RTU Course "Master Thesis"

15E03 Lidaparātu teorijas un konstrukcijas katedra

General data

Code	TAS002
Course title	Master Thesis
Course status in the programme	Graduation Test
Course level	Post-graduate Studies
Course type	Academic
Responsible instructor	Pavelko Vitālijs
Volume of the course: parts and credits points	1 part, 20.0 Credit Points, 30.0 ECTS credits
Language of instruction	LV, EN, RU
Possibility of distance learning	Not planned
Abstract	A theme must be selected from the list. A theme should be connected with aerodynamics of aircraft, strength, non-destructive methods, and other scientific and technological problems. Initial research includes wide literature review. Research aims and tasks should be formulated, methods should be defined, and experimental data should be selected. Research can be theoretical, experimental or combined. Theoretical problems can be solved analytically, using mechanics, aerodynamics, elasticity theories, and fracture mechanics methods. In an experiment data on the investigated phenomenon and its properties can be obtained using laboratory equipment and samples.
Goals and objectives of the course in terms of competences and skills	As a result of master thesis preparation knowledge and practical skills on the following matters should be obtained: 1. Formulation of scientific problems. 2. Aerodynamics and force analysis and planning of experiments. 3. Laboratory experiments. 4. Methods of data processing. 5. Presentation preparation.
Recommended literature	1) Maltbaek J.C. Essential Engineering Dynamics. Crosby Lockwood Staples. London.1998. 2) V.Pavelko. Aviācijas konstrukciju mehānika // Lekciju konspekts. - Rīga, RTU, 2003.- 69 lpp. 3) Foundations of Aerodynamics: Basis of Aerodynamic Design, 5/e Arnold M. Kuethe and Chung-Yen Chow John Wiley & Sons, Inc., 1997 ISBN 1-12919-4, 572 pages 4) Aerodynamics, Aeronautics, and Flight Mechanics, 2/e Barnes W. McCormick// John Wiley & Sons, Inc., 1995 ISBN 0-471-57506-2 672 pages 5) Pavelko V. Materiālu pretestība: 1.un 2.daļa. Rīga: RAU, 1999. 6) Pavelko V. Gaisakuģu aerodinamika. RTU, 2009.-255 lpp. 7) V. Pavelko. Sagrūšanas mehānika. Lekciju konspekts– Rīga: RTU, 2006. – 45 lpp. 8) Fracture Mechanics//M. Janssen, J. Zuidema, R.J.H. Wanhill, (2002) ISBN 90-407-2221-8 9) Anderson, T. L. 1994. Fracture Mechanics: Fundamentals and Applications, 2nd ed., CRC Press, Boca Raton, FL. 10) Boresi, A. P. and Chong, K. P. Elasticity in Engineering Mechanics, 2nd ed. New York: Wiley, 1999. 11) V. Pavelko. Elastības teorija. Lekciju konspekts – Rīga: RTU, 2005. – 85 lpp.

Learning outcomes and assessment

Learning outcomes	Assessment methods
Ability to analyze scientific problem and formulate its solution methods.	Results' discussion, presentation at seminars and conferences, and final presentation.
Be able to use mechanics, aerodynamics, theory of elasticity, fracture mechanics and other scientific methods for analytical solution of a problem	Results' discussion, presentation at seminars and conferences, and final presentation.
Be able to plan and perform experiments, and use their results in mechanics, aerodynamics, NDT, theory of elasticity, fracture mechanics and others areas.	Results' discussion, presentation at seminars and conferences, and final presentation.
Ability to use the result of research in practice.	Results' discussion, presentation at seminars and conferences, and final presentation.

Study subject structure

Part	CP	ECTS	Hours per Week			Tests		
			Lectures	Practical	Lab.	Test	Exam	Work
1.	20.0	30.0	0.0	0.0	0.0			*