

# Study plan

Name of study plan: PL nav.komb.17/18

Faculty/Institute/Others:

Department:

Branch of study guaranteed by the department: Air Traffic Control and Management

Garantor of the study branch: doc. Ing. Jakub Hospodka, Ph.D.

Program of study: Technology in Transportation and Telecommunications

Type of study: Follow-up master combined

Required credits: 120

Elective courses credits: 0

Sum of credits in the plan: 120

Note on the plan:

Name of the block: Compulsory courses

Minimal number of credits of the block: 108

The role of the block: Z

Code of the group: 1.S.NKPL 15/16

Name of the group: 1.sem.nav.komb.PL 15/16

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
21BLED	<b>Aviation Safety</b> Jakub Kraus, Vladimír Plos, Natalia Guskova, Kateřina Grötschelová, Andrej Lališ	Z,ZK	4	2P+2C+14B	Z	Z
21CNSY	<b>CNS Systems</b> Jakub Kraus, Jakub Hospodka, Petr Lukeš, Stanislav Pleninger	Z,ZK	4	3P+1C+16B	Z	Z
21LKSK	<b>Aircraft Structures</b> Jakub Kraus, Jakub Hospodka, Ladislav Keller	Z,ZK	6	16B	Z	Z
21PLD	<b>Air Transport Operations</b> Jakub Kraus, Jakub Hospodka, Markéta Šedivá Kafková, Roman Voká, Sébastien Lán	Z,ZK	5	2P+2C+14B	Z	Z
21POHK	<b>Aircraft Propulsion</b> Jakub Kraus, Jakub Hospodka, Daniel Hanus	Z,ZK	7	16B	Z	Z
22SLN	<b>Air Traffic Accident Investigation</b> Michal Frydrýn, Karel Mündel, Jindřich Šachl, Jindřich Šachl (Gar.)	KZ	2	2P+0C+12B	Z	Z
15J2A1	<b>Language - English 1</b> Eva Rezlerová, Dana Boušová, Jitka He manová, Marie Michlová, Lenka Monková, Markéta Olehlová, Markéta Vojanová, Peter Mopus, Barbora Horáková	Z	2	0P+2C+10B	Z	Z

Characteristics of the courses of this group of Study Plan: Code=1.S.NKPL 15/16 Name=1.sem.nav.komb.PL 15/16

21BLED	Aviation Safety	Z,ZK	4	Reliability and system lifecycle. Basics of reliability theory. Reliability mathematical tools. Reliability analysis. Maintenance system. Safety and quality theory. Basic concepts of safety. Managing of safety. Safety management. Safety management strategies. Hazard, risk. Risk management.
21CNSY	CNS Systems	Z,ZK	4	Subject provides full technical informations about CNS (communication, navigation, surveillance) systems used in aviation. Systems are presented in perspective of future development.
21LKSK	Aircraft Structures	Z,ZK	6	History and development of aeronautics. Classification of aircraft. Fundamental parts and systems. Safety, reliability and airworthiness. Limit states of aircraft structure and strength certification. Aviation regulations. Load factor. Manoeuvring loads. Manoeuvring envelope of load factor. Gust load. Gust load factor and envelope of gust load factor.
21PLD	Air Transport Operations	Z,ZK	5	The mission and the importance of air transport. Legislation. Airlines. Strategy. Performance in air transport. The cost structure. Fuel management. Cargo. Quality. Aircraft maintenance (organization) and the economics of aircraft operations. Ground services. Revenue management. Environment.
21POHK	Aircraft Propulsion	Z,ZK	7	Theoretical background. Earth atmosphere. Classification of aircraft engines, characteristics, domains of use, comparative parameters, characteristics and criteria. Energy transformation within aircraft propulsion systems, thermal cycles analysis, working substances, environmental constraints, efficiencies. Reciprocating and turbine engines, their construction and material characteristics and performance characteristics. Environmental impacts.

22SLN	Air Traffic Accident Investigation	KZ	2
Specification of forensic expertise. Regulations and establishments for exceptional events in air traffic. Analysis of air traffic accidents (cause investigation, time course, human factor). Air traffic accidents prevention. Exceptional aviation event report. Analysis of particular accidents in air traffic.			
15J2A1	Language - English 1	Z	2
Grammatical Structures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills, feedback skills, summarising technical text content, structuring presentations and meeting minutes, elementary rhetorics of English and practical application, formal and technical registers and their use, language of management.			

