

1B0L201 Communication Systems in Aviation (first semester, 5 ECTS)

The development of communication, navigation and surveillance (CNS), distribution of services and resources, ANNEX 10, radio frequencies in civil aviation, connection with aircraft and ground connections, distribution of devices for navigation, NDB, VOR, DVOR, VOR signal processing onboard, DVOR, DME systems, ILS systems, MLS, satellite navigation systems (GPS, Glonass, Galileo), radio location, radio location equation, SSR, MSSR, processing radar information, display and processing of radar information, reliability of the equipment and systems.

1B0L202 Aerodynamics (first semester, 5 ECTS)

- Basic characteristics and parameters of the air.
- Basic principles of incompressible and compressible flow liquid.
- Aerodynamic characteristics of the profile and wing, the emergence of aerodynamic forces.
- Lift line, drag line, torque line, drag and wind polar.
- Centre of lift, aerodynamic centre and neutral point.
- Flow separation on the bearing surface and related phenomena.
- Geometric characteristics of the profile and wings.
- Resistance - total, damping, induced.
- Wing mechanisation.
- Trans-sonic aerodynamics.
- Super-sonic aerodynamics.

1B0L203 Aviation Law (first semester, 5 ECTS)

1. Law and legal system.
2. International law.
3. The legal system of the EU.
4. Aviation law, international aviation law.
5. Sources of aviation law, Annexes, JAR-type regulations, legally binding regulations of the EU, regulation of the L-series.
6. ICAO Convention.
7. International Civil Aviation Organisations.
8. European Civil Aviation Organisations.
9. Act No. 143/1998 on Civil Aviation.
10. State administration in the field of civil aviation, Civil Aviation Organisation in the Slovak Republic.
11. L1, L2, or the EU regulation governing this issue.
12. EU-OPS 1.
13. Terrorism and illegal acts in the field of civil aviation

1B0L204 Air Meteorology (first semester, 6 ECTS)

- Air masses. Characteristics. Foci of origin. Transformation. Geographical classification. Thermodynamic classification.
- Atmospheric fronts. Characteristics. Division. Conditions of origin. A warm front. Cold front. Occlusion front. Characteristic weather.
- Mimotropic cyclones. Flow system. Stages of creation. Division. Typical weather. Progression paths. Series. Tropical cyclones.
- Anticyclones. Flow system. Division. Progression paths. Typical weather
- Jet stream. Occurrence. Division. Low level jet stream. Jet stream in the middle and upper troposphere - high frontal zone, dimensional characteristics, classification, general characteristics.
- Visibility in aviation. Determination, distribution, measurement. Visibility-impairing phenomena - fog, smoke, haze.
- Freezing. Conditions of origin. Classification. Impact on aircraft and airport operating areas. Protection.
- Turbulence. Conditions of origin. Classification. Intensity. Impact on the aircraft.
- Convection and convection phenomena. Types of convection. Convection phenomena. Storm cloud. Developmental stages. Accompanying phenomena – blizzard, tornado, lightning discharges, hail, gust front, downburst. Impact on the aircraft.
- Flight conditions at high altitudes. Cosmic radiation. Ozone. Tropopause - identification, types. Condensation strips.
- Warnings in aviation meteorology. SIGMET, AIRMET. Alerts for airports. Wind shear warnings.
- Aerial weather survey. Observation and reports from aircraft. Information on AIREP and AIREP SPECIAL.
- Flight documentation. Flight documentation maps. Briefing and consultation.

1B0L301 Air Navigation 2 (first semester, 6 ECTS)

- The legislation in force for the radio navigation (ICAO, EASA).
- Classic ground radio navigation equipment and systems.
- Independent navigation systems (inertial navigation system).
- Spatial navigation systems.
- Basics of astronomical navigation.
- Global navigation satellite systems (GPS, GLONASS, GALILEO)
- The use of radar technology.
- Automatic flight management systems (FMS).
- Aerial maps for radio navigation, including planning systems.
- The practical schedule and implementation of the flight for the flight simulator.

