uc3m | Universidad Carlos III de Madrid
Vicerrectorado de Estudios
Apoyo a la docencia y gestión del grado

COURSE: Mechanical vibrations fundamentals		
DEGREE: MECHANICAL ENGINEERING	YEAR: 2	TERM: 1

WEEKLY PLANNING

WEEK	SESSION	DESCRIPTION	TEACHING (mark X)		SPECIAL ROOM FOR SESSION (Computer class room, audio-visual class room)	WEEKLY PROGRAMMING FOR STUDENT		
			LECTURES	SEMINARS		DESCRIPTION	CLASS HOURS (1,66=50+50 min)	HOMEWORK HOURS (Max. Estim. 3,25h)
1	1	Introduction to differential calculus	X		no	The fundamental concepts of differential calculus and linear differential equations will be reviewed.	1,66	3,25
2	2	Linear differential equation problems		X	no	Linear differential equation problems	1,66	3,25
3	3	Numerical methods for calculating differential equations	X		no	Methods for solving differential equations will be presented, focusing on numerical methods	1,66	3,25
4	4	LABORATORY 1: Introduction to MATLAB	X		no	They will introduce the use of MATLAB to solve differential equations	1,66	3,25
5	5	Problems of numerical solving of differential equations		X	no	Linear differential equation problems will be solved using numerical methods by MATLAB	1,66	3,25
6	6	Introduction to mechanical vibrations	X		no	It will be reviewed the fundamental concepts related to mechanical vibrations	1,66	3,25
7	7	Mechanical vibration problems in 1 DOF systems		X	no	It will be solved vibration problems in 1 DOF systems	1,66	3,25
8	8	Forced vibrations	X		no	Fundamental concepts related to forced vibrations will be reviewed	1,66	3,25

WEEKLY PLANNING

WEEK	SESSION	DESCRIPTION	TEACHING (mark X)		SPECIAL ROOM FOR SESSION (Computer class room, audio-visual class room)	WEEKLY PROGRAMMING FOR STUDENT		
			LECTURES	SEMINARS		DESCRIPTION	CLASS HOURS (1,66=50+50 min)	HOMEWORK HOURS (Max. Estim. 3,25h)
9	9	Forced vibration problems		X	no	Forced vibration problems will be solved	1,66	3,25
10	10	LABORATORY 2. Analysis of the behavior of a 1 DOF system using MATLAB		X	no	The behavior of a 1 DOF system will be analyzed using MATLAB	1,66	3,25
11	11	Mechanical vibration in 2 DOF systems	X		no	Fundamental concepts related to vibrations in 2 DOF systems will be reviewed	1,66	3,25
12	12	Mechanical vibration problems in 2 DOF systems		X	no	It will be solved vibration problems in 2 DOF systems	1,66	3,25
13	13	Vibrations in N DOF systems	X		no	The fundamental concepts related to vibrations in N DOF systems will be reviewed.	1,66	3,25
14	14	Mechanical vibration problems in N DOF systems		X	no	Vibration problems in N DOF systems	1,66	3,25
	15	Additional session					1,66	3,25
						Subtotal 1	**25**	**49**
						Total 1 *(Hours of class plus student homework)*	**74**	
15		Tutorials, handing in, etc					1,8	-
16		Assessment					4	4
17								
18								
						Subtotal 2	**6**	**4**
						Total 2 *(Hours of class plus student homework)*	**10**	
TOTAL *(Maximun 83 horas)*							**83**	