Code of the group: 2.S.NKPL 15/16

Name of the group: 2.sem.nav.komb.PL 15/16

Requirement credits in the group: In this group you have to gain 24 credits

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

Credits in the group: 24

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
16PDP	<b>Principles of Vehicle Design</b> <i>Jaroslav Machan</i>	ZK	2	2P+0C+8B	L	Z
21KST	<b>Space Technologies</b> <i>Jakub Hospodka</i>	ZK	3	2P+0C+10B	L	Z
21NSR	<b>Navigation and Flight Management Systems</b> <i>Jakub Hospodka</i>	Z,ZK	5	3P+2C+16B	L	Z
21SPOL	<b>Reliability of Aerospace Engineering</b> <i>Oldřich Štumbauer</i>	Z,ZK	4	2P+1C+12B	L	Z
21AITM	<b>Air Traffic Management</b> <i>Miloslav Strouhal</i>	KZ	4	3P+2C+14B	L	Z
23SCT	<b>Airport Security</b> <i>Václav Jirovský</i>	KZ	4	2P+1C+12B	L	Z
15JBA2	<b>Language - English 2</b>	Z	2	0P+2C+10B	L	Z

Characteristics of the courses of this group of Study Plan: Code=2.S.NKPL 15/16 Name=2.sem.nav.komb.PL 15/16

16PDP	Principles of Vehicle Design	ZK	2
Design of transportation vehicle according to its usage and function. Marketing and user demands. Vehicle dynamics. Propulsion systems. Design process, functional design and vehicle structure. Evaluation of variant concepts. Design phases. Reliability, technological aspects etc.			
21KST	Space Technologies	ZK	3
Universe and its basic characteristics. Fundamentals of astrophysics. Kepler's laws. Solar system. Earth's and its atmosphere and outer space. Space transport vehicles. Rockets and rocket engines and their structure and operational characteristics. Space crafts and satellites, space flight. Orbital mechanics. Application of space technologies for global navigation and communication. Space exploration and piloted space flights and missions.			
21NSR	Navigation and Flight Management Systems	Z,ZK	5
Navigation. Radionavigation. Satellite navigation. Flight management system. Autopilot. FMC. Practical execution of flight.			
21SPOL	Reliability of Aerospace Engineering	Z,ZK	4
Subject deals with tuition of separate attributes of reliability (no failure, vitality, maintainability, and so on) and main criterions of safety of production and working of aerospace engineering. General legalities are in the framework of tuition demonstrated on the example of calculation of reliability of integral characteristics of materials and they are practical illustration of its security in The Czech Police Aviation Department.			
21AITM	Air Traffic Management	KZ	4
Current ATM system and its functional blocks. View of ATM data (technical architecture and configuration, transmission systems and networks). Data exchange with neighboring ATM systems. Monitoring systems and technical supervision. ATM simulation. ATM conceptions and strategies for next years. EUROCONTROL - CFMU. FAB. ATS's - AOC's data applications.			
23SCT	Airport Security	KZ	4
Division of airport in terms of security, design, standards and conventions, forms of risk in general, the analysis and management of risk in the ground security, emergency plans, mode of airport security, identification and security systems, radar systems and their role in security operations, scanning systems, X-rays and microwave scanners, intelligence services and security services at the airport, the technology used to ensure the security.			
15JBA2	Language - English 2	Z	2
Grammatical structures and style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills, feedback skills, summarising technical text content, structuring presentations and meeting minutes, elementary rhetorics of English and practical application, formal and technical registers and their use, language of management.			

Code of the group: 3.S.NKPL 16/17

Name of the group: 3.sem.nav.komb.PL 16/17

Requirement credits in the group: In this group you have to gain 24 credits

Requirement courses in the group: In this group you have to complete 6 courses

Credits in the group: 24

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
11STS	<b>Stochastic Systems</b> Šárka Jozová, Ivan Nagy, Evženie Uglickich, Pavla Pecherková Evženie Uglickich (Gar.)	Z,ZK	4	2P+2C+14B	Z	Z
21ERGK	<b>Ergonomy in Aviation Technology</b> Jakub Kraus, Jakub Hospodka, Lenka Hanáková, Vladimír Socha	Z,ZK	6	18B	Z	Z
21PSAP	<b>Aircraft and Spacecraft Instrumentation</b> Jakub Kraus, Pavel Hovorka	Z,ZK	4	2P+2C+14B	Z	Z
21ULET	<b>Aircraft Maintenance</b> Jakub Kraus, Kateřina Stuchlíková	Z,ZK	6	3P+1C+16B	Z	Z
21LEN1	<b>Aviation English 1</b> Jakub Kraus, Andrej Lališ, Jakub Hospodka, Roman Matyáš, Terézia Pilmannová, Slobodan Stoji	Z	2	0P+2C+10B	Z	Z
15JBA3	<b>Language - English 3</b> Eva Rezlerová, Dana Boušová, Jitka Heřmanová, Marie Michlová, Lenka Monková, Markéta Olehlová, Markéta Vojanová, Peter Morpuss, Barbora Horáková	Z	2	0P+2C+10B	Z	Z