1B0L302 Aircraft Instruments 2 (first semester, 6 ECTS)

- Distribution of aircraft instruments; conditions and requirements for aircraft equipment.
- Measurement; methods of measurement, errors.
- Aerometric instruments: MSA, sensors, aircraft altimeter, variometer, speedometer and machmeter.
- Aerometric aircraft systems (Air Data System – ADS).
- Navigation systems using the Earth's magnetic field.
- Classic gyroscopic instruments; laser gyros.
- Devices for control of energy sources.
- Instruments for aircraft control.
- Flight management systems (FMS).
- Airborne Collision Avoidance System (ACAS).
- Ground Proximity Warning System (GPWS).
- Aircraft cabins.

1B0L303 Aircraft 2 (first semester, 5 ECTS)

- Airworthiness. The characteristics of reliability, backup methods.
- Mass and balance. Aero-elasticity.
- Load factor. Aircraft capacity.
- Hydraulic systems.
- Air systems. De-icing systems.
- Fuel systems. Emergency equipment. Electrical systems.

1B0L304 Aircraft Powerplant 2 (first semester, 5 ECTS)

- Mathematical model of the aircraft power unit.
- Power and economy of the aircraft power unit.
- Parameters and characteristics of the aircraft power unit.
- Structural elements and materials.
- Aircraft turbine engine accessories.
- Control and regulation of the aircraft power unit.
- Operating limitations and turbine engine thrust management.

- Ecological aspects of the operation of the aircraft power unit.
- The impact of traffic on the aircraft power unit, monitoring and diagnosis of the aircraft power unit.
- Certification and operational capacity of the aircraft power unit.
- Operations of the aircraft power unit in specific conditions.
- Optimisation of the aircraft power unit - aircraft.

1B0L205 Technical Strength of Materials (first semester, 6 ECTS)

1. Basic concepts of statics.
2. Point and body balance.
3. Rod systems, systems of bodies.
4. Passive resistances.
5. Basic concepts of flexibility and strength.
6. Concept of tension and deformation of the body.
7. Basic types of stress: tension, pressure, torsion, shear, bending.
8. Calculation of deformations for individual types of stress.
9. Dimensioning of simple constructions.

1B0L305 Computer Simulations in Aviation (first semester, 5 ECTS)

- Introduction to computer simulation
- Basic classification of software for computer simulation
- Basic numerical methods of computer simulation
- Introduction to CAD modeling
- Advanced CAD functions
- Technical documentation
- Introduction to CFD
- Wind tunnel simulation
- Case study modeling

1B0L206 Electronics and Avionics (first semester, 2 ECTS)

Familiarize students with problems of electronic systems on board aircraft, such as the development and operation of alternators and generators, voltage direct current (DC), battery capacity and charging,

voltmeters and ammeters, circuit breakers and fuses, electrically operated equipment and appliances. The content of the subject is based on the requirements of PART-FCL 1.

1. Direct current and alternating current (DC, DC / AC)
2. General knowledge
3. Batteries. Magnetism
4. Generators. Distribution
5. Inverter (use and operation)
6. Aircraft design as an electrical conductor
7. AC (AC). Generators
8. AC power distribution. Transformers
9. Synchronous and asynchronous motors. Transformers and rectifier units
10. Semiconductors. Analogue computers. Logic circuits
11. Switching circuits and logic symbols. Fundamentals of ELM wave propagation theory - principle
12. Antennas. ELM wave propagation

1B0L152 Human Factor (second semester, 5 ECTS)

- Human performance, security.
- Circulating system, oxygen and breathing.
- Nervous system, hearing and balance, eye and vision.
- Flying and health, stress.
- Information processing, cognitive processes, learning, behaviour and motivation.
- Sleep and fatigue, biorhythms, individual differences and interpersonal relationships.
- Communication and cooperation, team-work of the crew.
- The decision-making process, error and risk.
- The change in the role of a man in air systems, automation.
- Human factor as the most common cause of air accidents.
- Psychological working capability in aviation.
- Education and training of aviation personnel.

