL Z 2	22X31U	Project 1 TUL	Z	1
14X32U Project 2 TUL Z 2 15X32U Project 2 TUL Z 2 16X32U Project 2 TUL Z 2	11X32U	Project 2 TUL	Z	2
15X32U Project 2 TUL Z 2 16X32U Project 2 TUL Z 2	12X32U	Project 2 TUL	Z	2
16X32U Project 2 TUL Z 2	14X32U	Project 2 TUL	Z	2
·	15X32U	Project 2 TUL	Z	2
17X32U Project 2 TUL Z 2	16X32U	Project 2 TUL	Z	2
	17X32U	Project 2 TUL	Z	2

18X32U	Project 2 TUL	Z	2
20X32U	Project 2 TUL	Z	2
21X32U	Project 2 TUL	Z	2
22X32U	Project 2 TUL	Z	2
11X33U	Project 3 TUL	Z	1
12X33U	Project 3 TUL	Z	1
14X33U	Project 3 TUL	Z	1
15X33U	Project 3 TUL	Z	1
16X33U	Project 3 TUL	Z	1
17X33U	Project 3 TUL	Z	1
18X33U	Project 3 TUL	Z	1
20X33U	Project 3 TUL	Z	1
21X33U	Project 3 TUL	Z	1
22X33U	Project 3 TUL	Z	1

Name of the block: Compulsory courses in the program

Minimal number of credits of the block: 119

The role of the block: P

Code of the group: 1S-BP-TUL-25/26

Name of the group: 1st Sem. Bachelor Full-Time TUL from 2025/26

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

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

Credits in the group: 30

Note on the group:

NOTE OIL 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 Bohumil Ková, Olga Vraštilová, Tomáš Tasák, Magdalena Hykšová, Ond ej Navrátil Bohumil Ková Ond ej Navrátil (Gar.)	Z,ZK	7	2P+4C+22E	s z	Р
11LA	Linear Algebra Lucie Kárná, Pavel Provinský, Martina Be vá ová Martina Be vá ová Martina Be vá ová (Gar.)	Z,ZK	3	2P+1C+10E	B Z	Р
14ZEL1	Electronics Basics 1 Tomáš Musil, Vít Fábera Vít Fábera (Gar.)	Z,ZK	5	3P+2C	Z	Р
18MTY	Materials Science and Engineering Nela Kr má ová, Jaromír Kylar, Veronika Drechslerová, Jaromír Kylar, Jitka ezní ková, Jaroslav Valach, Vít Malinovský, Veronika Drechslerová, Jaromír Kylar Jaroslav Valach Jaroslav Valach (Gar.)	Z,ZK	3	2P+1C+10E	3 Z	Р
11GIE	Geometry Pavel Provinský, Old ich Hykš, Šárka Vorá ová Old ich Hykš Old ich Hykš (Gar.)	KZ	3	2P+2C+12E	3 Z	Р
14ASD	Algorithm and Data Structures Vít Fábera, Tomáš Brandejský, Michal Je ábek, Alena Kubá ová, Jan Procházka, Martin Fiala Vít Fábera Vít Fábera (Gar.)	KZ	3	0P+2C+8E	B Z	Р
18TKK	Technical Drawing and Designing Jitka ezní ková, Vít Malinovský, Jan Šleichrt, Martin Brumovský, Jan Mejst ík, Drahomír Schmidt, Lukáš Svoboda, Jan Vogl, Ji í Zeisek, Jan Šleichrt Jan Šleichrt (Gar.)	KZ	4	2P+2C+16E	3 Z	Р
21ZLKS	Basics of Aircraft Structures and Systems Pavol Hajla Pavol Hajla	KZ	4	2P+2C	Z	Р

Characteristics of the courses of this group of Study Plan: Code=1S-BP-TUL-25/26 Name=1st Sem. Bachelor Full-Time TUL from 2025/26

TICALI	Calculus 1	Z,ZN	/ /	
Sequence of real number	rs and its limit. Basic properties of mappings. Function of one real variable, its limit and derivative. Indefinite integral, Newton in	tegral, Riemann ir	ntegral, 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.

14ZEL1 Electronics Basics 1 Z,ZK 5

Electrotechnic terms, electron theory, static electricity, electrical conductivity and terminology, electrical resistance, resistor, capacity and capacitor, inductance and inductor, powers, DC circuits - simplicity method, superposition, node-voltage method, mesh - circuit method, AC current, characteristics of AC waveforms, 3-phase el. power, AC circuits - Steinmetz's symbolic method, power, filters.

18MTY Materials Science and Engineering Z,ZK 3

Basic course of materials science and engineering explains mechanical properties of structural materials based on their bonding forces and microstructure. However the main attention is paid to metals as the most important engineering materials, also other major classes of materials are presented, namely ceramics, polymers and composites. Attention is also paid to degradation processes in materials, to defectoscopy and to main mechanical tests.

11GIE	Geometry	KZ	3				
Differential geometry	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 part	icle moving on a curved path.						
14ASD	Algorithm and Data Structures	KZ	3				
Students will analyze	problems, design a theoretical solution to a given problem and write the resulting algorithm using flowcharts, practice reading a	İgorithms written ı	using flowcharts,				
and use basic Boolea	n algebra to construct constraints in algorithms. Students will be introduced to the basics of the Python programming language	e - variable, branc	hing, loops, they				
will learn to work with	variables of basic data types (integer, floating point and string) and the list data structure in their programs.						
18TKK	Technical Drawing and Designing	KZ	4				
21ZLKS	Basics of Aircraft Structures and Systems	KZ	4				
Basics of screening	Rasics of screening, technical drawing, technological and operational signs. Hydraulic, pneumatic, fuel, electricity and block diagrams in aviation						

Code of the group: 2S-BP-TUL-25/26

Name of the group: 2nd Sem. Bachelor Full-Time TUL from 2025/26

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

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

Credits in the group: 30 Note on the group:

Note on the gi	ioup.					
Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
11CAL2	Calculus 2 Olga Vraštilová, Tomáš Tasák, Magdalena Hykšová, Ond ej Navrátil, Old ich Hykš Magdalena Hykšová Ond ej Navrátil (Gar.)	Z,ZK	5	2P+3C+20E	B L	Р
11STAT	Statistics Pavel Provinský, Evženie Uglickich, Pavla Pecherková, Michal Matowicki, Natálie Blahitka, Ivan Nagy, Jana Kuklová Pavla Pecherková Evženie Uglickich (Gar.)	Z,ZK	4	2P+2C+12E	S L	Р
14ZEL2	Electronics Basics 2 Tomáš Musil, Vít Fábera, Daniel Beránek Vít Fábera Vít Fábera (Gar.)	Z,ZK	4	2P+2C	L	Р
18SAT	Structural Analysis Nela Kr má ová, Jaromír Kylar, Veronika Drechslerová, Jitka ezní ková, Jan Šleichrt, Daniel Kytý, Jan Vy ichl, Tomáš Doktor, Jan Falta Daniel Kytý (Gar.)	Z,ZK	4	2P+2C+14E	S L	Р
21LES1	Aviation Legislation 1 Ji i uk	Z	3	3P+0C	L	Р
21ZKL1	Principles of Flight 1 Vladimír Machula, P emysl Vávra, Jakub Trýb P emysl Vávra P emysl Vávra (Gar.)	ZK	3	2P+1C	L	Р
14PRG	Programming Alena Kubá ová, Jan Procházka, Martin Fiala, Lukáš Svoboda, Jana Kaliková, Jan Kr ál Jana Kaliková Jana Kaliková (Gar.)	KZ	2	0P+2C+8E	L L	Р
16LLA1	Aircraft 1 Karel Mündel, Daniel Urban, Vladimír Plos, Michal erný, Karel Hylmar Vladimír Plos (Gar.)	KZ	3	2P+1C	L	Р
21LRY1	Aircraft Engines 1 Vladimír Machula, Daniel Hanus, Tomáš Parýzek Daniel Hanus (Gar.)	KZ	3	2P+1C	L	Р

Characteristics 2025/26	of the courses of this group of Study Plan: Code=2S-BP-TUL-25/26 Name=2nd Sem. Bachelo	r Full-Time T	UL from
11CAL2	Calculus 2	Z,ZK	5
Linear differential eq	uations and their systems, differential calculus of functions of several real variables. Riemann integral in Rn. Line and surface int	egrals.	1
11STAT	Statistics	Z,ZK	4
Basics of probability	Descriptive statistics Population and sample, limit theorem Point estimate, construction and properties Interval estimates Param	etric tests Nonpa	rametric tests
Regression and corre	elation analysis		
14ZEL2	Electronics Basics 2	Z,ZK	4
Production of electric	ity and the DC power sources, magnetism, DC motors and generators, AC motors (synchronous, asynchronous, 1-phase, 3-phase	e), stepper motor	s, BLDC motors,
AC generators.			
18SAT	Structural Analysis	Z,ZK	4
General system of fo	rces in plane and space. Calculation of reactions of bodies and structures. Assessment of internal forces on statically determina	te beams and sin	nple girders.
Principle of virtual wo	rk. Kinematic method for calculation of reactions of statically determinate systems. Determination of axial forces in truss constructio	ns. Cross-section	al characteristics
of planar shapes. Fib	er polygons and chains.		
21LES1	Aviation Legislation 1	Z	3
Introduction to aviation	on legislation. Sphere of action of the CAA, ICAO, EASA. Part M and ML (continuing airworthiness), maintenance programmes,	ADs, airworthines	ss reviews. Part
21 (initial airworthine	ss), design and production of aircraft.		
21ZKL1	Principles of Flight 1	ZK	3
Aerodynamic drag, re	elation between drag and speed, streamline, boundary layer, formula of continuity, formula of Bernoulli, lift and drag, air flow and	pressures aroun	d wing, angle of
attack, reactions of w	ing 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, induc	ed drag, interfere	ence, devices for
lift and drag increase			
14PRG	Programming	KZ	2
The Course Program	ming builds on and fully extends the course 14ASD (Algorithmization and Data Structures). The knowledge of the Python progra	amming language	is expanded
here so that the parti	cipant gains skills and can apply them to solve various follow-up tasks. Main topics: lists, multidimensional arrays, sorting and se	arching, tuples, s	ets, dictionaries,

 $working \ with \ date \ and \ time, \ regular \ expressions, \ functions \ and \ procedures, \ working \ with \ files \ (CSV, JSON, XML).$

16LLA1 Aircraft 1

Aircraft 1

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.

21LRY1 Aircraft Engines 1

KZ 3

KZ 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.

Code of the group: 3S-BP-TUL-25/26

Name of the group: 3rd Sem. Bachelor Full-Time TUL from 2025/26

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

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

Credits in the group: 30 Note on the group:

Note on the grou	P.					
Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
11FYZ	Physics Old ich Hykš, Jana Kuklová, Pavel Demo, Zuzana Malá, Tomáš Vít Jana Kuklová Pavel Demo (Gar.)	Z,ZK	5	2P+2C+18B	Z	Р
16LLA2	Aircraft 2 Karel Mündel, Daniel Urban, Karel Hylmar, Jan Slezá ek	Z,ZK	2	2P+1C	z	Р
18PZP	Elasticity and Strength Jitka ezní ková, Jan Šleichrt, Daniel Kytý, Jan Vy ichl, Tomáš Doktor, Josef Jíra, Ond ej Jiroušek Ond ej Jiroušek Ond ej Jiroušek (Gar.)	Z,ZK	3	2P+1C+10B	Z	Р
21LEUL	Aviation Maintenance Human Factors Oliver Dzvoník Oliver Dzvoník	Z,ZK	5	3P+2C	Z	Р
21LRY2	Aircraft Engines 2 Daniel Hanus, Tomáš Parýzek Daniel Hanus	Z,ZK	3	2P+1C	Z	Р
21PRJ1	Instrumentation 1	ZK	2	2P+0C	L,Z	Р
14ZLEN	Basics of Electronics Tomáš Musil, Vít Fábera Vít Fábera (Gar.)	KZ	3	2P+1C	Z	Р
21UPUL	Introduction to Aircraft Maintenance Technology Kate ina Stuchlíková, Pavel Hovorka Pavel Hovorka	Z	3	3P+0C	Z	Р
15JZ1A	Foreign Language - English 1 Jitka He manová, Markéta Vojanová, Dana Boušová, Marie Michlová, Marek Tome ek, Jan Feit, Markéta Musilová, Peter Morpuss, Lenka Monková,	Z	3	0P+4C+10B	Z	Р