**Characteristics of the courses of this group of Study Plan: Code=3.S.NKPL 16/17 Name=3.sem.nav.komb.PL 16/17**

11STS	Stochastic Systems	Z,ZK	4	The subject deals with the problems of mathematical modelling of dynamical systems, estimation of these models and their utilization for prediction. The results are illustrated on practical transportation tasks. Mathematical theory roots from probability and mathematical statistics and they use the methods of the Bayesian probabilistic approach.		
21ERGK	Ergonomy in Aviation Technology	Z,ZK	6	Stages and processes of aviation technology lifecycle. Software and information systems. Related segments. Key information to each stage. Aviation technology development proposal. Technical requirements definition. Pricing and costs. Aviation technology production. Operation assurance. Modernization, obsolescence and decommission of aviation technology.		
21PSAP	Aircraft and Spacecraft Instrumentation	Z,ZK	4	The course deals with a theory and description of basic functions, structures and principles of aircraft and spacecraft instrumentation working in a low-frequency band. Within the scope of this course it is possible to get knowledge about instrument boards, propulsion parameters measurements, aerometrical systems, and fuselage health monitoring systems. Furthermore, gyroscopic systems and systems for navigation are also covered.		
21ULET	Aircraft Maintenance	Z,ZK	6	Aircraft operations and technical operations. System of work. System of maintenance. Failure scanning methods. Diagnostic tools for inspections. Selection and qualification of aviation personnel. Basic documentation for maintenance. Procedures for optimizing maintenance time. Regulation n. 2042/2003, part 145. Human factor. EASA director regulation. Exercises will be focused on practical applications.		
21LEN1	Aviation English 1	Z	2	Aircraft description. Airline business and marketing. Airports and handling services. Maintenance. Air traffic services. Aviation history. Accident investigation. Human factors. Aviation economics. Development of air services. Low cost airlines. Airline history. Market development. Company management. Airport design. Ecology.		
15JBA3	Language - English 3	Z	2	Grammatical structures and style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills, feedback skills, summarising technical text content, structuring presentations and meeting minutes, elementary rhetorics of English and practical application, formal and technical registers and their use, language of management.		

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

Name of the group: 4.sem.nav.komb.PL 17/18

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

Requirement courses in the group: In this group you have to complete 2 courses

Credits in the group: 4

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
21LCA2	<b>Aviation English 2</b> Andrej Lališ, Roman Matyáš, Slobodan Stoji	Z,ZK	2	0P+2C+10B	L	Z
15JBA4	<b>Language - English 4</b> Markéta Olehlová, Barbora Horáková	ZK	2	0P+2C+10B	L	Z

**Characteristics of the courses of this group of Study Plan: Code=4.S.NKPL 17/18 Name=4.sem.nav.komb.PL 17/18**

21LCA2	Aviation English 2	Z,ZK	2	Business and general aviation. Security. Safety. Airports. Weather. Handling of emergency. Investigation. Environment protection. Engines. Military operations. Space flights.		
15JBA4	Language - English 4	ZK	2	Grammatical structures and style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills, feedback skills, summarising technical text content, structuring presentations and meeting minutes, elementary rhetorics of English and practical application, formal and technical registers and their use, language of management.		

Code of the group: XNDPPLK 16/17

Name of the group: Diplomová práce nav.komb.PL (od)16/17

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

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

Credits in the group: 18

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) <i>Tutors, authors and guarantors (gar.)</i>	Completion	Credits	Scope	Semester	Role
11XNDP	Master Thesis	KZ	18	OP420C70B	L	z
12XNDP	Master Thesis	KZ	18	OP420C70B	L	z
14XNDP	Master Thesis	KZ	18	OP420C70B	L	z
15XNDP	Master Thesis	KZ	18	OP420C70B	L	z
16XNDP	Master Thesis	KZ	18	OP420C70B	L	z
17XNDP	Master Thesis	KZ	18	OP420C70B	L	z
18XNDP	Master Thesis	KZ	18	OP420C70B	L	z
20XNDP	Master Thesis	KZ	18	OP420C70B	L	z
21XNDP	Master Thesis	KZ	18	OP420C70B	L	z
22XNDP	Master Thesis	KZ	18	OP420C70B	L	z
23XNDP	Master Thesis	KZ	18	OP420C70B	L	z

Characteristics of the courses of this group of Study Plan: Code=XNDPPLK 16/17 Name=Diplomová práce nav.komb.PL (od)16/17

11XNDP	Master Thesis	KZ	18
12XNDP	Master Thesis	KZ	18
14XNDP	Master Thesis	KZ	18
15XNDP	Master Thesis	KZ	18
16XNDP	Master Thesis	KZ	18
17XNDP	Master Thesis	KZ	18
18XNDP	Master Thesis	KZ	18
20XNDP	Master Thesis	KZ	18
21XNDP	Master Thesis	KZ	18
22XNDP	Master Thesis	KZ	18
23XNDP	Master Thesis	KZ	18