1B0L153 Meteorology (second semester, 3 ECTS)

- Atmosphere. Function. Composition. Classification under various factors. Characteristics of basic atmospheric layers.

- Energy potential. Solar radiation. Radiation from the earth's surface. Radiation balance.
- Air temperature. Measurement and temperature scales. Temperature characteristics - averages, extremes. Daily and annual temperature operation. Horizontal and vertical temperature changes. Vertical temperature gradient. Temperature-bedding. Temperature inversion.
- Water in atmosphere. Phase changes of water. Atmospheric moisture. Moisture characteristics. Measurement of moisture. Saturation and overloaded air steam.
- Cloudiness Characteristics. The emergence of clouds. Cloud classification – genetic, morphological.
- Atmospheric precipitation. Definition. Measurement. Theory of precipitation formation. Types. Characteristic.
- Air pressure. Measurement. Units. The equation of hydrostatic equilibrium. Atmospheric models. ISA. Temporal and spatial changes in air pressure. Pressure gradient. Pressure field. Isobars. Isohypes. Action centres of atmosphere.
- Wind. Definition. Measurement. Forces acting on the moving air. Horizontal movements of the air under frictionless. Geostrophic and cyclostrophic wind. Horizontal movements of the air under friction. Wind at ground level and free atmosphere.
- General circulation of the atmosphere. Regularities. Planetary circulation. Circulation models. Tropical circulation. Trade winds. Monsoons. Intertropical convergence zone.
- Local circulation systems. Coastal winds. Slope winds. Orographic winds. Specific types of wind systems.
- Meteorological observations and measurements. Airport climatic station, system of measurements, observations and reporting for aviation. Aerological sounding of Earth's atmosphere. Radar weather information. Satellite weather information.
- Regular and special aviation weather reports. Reports in METAR, SPECI coding.
- Meteorological forecasts for aviation, aerodrome forecast, forecast. Form and content of TREND and TAF forecasts. Weather forecast for low level GAMET.

1B0L151 Economics of Transport (second semester, 5 ECTS)

1. Transport as an economic sector. Functions of transport in the global, national and regional economy. Transport in the European System of National and Regional Accounts (ESA). Classification of transport services.
2. Factors of supply and demand for transport services and their reflection in development trends in the industry at the global and national level. Overview and context of basic development indicators and used analytical methods.
3. Institutional and structural construction of the industry according to its parts in terms of historical development, specifics in world regions and selected countries.
4. Liberalization in the transport sector as part of structural reforms. Progress of liberalization in industry segments in world regions and selected countries. Benefits and risks of liberalization.
5. Privatization in the transport sector as part of structural reforms. Progress of liberalization according to industry segments in world regions and selected countries. Benefits and risks of privatization.
6. Models and forms of competition in transport. Alternatives to assessing the state and effects of competition.

7. Economic regulation as an alternative to liberalization in transport. Methods and scope of economic regulation. Functions of the economic regulator. The difference between the infrastructural stage of the industry and the final stage of the industry in terms of regulation and liberalization. Diversity of solutions in industry segments.
8. Capacity problems in transport and the possibilities of their economic solution.
9. Transport externalities. Classification of transport externalities and the possibility of their financial quantification (overview and essence of methods). Standardized financial values of transport externalities according to the recommendations of international organizations.
10. Approaches to the internalization of transport externalities from the point of view of transport policy instruments. Current position and solutions at the level of the European Union. Alternatives to the internalization of transport externalities.
11. The economic value of time as a concept in the evaluation of investment projects in transport. Overview and essence of methods of economic valuation of time. Standardized financial values of time according to the recommendations of international organizations.
12. Statistical value of human life as a concept in the evaluation of investment projects in transport. Overview and essence of methods of statistical value of human life. Standardized statistical values of human life according to the recommendations of international organizations.
13. Visions of the development of transport as an economic sector. Confrontation of approaches and arguments. Technological conditionality of the future development of transport as an economic sector.

