



RTU Course "Vehicle Loading, Safe - Life and Inspection"

15E03 Lidaparātu teorijas un konstrukcijas katedra

General data

Code	TAK302
Course title	Vehicle Loading, Safe - Life and Inspection
Course status in the programme	Compulsory/Courses of Limited Choice; Courses of Free Choice
Course level	Undergraduate Studies
Course type	Academic
Field of study	Transport
Responsible instructor	Paramonovs Jurijs
Academic staff	Kleinhofs Mārtiņš
Volume of the course: parts and credits points	1 part, 2.0 Credit Points, 3.0 ECTS credits
Language of instruction	LV, EN
Possibility of distance learning	Not planned
Maximum auditorium capacity	30
Maximum number of students per semester	30
Abstract	Transport vehicle structure loading processes and models. Models of metal and composite fatigue. Calculation of airplane specified life and inspection planning using fatigue test results.
Goals and objectives of the course in terms of competences and skills	Students are required to obtain knowledge about airplane flight loads; to understand the connection of loads, airplane strength and fatigue life; to be able to do load analysis; to obtain knowledge about fatigue failure prevention methods and their application.
Structure and tasks of independent studies	Work with the textbook and internet. Students are required to work out and defend the laboratory works. Using the theory of Fourier series, it is necessary to make analysis of wing stress realization connection with wind gust process realization.
Recommended literature	1. Paramonovs Ju.M., Paramonova A. Ju. Transporta līdzekļu slodzes, resurss un drošums. -Rīga: RTU, 2002. - 108 lpp. 2. Paramonov Yu. M. Aircraft fatigue problem solution by the use of modern mathematical statistics methods. // AVIATION, #6. Vilnius: Technika, 2002. – pp. 83-96.
Course prerequisites	Mathematics, theory of probability and mathematics statistics, strength of materials.

Course outline

Theme	Hours
Structure strength requirement. Laboratory work.	2
Loading processes in linear system. Laboratory work.	6
Design load cases for strength analysis.	6
Airplane structure fatigue problem.	4
Specified life calculation. Laboratory work.	6
Estimation of survivability.	2
Inspection program planning. Laboratory work.	6

Learning outcomes and assessment

Learning outcomes	Assessment methods
Acquaintance with airplane strength requirements.	Laboratory works, test.
Knowledge about the specific airplane structure loading process analysis method.	Laboratory works, test.
To be able to use specified life calculation methods.	Laboratory works, test.
To be able to use inspection planning methods.	Laboratory works, test.
To be able to do the airplane loading process analysis and use fatigue failure danger elimination methods.	Examination.

Study subject structure

Part	CP	ECTS	Hours per Week			Tests			Tests (free choice)		
			Lectures	Practical	Lab.	Test	Exam	Work	Test	Exam	Work
1.	2.0	3.0	1.0	0.5	0.5		*			*	