



RTU Course "Fundamentals of Aircraft Manufacturing Technology"

15E01 Aeronautikas tehnoloģiju katedra

General data

Code	TAS308
Course title	Fundamentals of Aircraft Manufacturing Technology
Course status in the programme	Compulsory/Courses of Limited Choice
Course level	Undergraduate Studies
Course type	Professional
Field of study	Materials Science
Responsible instructor	Ozoliņš Ēriks
Academic staff	Pavelko Vitālijs
Volume of the course: parts and credits points	1 part, 3.0 Credit Points, 4.5 ECTS credits
Language of instruction	LV, EN, RU
Possibility of distance learning	Not planned
Abstract	Technological properties of aircraft ferrous and non-ferrous metals. Metal treatment types for aircraft details manufacturing: mechanical, heat and chemical thermal treatment. Metal mechanical treatment types: punching, pressing, turning, grinding, milling, drilling, etc. Aircraft technological dividing. Interchangeability problems. Methods of aircraft montage technologies. Aircraft details connections. Screw and bolt connections. Riveting. Welding. Brazing and soldering. Glueing. Particularities of composite treatment. Automation of manufacturing processes. Quality control.
Goals and objectives of the course in terms of competences and skills	To learn the aviation materials technological properties, ways and modes of machining. To master basics of aircraft manufacturing techniques from composite materials.
Structure and tasks of independent studies	Performing of the abstract about aircraft manufacturing techniques or about one of the materials treatment methods. Independent work with the literature and Internet. Independent performing to control work.
Recommended literature	<ol style="list-style-type: none"> 1. Pavelko V. Gaisakuģu ražošanas tehnoloģija: lekciju konspekts. - Rīga, RTU:2002.- 72 lpp. 2. Cindy Foreman. Advanced Composites, Jeppesen Maintenance 2002. 3. Aircraft Systems & Components: Topical Maintenance Books. - Jeppesen Publish. 2000.- 215 pp. 4. Aircraft Hardware: A&P Technician General Textbook. Chapter 8. - US Department of Transportation. FAA. 2001, 584 pp. 5. Nondestructive Testing: A&P Technician General Textbook. Chapter 11. - US Department of Transportation. FAA. 2001, 584 pp. 6. Airframe and Powerplant Mechanics Handbook: US Department of Transportation. FAA,1991. 500 lpp.
Course prerequisites	Mathematics

Course outline

Theme	Hours
Technological properties of aircraft ferrous and non-ferrous metals.	4
Metal mechanical treatment types for aircraft details manufacturing.	8
Methods of aircraft montage technologies. Aircraft details connections. Screw and bolt connections.	4
Riveting.	6
Welding. Brazing and soldering.	8
Glueing. Particularities of composite treatment, their application in aircraft manufacturing.	8
The aircraft fuselage and wings manufacturing techniques and used composite materials.	10

Learning outcomes and assessment

Learning outcomes	Assessment methods
Knows technological properties of metals, ways of machining and aircraft details connection.	Control work; Examination.
Knows the essence of the aluminium plates riveting, steel details welding and composite materials gluing works processes.	Abstract; Examination.
Is able to work with composite materials and knows techniques of aircraft manufacturing from composite materials.	Practical work: Composite materials glueing; Examination.

Study subject structure

Part	CP	ECTS	Hours per Week			Tests		
			Lectures	Practical	Lab.	Test	Exam	Work
1.	3.0	4.5	2.0	0.5	0.5		*	