1B0L252 Flight Mechanics (second semester, 5 ECTS)

In the process of education in this course, students will gain professional knowledge in aerodynamics and flight mechanics necessary for the application in practice of aviation and what concerns the analysis of stability and controllability of the aircraft, flight mechanics – basic flight procedures. Knowledge of this course will enable the basic orientation in analysing flight performance and flight characteristics. Preparing term paper, its presentation and defence, the student obtains practical experience with basic methods of design and calculation of the various aerodynamic tasks of flight mechanics and stability of the aircraft.

1B0L253 Air Navigation 1 (second semester, 5 ECTS)

Solar system. Time and time recalculation. Direction, distance.

Magnetism and compasses. Maps, projections. Use of aeronautical maps.

Computer navigation, basic navigation elements.

Navigation triangle, solutions. Implementation of pre-flight navigation preparation.

Navigation in flight.

1B0L254 Aircraft Instruments 1 (second semester, 4 ECTS)

- Definition and distribution of the aircraft instruments and systems, conditions and activities of instruments and transmitters on the aircraft.
- Requirements for aircraft instruments and systems, methods of measurement; errors of measuring instruments. compensating for errors
- Aerometric devices; sensors of aerometric parameters.
- Aircraft altimeters.
- Variometers.
- Airspeed and air machmeters.
- Air data systems.
- Earth's magnetic field, magnetic compasses with a rotary system, induction compasses.
- Theory of classic gyroscopes, artificial horizons.
- Directional gyro, turn indicators and other directional gyroscope instruments.
- Comprehensive flight and navigation instrument systems.
- Motor instruments.

1B0L255 Aircraft 1 (second semester, 5 ECTS)

- The history of the development of the aircraft construction.
- The design of aircraft - development of requirements, conceptual solutions, operating efficiency of the aircraft.
- Distribution of aircraft, definition.
- The load acting on the aircraft – characteristics of external static and dynamic load.
- The design of the wings of the aircraft from the strength point of view – spatial beam.
- Wings of beam structures.
- Wings of the thin-walled structures.
- Wings of the quick aeroplanes, equipment for the increase in lift and resistance. Aircraft fuselages from strength point of view — a spatial beam.
- Altitude cabins of aircraft.
- Stability and manageability of aircraft, their design.
- Aircraft management system.
- Landing equipment of aircraft.

1B0L256 Aircraft Powerplant 1 (second semester, 4 ECTS)

- Propulsion theory – transformation of energy.
- Power and economy of aircraft piston engines.
- Characteristics of aircraft piston engines.
- Characteristics and arrangement of the propeller.
- Dynamics of aircraft piston engines.
- Auxiliary aircraft piston engine system.
- Flight worthiness, monitoring, diagnostics, quality.
- Aircraft turbine engine, power and economy.
- Working substance press, input systems and compressors.
- Combustion and expansion, combustion chambers, turbines, nozzles.
- Balanced and imbalanced operation of the turbine engine.
- Characteristics of aircraft turbine engines.

1B0L351 Organisation and Management of Civil Aviation (second semester, 6 ECTS)

To clarify the principles of the global air transport system and to familiarise students with the most important aspects of air transport of passengers, mail and cargo.

Introduction the air transport. History of air transport. Regulation of air transport. Civil aviation organisations. Commercial and operational airline models. Airline strategies. Global alliances. Comparing the performance of airlines.

1B0L352 Unmanned Aerial Vehicles Operation (second semester, 6 ECTS)

To acquaint students with the operation of UAVs and to prepare them for theoretical tests of UAVs.

Course is focused on the operation of UAVs. Students will learn basic information about unmanned aerial vehicles, their construction, maintenance, usage, control and programming.

1B0L353 Safety Management (second semester, 5 ECTS)

To acquaint students with the issues of safety and safety management in civil aviation. Class will provide an overview of the basic concepts in terms of hazard, risk, accident models and legislation.

