

Faculty of Mechanical Engineering / MECHATRONICS / MECHANISM SYNTHESIS

Course:	MECHANISM SYNTHESIS			
Course ID	Course status	Semester	ECTS credits	Lessons (Lessons+Exercises+Laboratory)
12329	Optional	3	6	2+2+0
Programs	MECHATRONICS			
Prerequisites	None.			
Aims	Acquaintance with the basic procedures and methods of design - synthesis of mechanisms, as a segment of the Theory of machines and mechanisms			
Learning outcomes	After passing the exam in this subject, students will be able to: 1. Synthesis of four-membered lever mechanisms as generators of movement and trajectory of a point; 2. Synthesis of cam mechanisms; 3. Synthesis planetary gears; 4. Considers the problem of optimal synthesis of mechanisms.			
Lecturer / Teaching assistant	Prof. dr Radoslav Tomović			
Methodology	Classical lectures.			
Plan and program of work				
Preparing week	Preparation and registration of the semester			
I week lectures	Synthesis of mechanisms: introduction;			
I week exercises	Synthesis of mechanisms: introduction;			
II week lectures	Synthesis of four-member lever mechanisms: general part;			
II week exercises	Synthesis of four-member lever mechanisms: general part;			
III week lectures	Synthesis of four-member lever mechanisms: motion generator,			
III week exercises	Synthesis of four-member lever mechanisms: motion generator,			
IV week lectures	Synthesis of four-member lever mechanisms: trajectory generator,			
IV week exercises	Synthesis of four-member lever mechanisms: trajectory generator,			
V week lectures	Synthesis of four-member lever mechanisms: function generator;			
V week exercises	Synthesis of four-member lever mechanisms: function generator;			
VI week lectures	Synthesis of multi-member lever mechanisms;			
VI week exercises	Synthesis of multi-member lever mechanisms;			
VII week lectures	Synthesis of cam mechanisms: general part;			
VII week exercises	Synthesis of cam mechanisms: general part;			
VIII week lectures	Synthesis of cam mechanisms: equations of pile movement;			
VIII week exercises	Synthesis of cam mechanisms: equations of pile movement;			
IX week lectures	Synthesis of cam mechanisms: depending on the type of pile and the type of cam plate;			
IX week exercises	Synthesis of cam mechanisms: depending on the type of pile and the type of cam plate;			
X week lectures	Synthesis of planetary gears: general part;			
X week exercises	Synthesis of planetary gears: general part;			
XI week lectures	Synthesis of planetary gears: synthesis conditions;			
XI week exercises	Synthesis of planetary gears: synthesis conditions;			
XII week lectures	Synthesis of planetary gears:			
XII week exercises	Synthesis of planetary gears:			
XIII week lectures	Complex problems of mechanism synthesis;			
XIII week exercises	Complex problems of mechanism synthesis;			
XIV week lectures	Complex problems of mechanism synthesis;			
XIV week exercises	Complex problems of mechanism synthesis;			
XV week lectures	On the optimal synthesis of mechanisms;			

XV week exercises		On the optimal synthesis of mechanisms;				
Student workload						
Per week		Per semester				
6 credits x 40/30=8 hours and 0 minuts 2 sat(a) theoretical classes 0 sat(a) practical classes 2 excercises 4 hour(s) i 0 minuts of independent work, including consultations		Classes and final exam: 8 hour(s) i 0 minuts x 16 =128 hour(s) i 0 minuts Necessary preparation before the beginning of the semester (administration, registration, certification): 8 hour(s) i 0 minuts x 2 =16 hour(s) i 0 minuts Total workload for the subject: 6 x 30=180 hour(s) Additional work for exam preparation in the preparing exam period, including taking the remedial exam from 0 to 30 hours (remaining time from the first two items to the total load for the item) 36 hour(s) i 0 minuts Workload structure: 128 hour(s) i 0 minuts (cources), 16 hour(s) i 0 minuts (preparation), 36 hour(s) i 0 minuts (additional work)				
Student obligations		Active participation in classes.				
Consultations						
Literature		1) T.Pantelić G.Ćulafić: MEHANIZMI- Sinteza mehanizama; 2) Radovan Martinović : Mehanizmi I dinamika mašina.				
Examination methods		- Technical processing of homework 20 points; - Homework defense 40 points; Final test - exam 40 points. A passing grade is obtained if at least 50 points are accumulated cumulatively				
Special remarks						
Comment						
Grade:	F	E	D	C	B	A
Number of points	less than 50 points	greater than or equal to 50 points and less than 60 points	greater than or equal to 60 points and less than 70 points	greater than or equal to 70 points and less than 80 points	greater than or equal to 80 points and less than 90 points	greater than or equal to 90 points