Code of the group: XNSPLK 16/17

Name of the group: Seminář k DP nav.komb.PL (od)16/17

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

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

Credits in the group: 8

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) <i>Tutors, authors and guarantors (gar.)</i>	Completion	Credits	Scope	Semester	Role
11XN4K	Seminar for Diploma Thesis	Z	8	8B	L	z
12XN4K	Seminar for Diploma Thesis	Z	8	8B	L	z
14XN4K	Seminar for Diploma Thesis	Z	8	8B	L	z
15XN4K	Seminar for Diploma Thesis	Z	8	8B	L	z
16XN4K	Seminar for Diploma Thesis	Z	8	8B	L	z
17XN4K	Seminar for Diploma Thesis	Z	8	8B	L	z
18XN4K	Seminar for Diploma Thesis	Z	8	8B	L	z
20XN4K	Seminar for Diploma Thesis	Z	8	8B	L	z
21XN4K	Seminar for Diploma Thesis	Z	8	8B	L	z
22XN4K	Seminar for Diploma Thesis	Z	8	8B	L	z
23XN4K	Seminar for Diploma Thesis	Z	8	8B	L	z

Characteristics of the courses of this group of Study Plan: Code=XNSPLK 16/17 Name=Seminář k DP nav.komb.PL (od)16/17

11XN4K	Seminar for Diploma Thesis	Z	8
12XN4K	Seminar for Diploma Thesis	Z	8
14XN4K	Seminar for Diploma Thesis	Z	8
15XN4K	Seminar for Diploma Thesis	Z	8
16XN4K	Seminar for Diploma Thesis	Z	8

17XN4K	Seminar for Diploma Thesis	Z	8
18XN4K	Seminar for Diploma Thesis	Z	8
20XN4K	Seminar for Diploma Thesis	Z	8
21XN4K	Seminar for Diploma Thesis	Z	8
22XN4K	Seminar for Diploma Thesis	Z	8
23XN4K	Seminar for Diploma Thesis	Z	8

Name of the block: Compulsory elective courses

Minimal number of credits of the block: 12

The role of the block: PV

Code of the group: W2-NKPL 17/18

Name of the group: PVP nav.komb.PL 17/18

Requirement credits in the group: In this group you have to gain 12 credits

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

Credits in the group: 12

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) <i>Tutors, authors and guarantors (gar.)</i>	Completion	Credits	Scope	Semester	Role
17W2AM	<b>Application of Marketing Tools in Transportation</b> <i>Petra Skollílová</i>	KZ	3	8B	L	PV
17W2FM	<b>Financing in Urban Mass Transportation</b>	KZ	3	8B	Z	PV
15W2HS	<b>Road Transport History</b> <i>Zuzana arská</i>	KZ	3	8B	L	PV
14W2KI	<b>Capital Investment in Transportation and Telecommunications</b> <i>Mária Jánešová</i>	KZ	3	8B	L	PV
17W2KI	<b>Capital Investment in Transportation and Telecommunications</b>	KZ	3	8	L	PV
21W2LS	<b>Air Traffic Services</b> <i>Ji í Šála</i>	KZ	3	8B	L	PV
15W2MS	<b>Sociology for Managers</b>	KZ	3	8B	Z	PV
21W2MK	<b>Marketing of Air Transport</b>	KZ	3	8	L	PV
21W2MS	<b>Aerospace Engineering Simulation and Modelling</b> <i>Stanislav Pleninger</i>	KZ	3	8B	Z	PV
15W2OZ	<b>Health Protection in Transportation and EU</b> <i>Eva Rezlerová, Petr Musil</i>	KZ	3	8B	Z	PV
15W2PT	<b>Food in Transportation</b> <i>Petr Musil</i>	KZ	3	8B	L	PV
21W2PL	<b>Operational Aspects of Aerodromes</b> <i>Jakub Kraus, Jakub Hospodka, Viktor Sýkora</i>	KZ	3	8B	Z	PV
21W2PP	<b>Law and Operation in Air Transport</b> <i>Marie Hauerová</i>	KZ	3	8B	L	PV
17W2PS	<b>Case Studies in Transportation</b>	KZ	3	8B	Z	PV
15W2SR	<b>Stylistics and Rhetorics</b>	KZ	3	8B	Z	PV
17W2SK	<b>Urban and Regional Rail Transit Systems</b> <i>Ji í Pospíšil</i>	KZ	3	8B	L	PV
15W2TS	<b>Technician and Contemporary Society</b> <i>Jan Feit</i>	KZ	3	8B	L	PV
21W2TL	<b>Development Trends of Aircraft Construction</b>	KZ	3	8	Z	PV
21W2VA	<b>Selected Parts of Aerodynamics</b>	KZ	3	8	Z	PV
17W2RZ	<b>Control of Transport Processes</b>	KZ	3	8B	Z	PV

Characteristics of the courses of this group of Study Plan: Code=W2-NKPL 17/18 Name=PVP nav.komb.PL 17/18