Basic concepts of safety and safety management in civil aviation

Hazards

Risk

Models of hazard and risk identification and assessment

Safety management system (SMS)

Legislation

110L102 Communication, Navigation, Surveillance (first semester, 7 ECTS)

To acquaint students with the basic distribution of air security technology and devices carrying function in communication, navigation and surveillance (CNS). The study is aimed at the individual elements of the CNS systems and, in particular, the nature of the physical and operational characteristics of systems.

The development of aviation security technology (ZLT), distribution of services and resources, ANNEX 10, radio frequencies in civil aviation, connection with aircraft and ground connections, distribution of devices for navigation, NDB, VOR, DVOR, VOR signal processing onboard, DVOR, DME systems, ILS systems, MLS, satellite navigation systems (GPS, Glonass, Galileo), radio location, radio location equation, SSR, MSSR, processing radar information, display and processing of radar information, reliability of the equipment and systems.

110L103 Economics of Air Navigation Service Providers (first semester, 6 ECTS)

1. Providers of air navigation services as input-output systems. Demand factors for air navigation services. Air navigation service supply factors
2. Development of organizational and ownership forms of air navigation service providers in world regions and the current state with a focus on the European Union.
3. Financing models of air navigation service providers.
4. Classification of costs and cost management of air navigation service providers.
5. ICAO principles for charging air navigation services, approaches to charging air navigation services in the world.
6. Charging of air navigation services in the European Union from the point of view of historical development. The current system of calculating fees for air navigation services in the European Union and its role in the defragmentation of the European airspace.
7. Models of air traffic development risk distribution and cost development among air navigation service providers and the current solution in the common charging system for air navigation services in the European Union.
8. Economic regulation of air navigation service providers in the European Union in the first, second and third reference periods.
9. Commercial business of air navigation service providers.
10. Economic benchmarking of air navigation service providers with a focus on one-dimensional methods.
11. Economic benchmarking of air navigation service providers with a focus on multidimensional methods.
12. Models of structural reform of the provision of air navigation services.
13. SES2+recast reform in terms of effects on the economy of air navigation service providers

110L104 Planning and Operation in Air Transport Company (first semester, 6 ECTS)

- The operation of the airline from the point of view of the technical and legal requirements of the Slovak Republic and the EU.
- Aircraft performance and flight schedule from the point of view of flight planning
- Preparation of routes and selection of airports in airline planning
- Flight planning in ETOPS conditions
- Specifics of operation and planning in non-scheduled air transport (charter and business airlines)
- Legal and technical aspects of aerial works operation
- Crew planning management in an airline
- Airline operation from the point of view of cost planning
- Logistical and legal aspects of irregular transportation of dangerous goods
- Implementation of the safety management system (SMS)
- Fleet maintenance planning, continuing airworthiness management (CAMO)
- Communication systems in airlines (ADS-B, CPDLC)
- Monitoring and evaluation of air traffic data

110L105 Materials in Aviation (first semester, 6 ECTS)

- Steel and its properties
- Structure of graphitic cast irons
- Aluminum and its alloys
- Titanium and nickel alloys
- Use of metals and their alloys in aviation
- Distribution of plastics
- Use of plastics in aviation
- Basic methods of materials research
- Rubbers and rubbers
- Basics of composite materials
- Testing and service life of composite materials
- Processing of composites and processes for the production of aircraft parts

110L106 Turbine Engine 1 (first semester, 6 ECTS)

- Basic concepts of turbine engine theory.

- Engine power parameters.
- Engine air intakes.
- Compressors of aircraft turbine powerplant.
- Combustion chambers.
- Turbines of aircraft turbine engine.
- Engine exhaust nozzles.
- Structural elements - bearing of rotors, bearings and sealing of bearing spaces.
- Lubricants and fuels - properties, quality and storage.
- Lubrication systems of aircraft turbine engines.
- Fuel control and regulation systems.
- Air systems and air management activities.