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

025/26			
11FYZ	Physics	Z,ZK	5
Kinematics, dynam	nics, Newton's laws, force fields, mechanics of continuum, thermodynamics, introduction to electrostatics and electric current.	•	
16LLA2	Aircraft 2	Z,ZK	2
Manufacturers resp	ponsibility, responsibilities of operator and professional supervising. Legislation in area of airworthiness. International and nation	al standards. Static	solidity of aircraf
structures. Aeroela	asticity. Inherent and operational reliability of aircraft structure. Fatigue strength. Aircraft structure lifetime presumption.		
18PZP	Elasticity and Strength	Z,ZK	3
Tension and compr	ression. Bending of beam. Shear stress in bending of beam. Design and analysis of cross section of beam. Design of riveted, be	olted and welded joi	nts of structures
Analysis of deflecti	ion curve of beams. Torsion of circular cross sections. Combined loading. Stability.		
21LEUL	Aviation Maintenance Human Factors	Z,ZK	5
Human factor, basi	ic models of human factor, human performance and limitations, factors influencing performance, social psychology, communica	tion, human errors.	·
21LRY2	Aircraft Engines 2	Z,ZK	3
	7 moran Enginos E	_,_,_,\	
Compressors, cent	trifugal compressor, combustion chamber, turboshaft engines, ramjets, power, thermal efficiency and fuel consumption, starting	1 '	
Compressors, cent idling speed.		1 '	
•		1 '	
idling speed. 21PRJ1	trifugal compressor, combustion chamber, turboshaft engines, ramjets, power, thermal efficiency and fuel consumption, starting	aircraft turbine eng	ines, idling and
idling speed. 21PRJ1 Basic construction	trifugal compressor, combustion chamber, turboshaft engines, ramjets, power, thermal efficiency and fuel consumption, starting Instrumentation 1	zaircraft turbine eng	2 ometers, fuel
idling speed. 21PRJ1 Basic construction quantity and fuel flo	trifugal compressor, combustion chamber, turboshaft engines, ramjets, power, thermal efficiency and fuel consumption, starting Instrumentation 1 principles of instrumentation, electronic displays, basics of measurement - sensitivity and errors, engine instrumentation (press	zaircraft turbine eng	2 ometers, fuel
idling speed. 21PRJ1 Basic construction quantity and fuel flo	trifugal compressor, combustion chamber, turboshaft engines, ramjets, power, thermal efficiency and fuel consumption, starting Instrumentation 1 principles of instrumentation, electronic displays, basics of measurement - sensitivity and errors, engine instrumentation (press ow measurement, torque and EPR measurement), indication in other aircraft systems (position, fire and icing indication, vibration)	zaircraft turbine eng	2 ometers, fuel
idling speed. 21PRJ1 Basic construction quantity and fuel flo monitoring, aerome 14ZLEN	trifugal compressor, combustion chamber, turboshaft engines, ramjets, power, thermal efficiency and fuel consumption, starting Instrumentation 1 principles of instrumentation, electronic displays, basics of measurement - sensitivity and errors, engine instrumentation (press ow measurement, torque and EPR measurement), indication in other aircraft systems (position, fire and icing indication, vibratic etric instruments (sensors, altimeter, air speed indicator, VSI, ADC).	ZK sure gauges, thermon monitoring, press	2 pmeters, fuel surisation syster
idling speed. 21PRJ1 Basic construction quantity and fuel flo monitoring, aerome 14ZLEN Semiconductors, P	Instrumentation 1 principles of instrumentation, electronic displays, basics of measurement - sensitivity and errors, engine instrumentation (pressow measurement, torque and EPR measurement), indication in other aircraft systems (position, fire and icing indication, vibratic etric instruments (sensors, altimeter, air speed indicator, VSI, ADC). Basics of Electronics	ZK sure gauges, thermon monitoring, press KZ rouits, unipolar junct	2 pmeters, fuel surisation syster
idling speed. 21PRJ1 Basic construction quantity and fuel flo monitoring, aerome 14ZLEN Semiconductors, P	Instrumentation 1 principles of instrumentation, electronic displays, basics of measurement - sensitivity and errors, engine instrumentation (press ow measurement, torque and EPR measurement), indication in other aircraft systems (position, fire and icing indication, vibratic etric instruments (sensors, altimeter, air speed indicator, VSI, ADC). Basics of Electronics PN junction, diodes, rectifiers, SCR, diac, triac, Zener diode, Schottky diode, photodiode, bipolar junction transistor, transistor cire	ZK sure gauges, thermon monitoring, press KZ rouits, unipolar junct	2 pmeters, fuel surisation systen
idling speed. 21PRJ1 Basic construction quantity and fuel flo monitoring, aerome 14ZLEN Semiconductors, P and circuits, technol 21UPUL Students are given	Instrumentation 1 principles of instrumentation, electronic displays, basics of measurement - sensitivity and errors, engine instrumentation (press ow measurement, torque and EPR measurement), indication in other aircraft systems (position, fire and icing indication, vibratic etric instruments (sensors, altimeter, air speed indicator, VSI, ADC). Basics of Electronics PN junction, diodes, rectifiers, SCR, diac, triac, Zener diode, Schottky diode, photodiode, bipolar junction transistor, transistor circle ology of integrated circuits, feedback theory, operational amplifiers, printed circuit boards, servo-systems, oscillators, switching Introduction to Aircraft Maintenance Technology an overview of safe work practices as well as an insight into the history of aircraft maintenance. In addition, tools used in heavy	ZK sure gauges, thermoon monitoring, press KZ rcuits, unipolar junct power suplies. Z aircraft maintenance	2 pmeters, fuel surisation system 3 ion tranzistors
idling speed. 21PRJ1 Basic construction quantity and fuel flo monitoring, aerome 14ZLEN Semiconductors, P and circuits, technol 21UPUL Students are given	Instrumentation 1 principles of instrumentation, electronic displays, basics of measurement - sensitivity and errors, engine instrumentation (press ow measurement, torque and EPR measurement), indication in other aircraft systems (position, fire and icing indication, vibratic etric instruments (sensors, altimeter, air speed indicator, VSI, ADC). Basics of Electronics PN junction, diodes, rectifiers, SCR, diac, triac, Zener diode, Schottky diode, photodiode, bipolar junction transistor, transistor circle ology of integrated circuits, feedback theory, operational amplifiers, printed circuit boards, servo-systems, oscillators, switching Introduction to Aircraft Maintenance Technology	ZK sure gauges, thermoon monitoring, press KZ rcuits, unipolar junct power suplies. Z aircraft maintenance	2 pmeters, fuel surisation system 3 ion tranzistors
idling speed. 21PRJ1 Basic construction quantity and fuel flo monitoring, aerome 14ZLEN Semiconductors, P and circuits, technol 21UPUL Students are given	Instrumentation 1 principles of instrumentation, electronic displays, basics of measurement - sensitivity and errors, engine instrumentation (press ow measurement, torque and EPR measurement), indication in other aircraft systems (position, fire and icing indication, vibratic etric instruments (sensors, altimeter, air speed indicator, VSI, ADC). Basics of Electronics PN junction, diodes, rectifiers, SCR, diac, triac, Zener diode, Schottky diode, photodiode, bipolar junction transistor, transistor circle ology of integrated circuits, feedback theory, operational amplifiers, printed circuit boards, servo-systems, oscillators, switching Introduction to Aircraft Maintenance Technology an overview of safe work practices as well as an insight into the history of aircraft maintenance. In addition, tools used in heavy	ZK sure gauges, thermoon monitoring, press KZ rcuits, unipolar junct power suplies. Z aircraft maintenance	2 pmeters, fuel surisation system 3 ion tranzistors
idling speed. 21PRJ1 Basic construction quantity and fuel fix monitoring, aerome 14ZEN Semiconductors, Pand circuits, technology 21UPUL Students are given as well as basic ca 15JZ1A Grammatical Struct	Instrumentation 1 principles of instrumentation, electronic displays, basics of measurement - sensitivity and errors, engine instrumentation (pressow measurement, torque and EPR measurement), indication in other aircraft systems (position, fire and icing indication, vibration etric instruments (sensors, altimeter, air speed indicator, VSI, ADC). Basics of Electronics PN junction, diodes, rectifiers, SCR, diac, triac, Zener diode, Schottky diode, photodiode, bipolar junction transistor, transistor circle integrated circuits, feedback theory, operational amplifiers, printed circuit boards, servo-systems, oscillators, switching Introduction to Aircraft Maintenance Technology are procedures. A significant portion of the course is devoted to technical drawings as well as the Electrical Wiring Inspection Systems.	ZK sure gauges, thermoon monitoring, press KZ rouits, unipolar junct power suplies. Z aircraft maintenance stem (EWIS). Z	2 meters, fuel surisation system 3 ion tranzistors 3 ae are introduced

