

COURSE: MACHINE MECHANICS		
DEGREE: Industrial Electronics and Automation Engineering	YEAR: 2º	TERM: 1º

WEEKLY PLANNING								
WEEK	SESSION	DESCRIPTION	TEACHING (mark X)		SPECIAL ROOM FOR SESSION (Computer class room, audio-visual class room)	WEEKLY PROGRAMMING FOR STUDENT		
			L E C T U R E S	S E M I N A R S		DESCRIPTION	CLASS HOURS (1,66=50+50 min)	HOMEWORK HOURS (Max. Estim. 6,5h)
1	1	LESSON 1: INTRODUCTION TO MECHANICS			NO	Previous Reading of the proposed LESSON. Study the concepts of vectorial calculus, rational mechanics,international system of units ad kinematics of the point.	1,66	6,0
	2	EXERCISES OF BASIC MECHANICAL CONCEPTS	X		NO	Solve the exercises proposed for class and similar exercises of the booklet	1,66	
2	3	LESSON 2: KINEMATICS OF THE RIGID BODY			NO	Previous Reading of the proposed LESSON. Study the concepts of orthonormal bases, traslation and rotation of the rigid body. Instantaneous center of rotation. Study the concepts of intrinsic components, absolute motion, relative and drag.	1,66	6,0
	4	EXERCISES OF KINEMATICS OF THE RIGID BODY	X		NO	Solve the exercises proposed for class and similar exercises of the booklet	1,66	
3	5	LESSON 3.1: DYNAMICS OF THE RIGID BODY I			NO	Previous Reading of the proposed LESSON. Study the concepts of dynamics of the particle, motion of the centre of mass, planar motion and rotation of the rigid body in this lesson. Three dimensional dynamics of the rigid body.	1,66	6,0
	6	EXERCISES OF DYNAMICS OF THE RIGID BODY	X		NO	Solve the exercises proposed for class and similar exercises of the booklet	1,66	

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4	7	LESSON 3,2: DYNAMICS OF THE RIGID BODY II			NO	Previous Reading of the proposed LESSON. Study the concepts of three dimensional dynamics of the rigid body.	1,66	6,0
	8	LAB 1: GYROSCOPE	X		SI	Study the document of the lab and write down the memoire	1,66	
5	9	LESSON 3.3: DYNAMICS OF THE RIGID BODY III			NO	Previous Reading of the proposed LESSON. Study the concepts of three dimensional dynamics of the rigid body. Gyroscopic motion and free motion.	1,66	6,0
	10	LAB 2: AXIS EQUILIBRIUM	X		SI	Study the document of the lab and write down the memoire	1,66	
6	11	1ST EXAM OF CONTINUOUS EVALUATION ABOUT KINEMATICS AND DYNAMICS OF THE RIGID BODY (*)			NO	Revise the LESSONS and proposed exercises given in class to prepare the exam	1,66	6,5
	12	EXERCISES OF DYNAMICS OF THE RIGID BODY	X		NO	Solve the exercises proposed for class and similar exercises of the booklet	1,66	
7	13	LESSON 4: INTRODUCTION TO PLANAR MECHANISMS			NO	Previous Reading of the proposed LESSON. Study the concepts of mechanism, machine and components. Determination of the DOF. Determination of the relative ICR..	1,66	6,0
	14	EXERCISES OF PLANAR MECHANISMS	X		NO	Solve the exercises proposed for class and similar exercises of the booklet	1,66	
8	15	LESSON 5.1: KINEMATICS OF PLANAR MECHANISMS I			NO	Previous Reading of the proposed LESSON. Determination of the velocity in the elements of the planar mechanism. Polar diagrams of velocities	1,66	6,0
	16	EXERCISES OF KINEMATICS OF PLANAR MECHANISMS-VELOCITIES	X		NO	Solve the exercises proposed for class and similar exercises of the booklet	1,66	
9	17	LESSON 5.2: KINEMATICS OF PLANAR MECHANISMS II			NO	Previous Reading of the proposed LESSON. Determination of the acceleration in the elements of the planar mechanism. Polar diagrams of accelerations	1,66	6,0
	18	EXERCISES OF KINEMATICS OF PLANAR MECHANISMS-ACCELERATIONS	X		NO	Solve the exercises proposed for class and similar exercises of the booklet	1,66	
10	19	LESSON 6.1: DYNAMICS OF PLANAR MECHANISMS I			NO	Previous Reading of the proposed LESSON. Superposition principle, Kineto-statics analysis and principle of virtual works	1,66	6,0

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	20	EXERCICES OF PLANAR MECHANISMS-STATIC EQUILIBRIUM	X		NO	Solve the exercises proposed for class and similar exercises of the booklet	1,66	
11	21	LESSON 6.2: DYNAMICS OF PLANAR MECHANISMS II			NO	Previous Reading of the proposed LESSON. Equivalent Inertia forces. Complete dynamic analysis.	1,66	6,0
	22	EXERCICES OF DYNAMICS OF PLANAR MECHANISMS	X		NO	Solve the exercises proposed for class and similar exercises of the booklet	1,66	
12	23	LESSON 7: WORK, ENERGY AND EFFICIENCY IN PLANAR MECHANISMS			NO	Previous Reading of the proposed LESSON. Kinetic Energy of the mechanisms, efficiency, PVW in dynamic analysis	1,66	6,0
	24	EXERCICES OF WORK AND ENERGY OF PLANAR MECHANISMS	X		NO	Solve the exercises proposed for class and similar exercises of the booklet	1,66	
13	25	REVISION OF CONCEPTS WITH A COMPLETE EXERCISE OF PLANAR MECHANISMS			NO	Previous Reading of the proposed LESSON. Complete exercise (exam exercise)	1,66	6,5
	26	LAB 3: LEARNING OF THE SOFTWARE FOR THE DESIGN AND ANALYSIS OF PLANAR MECHANISMS	X		YES	Study the document of the lab and write down the memoire	1,66	
14	27	2ND TEST OF CONTINUOUS EVALUATION (*)				Previous Reading of the proposed LESSON. Study the concepts of work, power, kinetic and potential energy. Analyze the friction forces and the concept of mechanical efficiency.	1,66	6,0
	28	LAB 4: MECHANISM DESIGN AND ANALYSIS WITH SOFTWARE	X		YES	Study the document of the lab and write down the memoire	1,66	
	29						1,66	
Subtotal 1							48	85
Total 1 (Hours of class plus student homework)							133	
15		Tutorials, handing in, etc					3,6	-
16	17	Assessment					4	10
18								
Subtotal 2							8	10
Total 2 (Hours of class plus student homework)							18	

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TOTAL (Maximun 160 horas)						151		