110L201 Airport Design and Operation 2 (first semester, 6 ECTS)

The teaching is aimed at the airport operation. Principles and relationships important for the design of airport facilities and airport operations are explained during lectures as well as environmental issues, safety and security problems.

- Technical handling
- Provision of aviation fuel and aircraft performance.
- Airport transportation to and from the airport.
- Airport signage.
- Airport lighting equipment.
- Airport security with electricity.
- Winter operation of airport.
- Fire security.
- Terminal buildings.
- Clearance of cargo.
- Protection against unlawful acts (security).
- Environmental protection.
- Airport wildlife control.

110L202 Technical Aircraft Maintenance 1 (first semester, 5 ECTS)

- Maintenance and repair process.

- Technology and technological maintenance procedures.
- Life restoration of components and units: repair, regeneration, renovation, repair with an extended lifespan.
- Repair dimensions, unconventional methods of renovation and the effectiveness.
- Cleaning and cleaning technology.
- Technology and technological processes of dismantling and type connection assembly.
- Conformance requirements in the context of the aircraft maintenance technology.
- The life of aircraft units.
- Reliability of aircraft units.
- Maintainability of aircraft units.
- Division of aircraft units in terms of aircraft technology maintenance.

110L203 Air Traffic Management 2 (first semester, 6 ECTS)

1. EUROCONTROL teachware – Introduction to ATM
2. Messages exchanged between ANSP and stakeholders,
3. Airspace management,
4. On-line Data Interchange System,
5. Integrated Initial Flight Plan Processing System (IFPS),
6. Air traffic flow and capacity management,
7. Safety management system, Emergency procedures in ATC,
8. Search and rescue,
9. Safety assessment.

110L204 Airports Marketing (first semester, 5 ECTS)

- Introduction to airport marketing - development and current status
- Marketing environment of airports - micro (internal environment) and macro (external) environment
- Airport services market - airport customers, market segmentation
- Marketing research of airports - definition, tasks, methods and nature of marketing research
- Airport product planning - product definition, characteristics and management, airport branding, airport product assessment. Airport marketing planning - examples of good practice.
- The role of marketing in airport pricing - internal and external factors, the impact of marketing on airport costs and revenues, the impact of marketing on airport fees, airport incentive programs
- Promotion of airports - promotional mix, effective marketing communication

- Airport product distribution from a marketing point of view - business to business, business to customer, development of methods and approaches to airport product distribution
- Route development - current trends, legal framework, impact of marketing on airport fees.
- Airport incentive programs, market analysis and data sources.
- Marketing models of cooperation between airlines and airports, airlines' perspective on the development of the airline network, cooperation with other partners in the development of the airline network - examples of good practice
- Marketing tools of sustainable cooperation between airports and airlines, marketing of airports on social networks
- Marketing of regional airports - specifics, trends, examples of good practice

110L206 Basic Machine Parts (first semester, 5 ECTS)

In the process of education in this course, the student will acquire expertise in the design and operation of basic parts of machines and mechanisms. This knowledge is important in obtaining an aircraft maintenance license. By working out the semester work, presenting it and defending it, the student gains practical experience with drawing basic construction shapes and components.

- Structural shapes - chamfers, roundings, intersections, holes
- Structural shapes - cones, hexagons, threads
- Screws and screw connection
- Gear, chain and belt transmissions
- Bearings, shafts, springs
- Welded, soldered and glued joints
- Fundamentals of dimensioning of machine parts
- Joining of machine parts using removable (screw connection; pins, parallel key; groove and prism joints and compressed joints), permanent joint (riveted, welded, soldered and glued joints) with a focus on design, dimensioning and construction
- Shafts, axis and bearing shafts, machine guidance
- Mechanisms of rotational motion transmission
- Shaft couplings
- Pipes and fittings, gaskets

110L207 Maintenance Procedures (first semester, 6 ECTS)

In the process of education in this course, the student will gain expertise in the field of maintenance procedures necessary for application in practice in aviation and in terms of the principles of safe working practices, including measures when working with electricity, gases, especially oxygen, oils and chemicals. Also, instructions for intervention in the event of a fire or other accident involving one or more of the above risks, including knowledge of extinguishing agents.