Code of the group: 4S-BP-TUL-25/26

Name of the group: 4th Sem. Bachelor Full-Time TUL from 2025/26

Requirement credits in the group: In this group you have to gain 29 credits

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

Credits in the group: 29

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 Old ich Hykš, Jana Kuklová, Zuzana Malá, Tomáš Vít Zuzana Malá Pavel Demo (Gar.)	Z,ZK	4	2P+1C	L	Р
21PRJ2	Instrumentation 2 Pavel Hovorka Pavel Hovorka	ZK	3	2P+0C	L,Z	Р
21V	Aircraft Propellers Martin Novák Martin Novák (Gar.)	Z,ZK	6	3P+2C	L	Р
21ZT	ATM Systems Stanislav Pleninger Stanislav Pleninger (Gar.)	ZK	2	2P+0C	Z,L	Р
14ENIK	Electronics Tomáš Musil, Vít Fábera Vít Fábera (Gar.)	KZ	4	2P+2C	L	Р
18POMY	Advanced Materials Jaroslav Valach, Jaroslav Valach Jaroslav Valach (Gar.)	KZ	2	2P+0C	L	Р
21PYD1	Aircraft Maintenance Technology 1 Pavol Hajla Jakub Kraus (Gar.)	KZ	3	3P+1C	L	Р
21SBU1	Bachelor Thesis Seminar 1 Lenka Hanáková Lenka Hanáková (Gar.)	Z	1	1P+0C	L	Р
15JZ2A	Foreign Language - English 2 Jitka He manová, Markéta Vojanová, Marie Michlová, Marek Tome ek, Jan Feit, Markéta Musilová, Peter Morpuss, Lenka Monková, Eva Rezlerová,	Z,ZK	3	0P+4C+10E	L	Р

Characteristics of	the courses of this group of Study Plan: Code=4S-BP-TUL-25/26 Name=4th Sem. Bachelor Fu	ıll-Time TUL ^ı	from 2025/26

11EMO	Electromagnetic Field and Optics	Z,ZK	4
Electric field. Electric c	urrent. Magnetic field. Electromagnetic field. Optics. Basics of solid-state physics.	'	'
21PRJ2	Instrumentation 2	ZK	3
Compass, gyroscopic i	nstruments (turn indicator, attitude indicator, directional gyro), inertial instruments, recording and monitoring systems, warning	g systems (TCAS	, GPWS), AFCS
(autopilot, flight directo	r, autothrust), FMS, flight envelope protection, communication systems, flight computers.		
21V	Aircraft Propellers	Z,ZK	6
Theory of propeller bla	de, propeller load, propeller construction, control of blade angle, de-icing system, maintenance and repair of propellers.	'	'
21ZT	ATM Systems	ZK	2
The course introduces	classical and modern facilities, systems and technologies designated for ATS. Student obtains knowledge of technical princip	les and solutions	as far as
communication, naviga	tion and surveillance aviation systems are concerned.		
14ENIK	Electronics	KZ	4
Analog and digital repr	esentation, radix systems, combinational logical circuits, Karnaugh maps, logical circuits realization, sequential logical circuits	s, integrated circu	its SSI - VLSI,
coders, decoders, cour	iters, A/D and D/A convertors, programmable circuits (FPGA, SoC), computer terminology, computer architecture, single-chip c	ontrollers, RISC,	CISC, memories,
acotrollara alcotrical b	Nage .		

controllers, electrical buses

Advanced Materials

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

Aircraft Maintenance Technology 1

The first part of the course, which introduces students to the basic techniques of joining both metallic and non-metallic materials. These techniques are mainly riveting, welding, soldering and gluing. It also introduces the basic metals and non-metals, including composites, which are part of modern aircraft. Last but not least, techniques for fitting springs, gears, gear cables, pipes and hoses to aircraft are presented.

