



## RTU Course "Aircraft Airframe and Systems"

15E03 Lidaparātu teorijas un konstrukcijas katedra

### General data

Code	TAK305
Course title	Aircraft Airframe and Systems
Course status in the programme	Compulsory/Courses of Limited Choice
Course level	Undergraduate Studies
Course type	Professional
Field of study	Transport
Responsible instructor	Kleinhofs Mārtiņš
Academic staff	Hauka Māris
Volume of the course: parts and credits points	1 part, 2.0 Credit Points, 3.0 ECTS credits
Language of instruction	LV, EN, RU
Possibility of distance learning	Not planned
Abstract	Survey of Aircraft modifications. Aircraft structures in details: fuselage, wing, stabilizer, control surfaces and wing mechanization construction. Take-off and landing equipment. Flight control system. Hydraulic system. Fluid and gas systems. Passenger life support and saving systems. Influence of operation factors on function and technical condition of fluid and gas systems. Knowledge is given for middle and long range aircrafts and its systems.
Goals and objectives of the course in terms of competences and skills	To know civil aircraft main classifications and to be able to recognize and describe them. To gain the ability to analyze the aircraft body, landing gear, control system construction and they operation. To know aircraft systems and the basic unit operation.
Structure and tasks of independent studies	Available information and literature studies; to study operation of the chosen aircraft unit. To develop individual work about chosen aircraft unit, based on research. To protect individual work while performing presentation. To perform practical tasks about unit function.
Recommended literature	1. A&P Technician Airframe Textbook. Colorado: Jeppesen Sanderson, Inc. 2002. 650p. 2. Airframe and Powerplant Mechanics. Airframe Handbook. US Department of Transportation. Federal Aviation Administration. New Delhi: Himalayan Books.1994, 630p. 3. Chris Brady The Boeing 737 Technical Guide. 2006.-362pp. 4. Kroes M.I., William A. Watkins, Frank Delp. Aircraft Maintenance. Repair. Sixth Edition, New York, 2002, 650p. GLENCOE Aviation Technology Series 5. Airplane Structure and Strength Analysis. Part 2. RTU, Riga 2002.g. 102p. 6. Paramonov Yu.M. Aeroplane structure and strength analysis. Part 1. Riga: RTU, 2008. -121.p.
Course prerequisites	Aerodynamic; Materials and hardware; Aviation electric and electric equipment; Aircraft and engine theory its strength and design; Elementary computer skills; English language.

### Course outline

Theme	Hours
Aircraft design modification and its significance	2
Airframe structures (fuselage, wing, empennage)	2
Aircraft control surfaces, lift and drag regulating equipment	2
Take-off and landing equipment	4
Flight control systems	4
Aircraft fluid and gas general description (hydraulic, fuels, pneumatic systems)	4
Aircraft passenger life support systems (oxygen, Air conditioning and cabin pressurization systems, Equipment and furnishings)	2
Aircraft safety systems (fire safety and de-icing systems)	4
Aircraft water, waste, emergency and rescue systems	2
Practical work	6

### Learning outcomes and assessment

Learning outcomes	Assessment methods
Student knows civil aviation aircraft general structure	Practical work, practical tasks, test, exam
Student knows system basic units and how they operate	Practical work, practical tasks, test, exam
Student is able to recognize aircraft systems and they basic units	Practical work, practical tasks, test, exam
Student knows in details aircraft hull, chassis and control system design and operation	Practical work, practical tasks, test, exam
Student know system failure results	Practical work, practical tasks, test, exam

### Study subject structure

Part	CP	ECTS	Hours per Week			Tests		
			Lectures	Practical	Lab.	Test	Exam	Work
1.	2.0	3.0	1.0	1.0	0.0		*	