Course contents:

- Aircraft - workshop safety measures
- Workshop procedures
- Avionics test equipment
- Technical drawings
- Schemes and standards
- Types of bearings and clearances
- Power line interconnection systems
- Methods of protection of power lines in construction
- Joining methods - riveting
- Pipes and hoses
- Springs
- Bearings

110L208 Air Propeller (first semester, 5 ECTS)

Fundamentals of propeller design, function, and construction. Skill development in inspection, servicing, and repair of fixed-pitch, constant-speed, and feathering propellers and governing systems. Instruction in removal, balancing, and installation of propellers and fundamentals of safety are also addressed.

1. Basic propeller theory
2. Propeller Construction
3. Propeller Pitch Control
4. Propeller Synchronizing
5. Propeller Ice Protection
6. Propeller Maintenance
7. Propeller Storage and Preservation

110L153 Air Traffic Management 1 (second semester, 6 ECTS)

- Air navigation services.
- Infrastructure (navigation systems, communication, monitoring systems).
- Air traffic operations in terms of service provision.
- Development of services and environments.

- MLP framework for the provision by ICAO (SARPS), ICAO rule-making.
- Air traffic services (air traffic control service, flight information service, emergency services, air traffic advisory service, TIBA), their tasks.
- Air traffic controllers and technicians CNS.
- Types of separation, application, and calculations associated with ensuring separation.
- Distribution and airspace classification.
- Aeronautical information services, products and tasks.
- Flight procedures, approach segment, type of approach.

110L154 Economics of Air Transport Companies (second semester, 5 ECTS)

1. Vertical and horizontal structure of the air transport. A value formatting chain in the production of air transport services. Economic functions of air infrastructure enterprises. Airports and air navigation service providers as input-output systems.
2. Organisational and ownership form of airports and air navigation service providers. Differences in world region. Motifs, risks and methods of privatisation of air infrastructure enterprises.
2. Costs and cost characteristics of air infrastructure companies.
3. ICAO principles for creating airport charges. EU Directive on airport charges, transposition into Slovak national legislation. Construction of airport charges. Incentive programmes of airports as part of charge policy.
4. ICAO principles for charging air navigation services. EU regulations on charging air navigation services.
4. Economic regulation of airports, methods and extent of economic regulation. State in world region.
5. Economic regulation of air navigation service providers. Models of distribution risk development of the costs and operation.
6. Markets of ground handling airports, charging of ground handling services, models of ground handling services at airports in the EU. New EU initiative in liberalising the markets of ground handling services at airports.
7. Commercial airport operations, organisation of an airport's commercial activities. Alternatives of economic relations of airport and commercial activity providers.
8. Basic financial and economic analysis of airports and air navigation service providers.
9. Airport competition, types of competition and factors of competition airports, spatial competition airports.
10. Allocation of airport slots as economic problem. The primary allocation and secondary trading. State in world region. Alternative solutions of insufficient aeronautic airport capacity.
11. Management of the air navigation service providers according to power with a focus on cost-effectiveness - plans performance in reference periods.

12. Deregulation and economic integration of air infrastructure in the European Union.

110L155 Turbine Engine 2 (second semester, 6 ECTS)

- Engine start-up and ignition systems.
- Engine operation indication systems.
- Performance enhancement systems.
- Turboprop engines.
- Turboshift engines.
- Auxiliary power units.
- Power plant installation.
- Fire protection systems.
- Monitoring and ground operations.
- Engine storage and preservation.
- Impact of operation on aircraft power plant safety, engine monitoring and diagnostics
- Airworthiness and release to service.

