



RTU Course "Lifting and Transporting Machines"

15325 Teorēt.mehānikas un materiālu pretestības katedra

General data

Code	MTH507
Course title	Lifting and Transporting Machines
Course status in the programme	Compulsory/Courses of Limited Choice
Course level	Post-graduate Studies
Course type	Academic
Field of study	Mechanics, Mechanical Engineering, Machine Building
Responsible instructor	Vība Jānis
Academic staff	Grāpis Ojārs
Volume of the course: parts and credits points	1 part, 4.0 Credit Points, 6.0 ECTS credits
Language of instruction	LV, RU
Possibility of distance learning	Not planned
Maximum auditorium capacity	25
Maximum number of students per semester	50
Abstract	Ways of transferring/shifting hard objects, liquids, loose and other materials, the physical and mechanical issues of their transfer. Design and exploitation of the machines used in the agriculture, processing industries (mainly food, woodprocessing, construction materials) and service industries (mainly cargo transit, transport, seaport).
Goals and objectives of the course in terms of competences and skills	To acquaint students with the calculations and design of the lifting and transporting machines. In order to achieve this aim the following tasks should be fulfilled: 1st Analyse the fundamental relationships of the kinematics and dynamics of lifting equipment. 2nd Teach students how to solve the task on lifting equipment applying the computer programs. 3rd Improve students' knowledge of technology related to the lifting and transporting machinery. 4th Teach students the skills required to be proficient in the assessment of the machinery, construction machinery and engineering facilities.
Structure and tasks of independent studies	Within the framework of the present course the students should perform independent work on the following themes: 1st Solving the civil engineering and transport machinery tasks applying the MathCAD program. 2nd Modelling the civil engineering and transport machinery tasks applying the Working Model. 3rd Calculating force applying the Solid Work Program.
Recommended literature	O. Kepe J. Vība, Teorētiskā mehānika, Rīga, Zvaigzne, 1982.g., 577. lpp; O. Kepe J. Vība, Teorētiskā mehānika, Dinamika I., Rīga, RTU, 1981., 259.lpp. O. Kepe J. Vība, Teorētiskā mehānika, Dinamika II., Rīga, RTU, 1996.g., 173. lpp.
Course prerequisites	Math. Mechanics. Physics.

Course outline

Theme	Hours
Introduction to lifting and transporting machinery	8
Lifting and transporting machinery theory	8
Lifting and transporting machinery and computer modeling	8
Lifting and transporting machinery analysis, optimization and synthesis	8
Lifting and transporting machinery design	8
Lifting process modelling	8
Lifting and transporting machine element calculation	8
Crane accident analysis process	8

Learning outcomes and assessment

Learning outcomes	Assessment methods
At the end of the course students will examine the processes in nature in different forms.	Laboratory work.
At the end of the course students will be able to provide examples of object lifting positions.	Practical work.
At the end of the course students will be able to analyze the lifting and transporting machinery.	Questions the end of the lecture.
At the end of the course students will be able to distinguish between the tasks on lifting technics and the tasks on technology.	Assessment test
At the end of the course students will be able to formulate construction site analysis tasks.	Assessment test
At the end of the course students will be able to evaluate the role of the transport machinery technology.	Exam

Study subject structure

Part	CP	ECTS	Hours per Week			Tests		
			Lectures	Practical	Lab.	Test	Exam	Work
1.	4.0	6.0	2.0	2.0	0.0		*	