17W2AM	Application of Marketing Tools in Transportation Application of marketing principles in transport issues, marketing tools suitable for transport, case studies of the use of marketing in the sphere of public passenger transport.	KZ	3
17W2FM	Financing in Urban Mass Transportation UMT history and development in Prague and other cities in the world. Building and operation of public tram, bus, and trolleybus networks. Underground building and operation. Other UMT types. UMT development in small towns. Particularities of investment and operation financing of individual UMT types. Historic and present models of UMT financing. Transport inspection and blind passengers. Tourism & UMT. UMT typology & choice of optimum financing.	KZ	3
15W2HS	Road Transport History Roads and road traffic in the Ancient Age, corridors of main medieval pathways. Development of road traffic in the modern period, acceleration of road transport development during 1st part of 20th century. Development of road layout, geometric and construction layers. Beginning of modern road civil engineering. Development of road travelling in modern period. History of road intercessions, bridges and traffic control, development of road signs.	KZ	3
14W2KI	Capital Investment in Transportation and Telecommunications Financial market, investment decision making - long term goals and investment strategies, long term financing	KZ	3

17W2KI	Capital Investment in Transportation and Telecommunications Financial market, investment decision making - long term goals and investment strategies, long term financing.	KZ	3
21W2LS	Air Traffic Services Airspace structure in Czech Republic and other countries. Introduction and description of ATS units in Czech Republic. Practical examples of TWR, APP a ACC control. Procedural and radar control. Incidents caused or partially caused by ATS. History of ATS and Czech airspace.	KZ	3
15W2MS	Sociology for Managers Sociological approach to a corporation. Corporation and its organization. Corporation and its running - human role and communication. Corporation, its culture and social system. Human's work position in free market economy. Corporate directorship, work groups, adaptation, strife, different roles and positions in corporation.	KZ	3
21W2MK	Marketing of Air Transport Definition, purpose, evolution, stages and types of marketing. Marketing in air transportation. Marketing research. Market segmentation. Airlines marketing strategies. Airline Products. Yield management and revenues. Air transport market sales.	KZ	3
21W2MS	Aerospace Engineering Simulation and Modelling The course is designed as a set of exemplary tasks and problems based on practical aviation issues. The university degree mathematic skills and software applications usage will be necessary for successful figuring out. Both simple tasks, where students create own model themselves (e.g. in Matlab), and more complicated problems where professional developed tools will be applied.	KZ	3
15W2OZ	Health Protection in Transportation and EU Health protection in transportation in CR in the past and present. Conditions before 1989 and after, current legislature, future prospects. Harmonisation of legislation with other EU members. Fundamental principles of health protection and support in selected EU countries.	KZ	3
15W2PT	Food in Transportation The nutrition policy. Interaction transportation and foodstuffs. The health risks. Hygienic safeguard. The practical examples from the Czech Republic and from the world. The issues of dining cars, work trains and other railroad equipment. Legislation.	KZ	3
21W2PL	Operational Aspects of Aerodromes Operational aspects of aerodromes. Location of aerodrome and orientation of runways. Requirements for apron. Capacity of airports runways and terminals. Operation under winter conditions. Firefighting units. Protection against unlawful interference. Local transport connection. Environmental protection.	KZ	3
21W2PP	Law and Operation in Air Transport Development of aviation law. International conventions on civil aviation. International organisations and including of the Czech Republic in these organisations. EU legislation and civil aviation. Execution of state administration and state supervision in matters of civil aviation, in accordance with Act No. 49/1997 Col. Facilitation. Responsibilities of air carriers for passengers, luggage and cargo. The safe transport of dangerous goods.	KZ	3
17W2PS	Case Studies in Transportation Simulation expert discussions on the topics - the impact of transport on the environment and the economy, energy, construction of transport infrastructure etc. The students will each lesson presented one current and the real issue, which solutions will have to think of each other. Each of them will be represent another role (public authorities, investors, carrier representative interest groups, residents, etc.).	KZ	3
15W2SR	Stylistics and Rhetorics Basic skills of oral and written expression as a means of human communication. Basic information about speech, articulation, oral and written language. Teaching to speak well-vocal organs, voice training. Language semantics, language syntactic and the pragmatic aspect. Creative thought and its oral and written expression. Practice - cultivating the skills of speech.	KZ	3
17W2SK	Urban and Regional Rail Transit Systems Factors influencing transport demand, modal-split, traffic flows distribution on public transit network. Line network optimization and configuration. Timetable designing and evaluation accenting integrated periodic timetable. Rolling stock circulation, staff and crew services optimization and their order to rosters. Framework legislation, non-barrier effects and preference of public transport. Marketing.	KZ	3
15W2TS	Technician and Contemporary Society Why to take off a hat in a room and open a door for a lady? Are there simple solutions? Science vs belief. Do we need to know or is it enough to turn on a PC? It must be true - it's on the Internet and in newspapers! What are the sights for? Interest in public affairs - a hangover from the past?	KZ	3
21W2TL	Development Trends of Aircraft Construction Historical and nowadays trends. Future scenarios. Space industry. Economy.	KZ	3
21W2VA	Selected Parts of Aerodynamics Real gases physical properties, atmosphere. Fundamentals of fluid dynamics. External and internal aerodynamics in aircraft applications. Wing sections, wings, airfoil cascades, lift, drag. Polar, ideal incompressible and compressible flows. Viscous flows. Boundary layer, stability, turbulence. Reynolds, Strouhal and Mach Numbers. Flows aircraft aerodynamics and light dynamics. Static and dynamic stability. Anoeurability. Aircraft performances.	KZ	3
17W2RZ	Control of Transport Processes Theoretical bases, transport system, decomposition, factors influencing control, quality diagnosis, methods of control, systems for decision making support, risk of decision making, telematics.	KZ	3