110L156 Construction of Aircrafts (second semester, 5 ECTS)

- Construction of airframe airframe - fuselage, wing stabilizer
- Construction of airframe airframe - systems - fuel
- Construction of airframe airframe - systems - avionics
- Construction of airframe airframe - systems - hydraulic
- Construction of airframe airframe - systems - air
- Construction of airframe airframe - systems - landing gear, power units
- Turbine aircraft airframe construction - systems - electric
- Construction of airframe airframe - systems - fire-fighting
- Turbine aircraft airframe construction - systems - control systems
- Turbine airframe design - systems - airborne systems
- Turbine aircraft airframe construction - systems - information systems
- Turbine aircraft airframe construction - systems - auxiliary systems

110L151 Airport Design and Operation 1 (second semester, 6 ECTS)

- Air transport and airports, airport development.
- Legal framework for the development and construction of airports.
- Take-off and landing runways, length of runways and the lengths declared.
- Take-off and landing runway strips and other surfaces.
- Taxiways. Types of structures of airport roadways.
- Load capacity of airport roadways.
- The quality of runway surface and braking effects.
- Airport location and orientation of runway system, obstacle limitation surfaces, operational efficiency.
- Protection of air ground equipment.
- Aprons areas. Technical clearance of aircraft.

110L152 Marketing of the Airlines and Aircraft Manufacturers (second semester, 5 ECTS)

- Basic marketing terms in aviation.
- Customer typology in air transport.
- Market segmentation.
- Product planning for airlines and airports.
- Marketing research.
- Distribution. Cost.
- Price. Promotion.
- Brand.
- Ancillary revenues of airlines.
- Airports, airlines and social media.

110L251 Technical Aircraft Maintenance 2 (second semester, 4 ECTS)

- Maintenance planning, term and capacity planning, capacity calculations.
- Analysis of the maintenance process, material flow analysis, sequential maintenance problems.
- External maintenance planning, maintenance planning in repair workshops.
- Maintenance process management, spare parts management, maintenance ordering.
- Simulation of maintenance problems.

- Maintenance costs.
- Maintenance assessment methods.
- Division of maintenance systems.
- Maintenance scheduled.
- Maintenance managed under reliability.
- Total productive maintenance.
- Methods of diagnosis of aircraft techniques.

110L252 Law of Business and Personal Relations in Aviation (second semester, 4 ECTS)

1. Basics of law (civil law institutes)
2. Basics of commercial law
3. Commercial contract relations (with a focus on relations in aviation)
4. Company law
5. Basic legal institutes of labour law
6. Labour relations (with a focus on aviation)

110L101 Air Traffic Operation (second semester, 4 ECTS)

- Air transport as an operational system
- Operational functions of aviation infrastructure - providers of aviation navigation services
- Operational functions of aviation infrastructure - airports
- Operation of regular personal AT
- Operation of irregular personal AT
- Operation of cargo AT
- Operation of general aviation
- Operation of business aviation
- Aircraft operating parameters
- Analytical methods of evaluating operational indicators of air transport entities
- Air transport and the environment
- Operational approaches of air transport entities to reducing negative effects on the environment
- Air transport in the EU as part of the strategy to reduce negative climate impacts (Green Deal)

110L253 Airports Economics (second semester, 3 ECTS)

The student has the theoretical knowledge necessary for processing specific economic indicators of airports. It is able to implement economic benchmarking of airports using alternative methods, taking into account contextual factors, such as the regulatory framework, or competition of airports. The student is able to identify business models of airports for the purposes of economic management of airports and understands the operational conditions of economic management of airports. The student is able to present the results of his own case study in the field of state aid of a specific airport (group of airports) to experts and discuss relevant professional questions from the economy of airports in relation to state aid to airports.

1. Economic product of airports, models of vertical links of airports and air carriers.
2. Development of organizational and ownership forms of airports in world regions.
3. Financing of airports, ICAO rules for the creation of airport fees. Airport fee policy.
4. Economic regulation and competition of airports.
5. State aid to airports, rules of state aid to airports in the European Union.
6. Economic benchmarking of airports.