Bachelor Thesis Seminar 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.

15JZ2A Foreign Language - English 2 Z,ZK

Grammatical structures and style. Selection of conversation topics relating to transportation sciences. Extending vocabulary, developing perceptive and communicative skills. Elementary

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

Name of the block: Elective courses Minimal number of credits of the block: 0

The role of the block: V

Code of the group: VP-BP-TUL

Name of the group: Bachelor Full-Time TUL 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
21PIS1	Piston Engine 1 Jakub Kraus Jakub Kraus (Gar.)	Z	0	2P+2C	Z	V
21PIS2	Piston Engine 2	Z	0	2P+2C	L	V
21PXE1	Training Course 1 Kate ina Stuchlíková, Ond ej Vítovec Ond ej Vítovec	Z	0	0P+4C	Z	V
21PXE2	Training Course 2 Kate ina Stuchlíková	Z	0	0P+4C	L	V
11SCFZ	Seminar of Physics Old ich Hykš, Jana Kuklová, Zuzana Malá, Tomáš Vít Zuzana Malá Zuzana Malá (Gar.)	Z	0	0P+2C	Z	V

Characteristics of the courses of this group of Study Plan: Code=VP-BP-TUL Name=Bachelor Full-Time TUL voluntary

21PIS1	Piston Engine 1	Z	0
Piston engine efficie	ency, duty cycles, stroke and compression ratio, engine layout and ignition. Engine power calculation. Meast	urement of key engine parameters: pres	sure, temperature,
fuel flow. Engine de	sign. Valve distributions. Starting systems. Engine exhaust systems. Engine cooling system.		
21PIS2	Piston Engine 2	Z	0
Design and operation	on of supercharged engines. Lubrication and fuel system. Engine mounting and covers. Engine storage. C	Construction of hoses and pipes. Startup	procedure.
Inspection and stora	age of the engine, including its accessories.		
21PXE1	Training Course 1	Z	0
Tools identification a	and their use. Various material treatment. Joining methods for different joints and their removal.	'	'
21PXE2	Training Course 2	Z	0
Special tools and m	neasurement equipment identification and their use. Basics of machine-tool control.	'	•
11SCFZ	Seminar of Physics	Z	0
Calving problems of	n kinematics, particle dynamics, dynamics of particle systems and rigid body. Continuum mechanics, ther	modynamics	!

List of courses of this pass:

	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. First-order differential equations, linear differential equations.	al, Riemann integr	al, improper
11CAL2	Calculus 2	Z,ZK	5
Line	ear 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 Electric field. Electric current. Magnetic field. Electromagnetic field. Optics. Basics of solid-state physics.	Z,ZK	4
11FYZ	Physics	Z,ZK	5
	Kinematics, dynamics, Newton's laws, force fields, mechanics of continuum, thermodynamics, introduction to electrostatics and electrostatics and electrostatics.	ric current.	,
11GIE	Geometry	KZ	3
Differential geon	netry of curves - parameterization, the arc of the curve, torsion and curvature, Frenet's trihedron. Kinematics - a curve as a trajectory of acceleration of a particle moving on a curved path.	f the motion, the vi	elocity, and
11LA	Linear Algebra	Z,ZK	3
Vector spaces (lir	near combinations, linear independence, dimension, basis, coordinates). Matrices and operations. Systems of linear equations and their their applications. Scalar product. Similarity of matrices (eigenvalues and eigenvectors). Quadratic forms and their classifications.	•	minants and
	their applications. Scalar product. Similarity of matrices (eigenvalues and eigenvectors), Quadratic forms and their classification	ON.	
11MSP	Modeling of Systems and Processes	Z,ZK	4
System and subs	Modeling of Systems and Processes system, external and internal system description, continuous and discrete system, mathematics as a tool, examples of formulation of different discrete system.	Z,ZK ntial and differentia	al equations.
System and subs	Modeling of Systems and Processes	Z,ZK ntial and differentia	al equations.
System and subs	Modeling of Systems and Processes ystem, external and internal system description, continuous and discrete system, mathematics as a tool, examples of formulation of different onlinear system, stationary and non-stationary system, causality. Convolutional integral. Laplace and Z transformations. Transfer function	Z,ZK ntial and differentia	al equations.
System and subs	Modeling of Systems and Processes ystem, external and internal system description, continuous and discrete system, mathematics as a tool, examples of formulation of differe onlinear system, stationary and non-stationary system, causality. Convolutional integral. Laplace and Z transformations. Transfer function Discretization of continuous systems. System interconnection.	Z,ZK ntial and differentia n. Stability of LTI s Z	al equations. systems.
System and subs	Modeling of Systems and Processes ystem, external and internal system description, continuous and discrete system, mathematics as a tool, examples of formulation of differe onlinear system, stationary and non-stationary system, causality. Convolutional integral. Laplace and Z transformations. Transfer function Discretization of continuous systems. System interconnection. Seminar of Physics	Z,ZK ntial and differentia n. Stability of LTI s Z	al equations. systems.
System and substitute and not su	Modeling of Systems and Processes ystem, external and internal system description, continuous and discrete system, mathematics as a tool, examples of formulation of differe onlinear system, stationary and non-stationary system, causality. Convolutional integral. Laplace and Z transformations. Transfer function Discretization of continuous systems. System interconnection. Seminar of Physics Solving problems on kinematics, particle dynamics, dynamics of particle systems and rigid body. Continuum mechanics, thermody	Z,ZK ntial and differentia n. Stability of LTI s Z rnamics. Z,ZK	equations. systems.
System and substitute and not su	Modeling of Systems and Processes system, external and internal system description, continuous and discrete system, mathematics as a tool, examples of formulation of difference in the continuous system, stationary and non-stationary system, causality. Convolutional integral. Laplace and Z transformations. Transfer function Discretization of continuous systems. System interconnection. Seminar of Physics Solving problems on kinematics, particle dynamics, dynamics of particle systems and rigid body. Continuum mechanics, thermody Statistics	Z,ZK ntial and differentia n. Stability of LTI s Z rnamics. Z,ZK	equations. eystems.
System and substitute and not su	Modeling of Systems and Processes ystem, external and internal system description, continuous and discrete system, mathematics as a tool, examples of formulation of differe onlinear system, stationary and non-stationary system, causality. Convolutional integral. Laplace and Z transformations. Transfer function Discretization of continuous systems. System interconnection. Seminar of Physics Solving problems on kinematics, particle dynamics, dynamics of particle systems and rigid body. Continuum mechanics, thermody Statistics billity Descriptive statistics Population and sample, limit theorem Point estimate, construction and properties Interval estimates Paramet	Z,ZK ntial and differentia n. Stability of LTI s Z rnamics. Z,ZK	equations. systems.
System and substitution and not be a substituted and not be a substitute and n	Modeling of Systems and Processes ystem, external and internal system description, continuous and discrete system, mathematics as a tool, examples of formulation of differe onlinear system, stationary and non-stationary system, causality. Convolutional integral. Laplace and Z transformations. Transfer function Discretization of continuous systems. System interconnection. Seminar of Physics Solving problems on kinematics, particle dynamics, dynamics of particle systems and rigid body. Continuum mechanics, thermody Statistics Dility Descriptive statistics Population and sample, limit theorem Point estimate, construction and properties Interval estimates Paramet Regression and correlation analysis	Z,ZK ntial and differentia n. Stability of LTI s Z namics. Z,ZK ric tests Nonparan	al equations. systems. 0 4 netric tests
System and substance Linear and not a substance	Modeling of Systems and Processes ystem, external and internal system description, continuous and discrete system, mathematics as a tool, examples of formulation of differe onlinear system, stationary and non-stationary system, causality. Convolutional integral. Laplace and Z transformations. Transfer functio Discretization of continuous systems. System interconnection. Seminar of Physics Solving problems on kinematics, particle dynamics, dynamics of particle systems and rigid body. Continuum mechanics, thermody Statistics billity Descriptive statistics Population and sample, limit theorem Point estimate, construction and properties Interval estimates Paramet Regression and correlation analysis Project 1 TUL	Z,ZK ntial and differentia n. Stability of LTI s Z namics. Z,ZK ric tests Nonparan	al equations. systems. 0 4 netric tests
System and substance Linear and not all the L	Modeling of Systems and Processes ystem, external and internal system description, continuous and discrete system, mathematics as a tool, examples of formulation of differe onlinear system, stationary and non-stationary system, causality. Convolutional integral. Laplace and Z transformations. Transfer function Discretization of continuous systems. System interconnection. Seminar of Physics Solving problems on kinematics, particle dynamics, dynamics of particle systems and rigid body. Continuum mechanics, thermody Statistics bility Descriptive statistics Population and sample, limit theorem Point estimate, construction and properties Interval estimates Paramet Regression and correlation analysis Project 1 TUL Project 2 TUL	Z,ZK ntial and differentia n. Stability of LTI s Z rnamics. Z,ZK ric tests Nonparan Z Z	al equations. systems. 0 4 netric tests 1 2
System and substance Linear and not all the L	Modeling of Systems and Processes ystem, external and internal system description, continuous and discrete system, mathematics as a tool, examples of formulation of differe onlinear system, stationary and non-stationary system, causality. Convolutional integral. Laplace and Z transformations. Transfer function Discretization of continuous systems. System interconnection. Seminar of Physics Solving problems on kinematics, particle dynamics, dynamics of particle systems and rigid body. Continuum mechanics, thermody Statistics bility Descriptive statistics Population and sample, limit theorem Point estimate, construction and properties Interval estimates Paramet Regression and correlation analysis Project 1 TUL Project 2 TUL Project 3 TUL	Z,ZK ntial and differentia n. Stability of LTI s Z namics. Z,ZK ric tests Nonparan Z Z	al equations. systems. 0 4 netric tests 1 2 1