### List of courses of this pass:

Code	Name of the course	Completion	Credits
11STS	Stochastic Systems The subject deals with the problems of mathematical modelling of dynamical systems, estimation of these models and their utilization for prediction. The results are illustrated on practical transportation tasks. Mathematical theory roots from probability and mathematical statistics and they use the methods of the Bayesian probabilistic approach.	Z,ZK	4
11XN4K	Seminar for Diploma Thesis	Z	8
11XNDP	Master Thesis	KZ	18
12XN4K	Seminar for Diploma Thesis	Z	8
12XNDP	Master Thesis	KZ	18
14W2KI	Capital Investment in Transportation and Telecommunications Financial market, investment decision making - long term goals and investment strategies, long term financing	KZ	3
14XN4K	Seminar for Diploma Thesis	Z	8

14XNDP	Master Thesis	KZ	18
15J2A1	Language - English 1 Grammatical Structures and Style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills, feedback skills, summarising technical text content, structuring presentations and meeting minutes, elementary rhetorics of English and practical application, formal and technical registers and their use, language of management.	Z	2
15JBA2	Language - English 2 Grammatical structures and style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills, feedback skills, summarising technical text content, structuring presentations and meeting minutes, elementary rhetorics of English and practical application, formal and technical registers and their use, language of management.	Z	2
15JBA3	Language - English 3 Grammatical structures and style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills, feedback skills, summarising technical text content, structuring presentations and meeting minutes, elementary rhetorics of English and practical application, formal and technical registers and their use, language of management.	Z	2
15JBA4	Language - English 4 Grammatical structures and style. Selection of conversation topics relating to transportation sciences. Developing perceptive and communicative skills, feedback skills, summarising technical text content, structuring presentations and meeting minutes, elementary rhetorics of English and practical application, formal and technical registers and their use, language of management.	ZK	2
15W2HS	Road Transport History Roads and road traffic in the Ancient Age, corridors of main medieval pathways. Development of road traffic in the modern period, acceleration of road transport development during 1st part of 20th century. Development of road layout, geometric and construction layers. Beginning of modern road civil engineering. Development of road travelling in modern period. History of road intercections, bridges and traffic control, development of road signs.	KZ	3
15W2MS	Sociology for Managers Sociological approach to a corporation. Corporation and its organization. Corporation and its running - human role and communication. Corporation, its culture and social system. Human's work position in free market economy. Corporate directorship, work groups, adaptation, strife, different roles and positions in corporation.	KZ	3
15W2OZ	Health Protection in Transportation and EU Health protection in transportation in CR in the past and present. Conditions before 1989 and after, current legislature, future prospects. Harmonisation of legislation with other EU members. Fundamental principles of health protection and support in selected EU countries.	KZ	3
15W2PT	Food in Transportation The nutrition policy. Interaction transportation and foodstuffs. The health risks. Hygienic safeguard. The practical examples from the Czech Republic and from the world. The issues of dining cars, work trains and other railroad equipment. Legislation.	KZ	3
15W2SR	Stylistics and Rhetorics Basic skills of oral and written expression as a means of human communication. Basic information about speech, articulation, oral and written language. Teaching to speak well-vocal organs, voice training. Language semantics, language syntactic and the pragmatic aspect. Creative thought and its oral and written expression. Practice - cultivating the skills of speech.	KZ	3
15W2TS	Technician and Contemporary Society Why to take off a hat in a room and open a door for a lady? Are there simple solutions? Science vs belief. Do we need to know or is it enough to turn on a PC? It must be true - it's on the Internet and in newspapers! What are the sights for? Interest in public affairs - a hangover from the past?	KZ	3
15XN4K	Seminar for Diploma Thesis	Z	8
15XNDP	Master Thesis	KZ	18
16PDP	Principles of Vehicle Design Design of transportation vehicle according to its usage and function. Marketing and user demands. Vehicle dynamics. Propulsion systems. Design process, functional design and vehicle structure. Evaluation of variant concepts. Design phases. Realiability, technological aspects etc.	ZK	2
16XN4K	Seminar for Diploma Thesis	Z	8
16XNDP	Master Thesis	KZ	18
17W2AM	Application of Marketing Tools in Transportation Application of marketing principles in transport issues, marketing tools suitable for transport, case studies of the use of marketing in the sphere of public passenger transport.	KZ	3
17W2FM	Financing in Urban Mass Transportation UMT history and development in Prague and other cities in the world. Building and operation of public tram, bus, and trolleybus networks. Underground building and operation. Other UMT types. UMT development in small towns. Particularities of investment and operation financing of individual UMT types. Historic and present models of UMT financing. Transport inspection and blind passengers. Tourism & UMT. UMT typology & choice of optimum financing.	KZ	3
17W2KI	Capital Investment in Transportation and Telecommunications Financial market, investment desicion making - long term goals and investment strategies, long temr financing.	KZ	3
17W2PS	Case Studies in Transportation Simulation expert discussions on the topics - the impact of transport on the environment and the economy, energy, construction of transport infrastructure etc. The students will each lesson presented one current and the real issue, which solutions will have to think of each other. Each of them will be represent another role (public authorities, investors, carrier representative interest groups, residents, etc.).	KZ	3
17W2RZ	Control of Transport Processes Theoretical bases, transport system, decomposition, factors influencing control, quality diagnosis, methods of control, systems for decision making support, risk of decision making, telematics.	KZ	3
17W2SK	Urban and Regional Rail Transit Systems Factors influencing transport demand, modal-split, traffic flows distribution on public transit network. Line network optimization and configuration. Timetable designing and evaluation accenting integrated periodic timetable. Rolling stock circulation, staff and crew services optimization and their order to rosters. Framework legislation, non-barrier effects and preference of public transport. Marketing.	KZ	3
17XN4K	Seminar for Diploma Thesis	Z	8
17XNDP	Master Thesis	KZ	18
18XN4K	Seminar for Diploma Thesis	Z	8
18XNDP	Master Thesis	KZ	18
20XN4K	Seminar for Diploma Thesis	Z	8
20XNDP	Master Thesis	KZ	18

