



COURSE:		
POSTGRADE: UNIVERSITY MASTER OF MACHINES AND TRANSPORTS Teacher: MARCOS RODRIGUEZ MILLAN	ECTS: 6	TERM: 1

WEEKLY PLANNING								
WEEK	SESSION	DESCRIPTION	GROUP		Special room for session (computer classroom, audio-visual classroom ...)	WEEKLY PROGRAMMING FOR STUDENT		
			1	2		DESCRIPTION	CLASS HOURS	HOMEWORK HOURS Max 7 H per week
1	1	Introduction to machining process	X				1h30	
1	2	Interest of high speed cutting process: advantages and limitations Proposal of research projects.	X			Review notes and knowledge seen in the previous class	1h30	1h
2	3	Introduction of modelling of process. Show the different models are in the literature (analytical, numerical and phenomenological) Advantages and limitations of them.	X			Review notes and knowledge seen in the previous class	1h30	1h
2	4	Calculate of cutting force (orthogonal and oblique cutting process) and the length of contact.	X			Review notes and knowledge seen in the previous class	1h30	1h
3	5	Description of Mechant model. Hypothesis of model / critics/ improvements.	X			Review notes and knowledge seen in the previous class	1h30	1h



3	6	Importance of good description of material behavior of materials in order to use the cutting models (analytical and numerical). Obtain the strain and strain rate in the shear primary region	X		Computer classroom	Review notes and knowledge seen in the previous class	1h30	1h
4	7	Flow stress. Description of the different flow stress (for metals) of the literature. Determination of material parameters of Johnson-Cook model and types of tests in order to obtain them.	X		Computer classroom	Review notes and knowledge seen in the previous class	1h30	1h
4	8	Effect of material behavior in machining. Differences between metals and composites.	X		Computer classroom	Review notes and knowledge seen in the previous class	1h30	1h
5	9	Importance of the temperature in machining process: obtaining of damage (mechanical and thermica) due to cutting process.	X		Computer classroom	Review notes and knowledge seen in the previous class	1h30	1h
5	10	Description of Molinari model. Hypothesis of model (I)	X			Review notes and knowledge seen in the previous class	1h30	1h
6	11	Description of Molinari model. Hypothesis of model (II)	X			Review notes and knowledge seen in the previous class	1h30	1h
6	12	Non-conventional machining process (Electroerosion, ultrasounds, ...) (I)	X			Review notes and knowledge seen in the previous class	1h30	1h
7	13	Non-conventional machining process (Electroerosion, ultrasounds, ...) (II)	X			Review notes and knowledge seen in the previous class	1h30	1h



7	14	Non-conventional machining process (Electroerosion, ultrasounds, ...) (III)	X			Review notes and knowledge seen in the previous class	1h30	1h
8	15	Non-conventional machining process (Electroerosion, ultrasounds, ...) (IV)	X			Review notes and knowledge seen in the previous class	1h30	1h
8	16	Cutting tool for machining. Features (I)	X			Review notes and knowledge seen in the previous class	1h30	1h
9	17	Cutting tool for machining. Features (II)	X			Review notes and knowledge seen in the previous class	1h30	1h
9	18	Manufacturing in Motorsport industry (I)	X			Review notes and knowledge seen in the previous class	1h30	1h
10	19	Manufacturing in Motorsport industry (II)	X			Review notes and knowledge seen in the previous class	1h30	1h
10	20	Manufacturing in Motorsport industry (III)	X			Review notes and knowledge seen in the previous class	1h30	1h
11	21	Manufacturing in Motorsport industry (IV)	X			Review notes and knowledge seen in the previous class	1h30	1h



11	22	Manufacturing in mechanical industry (6 engines, transmissions, ..) (I)	X			Review notes and knowledge seen in the previous class	1h30	1h
12	23	Manufacturing in mechanical industry (6 engines, transmissions, ..) (II)	X			Review notes and knowledge seen in the previous class	1h30	1h
12	24	Manufacturing in mechanical industry (6 engines, transmissions, ..) (III)	X			Review notes and knowledge seen in the previous class	1h30	1h
13	25	Manufacturing in mechanical industry (6 engines, transmissions, ..) (IV)	X			Review notes and knowledge seen in the previous class	1h30	1h
13	26	Plenary Lecture (Eurocopter)	X			Review notes and knowledge seen in the previous class	1h30	1h
14	27	Plenary Lecture (Airbus)	X			Review notes and knowledge seen in the previous class	1h30	1h
14	28	Students expositions	X			Review notes and knowledge seen in the previous class	1h30	1h
TOTAL							42H	