			3
14ASD	Algorithm and Data Structures	KZ	ا ن
Students will analyz	te problems, design a theoretical solution to a given problem and write the resulting algorithm using flowcharts, practice reading algorithm.	thms written usin	g flowcharts
nd use basic Boole	ean algebra to construct constraints in algorithms. Students will be introduced to the basics of the Python programming language - value of the Python pro	-	g, loops, the
	will learn to work with variables of basic data types (integer, floating point and string) and the list data structure in their progra	ms.	
14ENIK	Electronics	KZ	4
	representation, radix systems, combinational logical circuits, Karnaugh maps, logical circuits realization, sequential logical circuits, ir	-	
oders, decoders, co	ounters, A/D and D/A convertors, programmable circuits (FPGA, SoC), computer terminology, computer architecture, single-chip control	ollers, RISC, CIS	C, memorie
4.455.0	controllers, electrical buses.	177	
14PRG	Programming	KZ	2
_	amming builds on and fully extends the course 14ASD (Algorithmization and Data Structures). The knowledge of the Python program ticipant gains skills and can apply them to solve various follow-up tasks. Main topics: lists, multidimensional arrays, sorting and searcl		-
ere so triat trie pari	working with date and time, regular expressions, functions and procedures, working with files (CSV, JSON, XML).	iiig, tupies, sets	, dictionante
14X31U	Project 1 TUL	Z	1
14X32U	Project 2 TUL	<u>Z</u>	2
	·	Z	1
14X33U	Project 3 TUL		
14ZEL1	Electronics Basics 1	Z,ZK	5
	ns, electron theory, static electricity, electrical conductivity and terminology, electrical resistance, resistor, capacity and capacitor, inducity method, superposition, node-voltage method, mesh - circuit method, AC current, characteristics of AC waveforms, 3-phase el. po		
o circuits simplic	symbolic method, power, filters.	wei, 7to circuits	Otominiciz
14ZEL2	Electronics Basics 2	Z,ZK	4
	icity and the DC power sources, magnetism, DC motors and generators, AC motors (synchronous, asynchronous, 1-phase, 3-phase),		
	AC generators.		
14ZLEN	Basics of Electronics	KZ	3
	PN junction, diodes, rectifiers, SCR, diac, triac, Zener diode, Schottky diode, photodiode, bipolar junction transistor, transistor circuits,		_
	uits, technology of integrated circuits, feedback theory, operational amplifiers, printed circuit boards, servo-systems, oscillators, switch		
15JZ1A	Foreign Language - English 1	Z	3
rammatical Structu	ures and Style. Selection of conversation topics relating to transportation sciences. Extending vocabulary, developing perceptive and cor	nmunicative skills	s. Elementa
	stylistics forms. Oral and written presentation of original research. Academic text principles and reading comprehension. Principles of	f rhetoric.	
15JZ2A	Foreign Language - English 2	Z,ZK	3
	ures and style. Selection of conversation topics relating to transportation sciences. Extending vocabulary, developing perceptive and cor	nmunicative skills	s. Elementa
	stylistics forms. Oral and written presentation of original research. Academic text principles and reading comprehension. Principles of	f rhetoric.	,
	Project 1 TUL	of rhetoric.	1
			1 2
15X31U	Project 1 TUL	Z	_
15X31U 15X32U	Project 1 TUL Project 2 TUL	Z Z	2
15X31U 15X32U 15X33U 16LLA1	Project 1 TUL Project 2 TUL Project 3 TUL	Z Z Z KZ	2 1 3
15X31U 15X32U 15X33U 16LLA1	Project 1 TUL Project 2 TUL Project 3 TUL Aircraft 1	Z Z Z KZ tegorisation. Airc	2 1 3
15X31U 15X32U 15X33U 16LLA1	Project 1 TUL Project 2 TUL Project 3 TUL Aircraft 1 d conceptual design types - definitions and basic knowledge of the problem. Development of requirements, aircraft definitions and ca	Z Z Z KZ tegorisation. Airc	2 1 3
15X31U 15X32U 15X33U 16LLA1 ircraft structural an	Project 1 TUL Project 2 TUL Project 3 TUL Aircraft 1 d conceptual design types - definitions and basic knowledge of the problem. Development of requirements, aircraft definitions and ca Systems of primary and secondary airframe structure. Airframe and propulsion unit. Lectures are devoted to aeroplane topic	Z Z Z KZ tegorisation. Aircs s. Z,ZK	2 1 3 rraft loading
15X31U 15X32U 15X33U 16LLA1 ircraft structural an	Project 1 TUL Project 2 TUL Project 3 TUL Aircraft 1 d conceptual design types - definitions and basic knowledge of the problem. Development of requirements, aircraft definitions and ca Systems of primary and secondary airframe structure. Airframe and propulsion unit. Lectures are devoted to aeroplane topic Aircraft 2	Z Z Z KZ tegorisation. Aircs s. Z,ZK dards. Static solid	2 1 3 rraft loading
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21AVIA	Avionics	Z,ZK	3
		'	_
AllCraft instrument	ation, electromagnetic compatibility, aircraft pilot-navigation instrumentation, central electronic aircraft monitoring system, electronic fligh modular avionics, flight control and optimization system, on-board and information systems.	i iristi urrierit systeri	i, integrateu
041(0)(4		7.71/	
21KSY1	Aircraft Construction and Systems 1	Z,ZK	7
Aircraft construction	on requirements and functions - fuselage, wings, flight controls, undercarriage, aircraft pylon, nacelle. Aircraft systems requirements a	nd functions - drair	nage, water
	distribution systems and aircraft lighting.		
21KSY2	Aircraft Construction and Systems 2	Z,ZK	7
Aircraft systems re	equirements and functions - air condition, pressurization, oxygen systems, tyres, hydraulics, fuel systems, electrical systems, deicing	system, fire protect	ion system.
21KTVL	Aircraft Structures and Production Technology	7	3
	ge of the construction and technology of aircraft production, within which excursions to production and maintenance organizations will	be carried out Th	-
	Il focus on the production technologies of aircraft, aircraft components, engines and propellers from traditional (metal) and modern (co		
21LAU1		7	2
	Aviation English 1 for Technology of Maintenance		
Lectures includ	e various types of the language exercises and are focused on the following topics - aicraft construction components, aicraft systems a	nd principles, mair	ntenance
	technology, maintenance organizations, maintenance tools and equipment, material science.		_
21LAU2	Aviation English 2 for Technology of Maintenance	Z	2
Lectures include v	arious types of the language exercises and are focused on the following topics - aicraft systems and principles, maintenance technolog	y, maintenance or	ganizations,
	maintenance tools and equipment, material science and manterials application, ecology.		
21LES1	Aviation Legislation 1	Z	3
Introduction to avi	ation legislation. Sphere of action of the CAA, ICAO, EASA. Part M and ML (continuing airworthiness), maintenance programmes, AD	s, airworthiness re	views. Part
	21 (initial airworthiness), design and production of aircraft.		
21LES2	Aviation Legislation 2	KZ	2
	Commission regulation (EU) 1321/2014, Part 66, Part 145, Part 147, Part CAMO, Part CAO, Commission regulation (EU) 965/		_
21LEUL	Aviation Maintenance Human Factors	Z,ZK	5
		· '	_
	ctor, basic models of human factor, human performance and limitations, factors influencing performance, social psychology, communi		
21LRY1	Aircraft Engines 1	KZ	3
	gine, theoretical background, operational characteristics and construction schemes. Propellers, operational characterictics. Turbine en		
thermal cycles, o	construction schemes, operational characteristics. Turbojet and turbofan engines, basic construction modules, and their operational ch	aracteristics. Engir	ne control.
21LRY2	Aircraft Engines 2	Z,ZK	3
Compressors, cer	ntrifugal compressor, combustion chamber, turboshaft engines, ramjets, power, thermal efficiency and fuel consumption, starting aircr	aft turbine engines	, idling and
	idling speed.		
21PIS1	Piston Engine 1	7	0
	iency, duty cycles, stroke and compression ratio, engine layout and ignition. Engine power calculation. Measurement of key engine paral	neters: pressure, te	emperature.
· · · · · · · · · · · · · · · · · · ·	fuel flow. Engine design. Valve distributions. Starting systems. Engine exhaust systems. Engine cooling system.	,	,
21PIS2		7	0
	Piston Engine 2		-
Design and ope	eration of supercharged engines. Lubrication and fuel system. Engine mounting and covers. Engine storage. Construction of hoses an	a pipes. Startup pr	oceaure.
	Inspection and storage of the engine, including its accessories.		
21PRJ1	Instrumentation 1	ZK	2
Basic construction	on principles of instrumentation, electronic displays, basics of measurement - sensitivity and errors, engine instrumentation (pressure	gauges, thermome	eters, fuel
quantity and fuel fl	low measurement, torque and EPR measurement), indication in other aircraft systems (position, fire and icing indication, vibration mor	nitoring, pressurisa	tion system
	monitoring, aerometric instruments (sensors, altimeter, air speed indicator, VSI, ADC).		
21PRJ2	Instrumentation 2	ZK	3
Compass, gyrosco	opic instruments (turn indicator, attitude indicator, directional gyro), inertial instruments, recording and monitoring systems, warning sy	stems (TCAS, GP	WS), AFCS
	(autopilot, flight director, autothrust), FMS, flight envelope protection, communication systems, flight computers.	•	
21PXE1	Training Course 1	Z	0
211 7/21	Tools identification and their use. Various material treatment. Joining methods for different joints and their removal.	- 1	Ü
210752		7	0
21PXE2	Training Course 2	Z	0
0.50	Special tools and measurement equipment identification and their use. Basics of machine-tool control.		
21PYD1	Aircraft Maintenance Technology 1	KZ	3
	course, which introduces students to the basic techniques of joining both metallic and non-metallic materials. These techniques are ma	-	
and gluing. It also	o introduces the basic metals and non-metals, including composites, which are part of modern aircraft. Last but not least, techniques to	or fitting springs, g	ears, gear
	cables, pipes and hoses to aircraft are presented.		
21PYD2	Aircraft Maintenance Technology 2	KZ	4
The second part of	the course introduces all currently used inspection methods, including non-destructive ones, that are used in aviation. Focus is also o	n the issues of mat	erial fatigue
and corrosion. Stu	dents are also introduced to aircraft handling methods and the effect of the environment on the operation of the aircraft. Methods of wei	ghing and balancin	g an aircraft
	are introduced, including the determination of its centre of gravity.		
21PYD3	Aircraft Maintenance Technology 3	KZ	5
	tudents with a detailed overview of organisations involved in heavy aircraft maintenance, maintenance planning and also technical doc		
	ces how to deal with various aircraft system failures as well as various structural damage and aircraft modifications. Students are also intro		
	system and storage procedures in heavy aircraft maintenance.		
21RATE	Radiotechnology	ZK	2
Livi neiu, faulo W	vaves, propagation, radio spectrum, information transmission, signal processing, modulations, signal coding, radio transceivers, anten	iias, aiiu appiicatio	ni Ui IdulU
0400114	systems in aviation.		
21SBU1	Bachelor Thesis Seminar 1	Z	1
1	view, applied research, basic research, thesis dealing with design proposals). Working with citation sources (citation sources, citation		styles, how
	te). Analyzing the state of the art (standards of research writing). Defining the limitations of the state of the art. Introduction to the these		
21SBU2	Bachelor Thesis Seminar 2	Z	1
Methodology of t	hesis writing (introduction, analysis of the current state, specification of the problem, objectives and hypotheses). Definition of materia	ls and methods, a	oproach to
ol	btaining results, presentation and discussion of results, formulation of thesis conclusions. Basics of LaTeX, working with LaTeX and W	ord template.	
21SBU3	Bachelor Thesis Seminar 3	Z	1
Formal and grap	phic design of the thesis. Data collection and presentation, basic statistical reasoning, validation of results and designs. Achieving the	objectives of the th	nesis and