21AITM	<b>Air Traffic Management</b>	KZ	4
Current ATM system and its functional blocks. View of ATM data (technical architecture and configuration, transmission systems and networks). Data exchange with neighboring ATM systems. Monitoring systems and technical supervision. ATM simulation. ATM conceptions and strategies for next years. EUROCONTROL - CFMU. FAB. ATS's - AOC's data applications.			
21BLED	<b>Aviation Safety</b>	Z,ZK	4
Reliability and system lifecycle. Basics of reliability theory. Reliability mathematical tools. Reliability analysis. Maintenance system. Safety and quality theory. Basic concepts of safety. Managing of safety. Safety management. Safety management strategies. Hazard, risk. Risk management.			
21CNSY	<b>CNS Systems</b>	Z,ZK	4
Subject provides full technical informations about CNS (communication, navigation, surveillance) systems used in aviation. Systems are presented in perspective of future development.			
21ERGK	<b>Ergonomy in Aviation Technology</b>	Z,ZK	6
Stages and processes of aviation technology lifecycle. Software and information systems. Related segments. Key information to each stage. Aviation technology development proposal. Technical requirements definition. Pricing and costs. Aviation technology production. Operation assurance. Modernization, obsolescence and decommission of aviation technology.			
21KST	<b>Space Technologies</b>	ZK	3
Universe and its basic characteristics. Fundamentals of astrophysics. Kepler's laws. Solar system. Earth's and its atmosphere and outer space. Space transport vehicles. Rockets and rocket engines and their structure and operational characteristics. Space crafts and satellites, space flight. Orbital mechanics. Application of space technologies for global navigation and communication. Space exploration and piloted space flights and missions.			
21LCA2	<b>Aviation English 2</b>	Z,ZK	2
Business and general aviation. Security. Safety. Airports. Weather. Handling of emergency. Investigation. Environment protection. Engines. Military operations. Space flights.			
21LEN1	<b>Aviation English 1</b>	Z	2
Aircraft description. Airline business and marketing. Airports and handling services. Maintenance. Air traffic services. Aviation history. Accident investigation. Human factors. Aviation economics. Development of air services. Low cost airlines. Airline history. Market development. Company management. Airport design. Ecology.			
21LKSK	<b>Aircraft Structures</b>	Z,ZK	6
History and development of aeronautics. Classification of aircraft. Fundamental parts and systems. Safety, reliability and airworthiness. Limit states of aircraft structure and strength certification. Aviation regulations. Load factor. Manoeuvring loads. Manoeuvring envelope of load factor. Gust load. Gust load factor and envelope of gust load factor.			
21NSR	<b>Navigation and Flight Management Systems</b>	Z,ZK	5
Navigation. Radionavigation. Satellite navigation. Flight management system. Autopilot. FMC. Practical execution of flight.			
21PLD	<b>Air Transport Operations</b>	Z,ZK	5
The mission and the importance of air transport. Legislation. Airlines. Strategy. Performance in air transport. The cost structure. Fuel management. Cargo. Quality. Aircraft maintenance (organization) and the economics of aircraft operations. Ground services. Revenue management. Environment.			
21POHK	<b>Aircraft Propulsion</b>	Z,ZK	7
Theoretical background. Earth atmosphere. Classification of aircraft engines, characteristics, domains of use, comparative parameters, characteristics and criteria. Energy transformation within aircraft propulsion systems, thermal cycles analysis, working substances, environmental constraints, efficiencies. Reciprocating and turbine engines, their construction and material characteristics and performance characteristics. Environmental impacts.			
21PSAP	<b>Aircraft and Spacecraft Instrumentation</b>	Z,ZK	4
The course deals with a theory and description of basic functions, structures and principles of aircraft and spacecraft instrumentation working in a low-frequency band. Within the scope of this course it is possible to get knowledge about instrument boards, propulsion parameters measurements, aerometrical systems, and fuselage health monitoring systems. Furthermore, gyroscopic systems and systems for navigation are also covered.			
21SPOL	<b>Reliability of Aerospace Engineering</b>	Z,ZK	4
Subject deals with tuition of separate attributes of reliability (no failure, vitality, maintainability, and so on) and main criterions of safety of production and working of aerospace engineering. General legalities are in the framework of tuition demonstrated on the example of calculation of reliability of integral characteristics of materials and they are practical illustration of its security in The Czech Police Aviation Department.			
21ULET	<b>Aircraft Maintenance</b>	Z,ZK	6
Aircraft operations and technical operations. System of work. System of maintenance. Failure scanning methods. Diagnostical tools for inspections. Selection and qualification of aviation personnel. Basic documentation for maintenance. Procedures for optimizing maintenance time. Regulation n. 2042/2003, part 145. Human factor. EASA director regulation. Exercises will be focused on practical applications.			
21W2LS	<b>Air Traffic Services</b>	KZ	3
Airspace structure in Czech Republic and other countries. Introduction and description of ATS units in Czech Republic. Practical examples of TWR, APP a ACC control. Procedural and radar control. Incidents caused or partially caused by ATS. History of ATS and czech airspace.			
21W2MK	<b>Marketing of Air Transport</b>	KZ	3
Definition, purpose, evolution, stages and types of marketing. Marketing in air transportation. Marketing research. Market segmentation. Airlines marketing strategies. Airline Products. Yield management and revenues. Air transport market sales.			
21W2MS	<b>Aerospace Engineering Simulation and Modelling</b>	KZ	3
The course is designed as a set of exemplary tasks and problems based on practical aviation issues. The university degree mathematic skills and software applications usage will be necessary for successful figuring out. Both simple tasks, where students create own model themselves (e.g. in Matlab), and more complicated problems where professional developed tools will be applied.			
21W2PL	<b>Operational Aspects of Aerodromes</b>	KZ	3
Operational aspects of aerodromes. Location of aerodrome and orientation of runways. Requirements for apron. Capacity of airports runways and terminals. Operation under winter conditions. Firefighting units. Protection against unlawful interference. Local transport connection. Environmental protection.			
21W2PP	<b>Law and Operation in Air Transport</b>	KZ	3
Development of aviation law. International conventions on civil aviation. International organisations and including of the Czech Republic in these organisations. EU legislation and civil aviation. Execution of state administration and state supervision in matters of civil aviation, in accordance with Act No. 49/1997 Col. Facilitation. Responsibilities of air carriers for passengers, luggage and cargo. The safe transport of dangerous goods.			
21W2TL	<b>Development Trends of Aircraft Construction</b>	KZ	3
Historical and nowadays trends. Future scenarios. Space industry. Economy.			
21W2VA	<b>Selected Parts of Aerodynamics</b>	KZ	3
Real gases physical properties, atmosphere. Fundamentals of fluid dynamics. External and internal aerodynamics in aircraft applications. Wing sections, wings, airfoil cascades, lift, drag. Polar, ideal incompressible and compressible flows. Viscous flows. Boundary layer, stability, turbulence. Reynolds, Strouhal and Mach Numbers. Flows aircraft aerodynamics and light dynamics. Static and dynamic stability. Anoeurability. Aircraft performances.			
21XN4K	<b>Seminar for Diploma Thesis</b>	Z	8
21XNDP	<b>Master Thesis</b>	KZ	18



22SLN	Air Traffic Accident Investigation	KZ	2
Specification of forensic expertise. Regulations and establishments for exceptional events in air traffic. Analysis of air traffic accidents (cause investigation, time course, human factor). Air traffic accidents prevention. Exceptional aviation event report. Analysis of particular accidents in air traffic.			
22XN4K	Seminar for Diploma Thesis	Z	8
22XNDP	Master Thesis	KZ	18
23SCT	Airport Security	KZ	4
Division of airport in terms of security, design, standards and conventions, forms of risk in general, the analysis and management of risk in the ground security, emergency plans, mode of airport security, identification and security systems, radar systems and their role in security operations, scanning systems, X-rays and microwave scanners, intelligence services and security services at the airport, the technology used to ensure the security.			
23XN4K	Seminar for Diploma Thesis	Z	8
23XNDP	Master Thesis	KZ	18

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