21TUM1	Turbine Engines 1	KZ	7
First part of the cou	urse is focused on the explanation and description of the purpose, operation and construction characteristics of aircraft turbojet and turb	ofan engines. The	rmal engine,
the	ermal cycle and its basic parameters, power output and thermal efficiency, basic construction modules, operational and construction of	characteristics.	
21TUM2	Turbine Engines 2	Z,ZK	7
Second part of the	e course is focused on the explanation and description of the purpose, operation and construction characteristics of following aircraft t	urbine engines uti	lity systems
 lubrication syst 	tem, cooling and internal air systems, fuel systems, starting and ignition, controls and instrumentation. Purpose, operation principles a	and construction so	chemes of
	turboprop engines, turboshaft and auxiliary power units.		
21UPUL	Introduction to Aircraft Maintenance Technology	Z	3
Students are given	an overview of safe work practices as well as an insight into the history of aircraft maintenance. In addition, tools used in heavy aircra	aft maintenance are	e introduced
as well	as basic care procedures. A significant portion of the course is devoted to technical drawings as well as the Electrical Wiring Inspecti	on System (EWIS)	
21V	Aircraft Propellers	Z,ZK	6
	Theory of propeller blade, propeller load, propeller construction, control of blade angle, de-icing system, maintenance and repair of	propellers.	,
21X31U	Project 1 TUL	Z	1
21X32U	Project 2 TUL	Z	2
21X33U	Project 3 TUL	Z	1
21ZKL1	Principles of Flight 1	ZK	3
Aerodynamic drag	, relation between drag and speed, streamline, boundary layer, formula of continuity, formula of Bernoulli, lift and drag, air flow and pr	essures around wi	ng, angle of
attack, reactions of	f 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.		
21ZLKS	Basics of Aircraft Structures and Systems	KZ	4
	Basics of screening, technical drawing, technological and operational signs. Hydraulic, pneumatic, fuel, electricity and block diagrams	in aviation.	,
21ZT	ATM Systems	ZK	2
The course into	roduces classical and modern facilities, systems and technologies designated for ATS. Student obtains knowledge of technical princip	les and solutions	as far as
	communication, navigation and surveillance aviation systems are concerned.		
22X31U	Project 1 TUL	Z	1
22X32U	Project 2 TUL	Z	2
22X33U	Project 3 TUL	Z	1

For updated information see http://bilakniha.cvut.cz/en/FF.html Generated: day 2025-06-03, time 23:09.