

# COURSE GUIDE – short form

Academic year 2014-2015

Course name <sup>1</sup>	<b>MACHINE COMPONENTS II</b>					Course code	MTC.301 .DI.DID		
Course type <sup>2</sup>	DID	Category <sup>3</sup>	DI	Year of study	III	Semester	V	Number of credit points	7

Faculty	Mechanical Engineering	Number of teaching and learning hours <sup>4</sup>						
Field	Mechanical Engineering, Mechatronics and Robotics	Total	L	T	LB	P	IS	
Specialization	MIAIA,MCT,RBT	168	42	-	14	28	84	

Pre-requisites from the curriculum <sup>5</sup>	Compulsory	Mathematics. Technical Drawing.Strength of Materials. Mechanisms. Materials science. Theoretical Mechanics. Measurements and tolerances. Using the Computer and Software (CUP). CAD.
	Recommended	Materials technology. Computing (CUP and detailed CAT). Execution and precision measurements. Statistics and analyzes statistical techniques.

General objective <sup>6</sup>	The discipline intends to present fundamental principles, assisted by adequate applications, concerning the design and exploitation of the machine components.
Specific objectives <sup>7</sup>	<ul style="list-style-type: none"> <li>- Run at a high level of technical knowledge as general student will attend other specialized subjects provided in the curriculum.</li> <li>- To acquire the necessary technical knowledge related professional decay optimizations in terms of calculation, design, sizing, exploitation and maintenance of machine parts and subassemblies and assemblies that goes into the different machines, installations and existing devices.</li> </ul>
Course description <sup>8</sup>	<ul style="list-style-type: none"> <li>-Axles and shafts. General. Requests. Materials and technologies. Preliminary Design. Design of shaft. Design form. Checks.</li> <li>-Assemblages tree stump shape. Assemblages feathered longitudinal driving. Parallel keys and disc assembly. Splined shaft and hub assembly</li> <li>-Elastic coupling assembly</li> <li>-Bearings. General. Types constructive and symbolism. Requests and destructive ways. Materials and technologies. Internal geometry. Contact voltages. Basic static load. Lubricating bearings, friction sources - limitations. Distribution sustainability, basic dynamic load relationship catalogs, weightings. Vibration and noise induced bearing operation. Design element bearings.</li> <li>-Plain bearings. Plain bearings with officials on a limited and mixed. Materials. Methods of designing a radial bearing in HD mode. Hydrodynamic thrust bearings. Hydrostatic Bearings</li> <li>-Springs and dampers. General. Materials and technologies. Cylindrical helical springs. Torsion bar springs. Springs bending required. Multiple leaf springs. Disc springs. Ring springs. Rubber springs.</li> <li>-Mufflers. Design principles of the suspensions</li> <li>-Couplings. Standing rigid couplings. Permanent couplings mobile</li> <li>-Clutches and brakes. Rigid mechanical clutches. Mechanical friction clutches. Electromagnetic Clutches. Hydraulic clutch. Automatic clutch: load, speed, sense. Mechanical brakes</li> <li>-Mechanical Seals Joints</li> <li>-The reliability of machine parts and assemblies</li> </ul>

Assessment		Schedule <sup>9</sup>	Percentage of the final grade (minimum grade) <sup>10</sup>
Continuous assessment	Class tests along the semester		%
	Activity during tutorials/laboratory works/projects/practical work	weeks 1 – 14	40 %
	Assignments		%
Final	Final assessment form <sup>11</sup>	Exam	

assessment	Examination procedures and conditions: 1.Cunostinte taught; oral examination; individual ticket; 60% share; 2. The project: weekly grading; degree of participation in activities; quantity and quality of responses; computer; 20% weighting; 3.Laborator: weekly grading; degree of participation in activities; quantity and quality of responses; computer; 20% weighting;	Minimum note 5 to each of the three modes of examination
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Course organizer	Prof.univ.dr.ing. Stefan GRIGORAS	
Teaching assistants	Conf.dr.ing. R.Balan; Conf.dr.ing.V.Paleu; S.I.dr.ing.FI.Tudose; Asist.dr.ing.A.Tufescu; Asist.dr.ing.M.Benchea	

<sup>1</sup>Course name from the curriculum

<sup>2</sup> DF – fundamental, DID – in the field, DS – specialty, DC – complementary (from the curriculum)

<sup>3</sup> DI – imposed, DO –optional, DL – facultative (from the curriculum)

<sup>4</sup> Points 3.8, 3.5, 3.6a,b,c, 3.7 from the Course guide – extended form (L-lecture, T-tutorial, LB-laboratory works, P-project, IS-individual study)

<sup>5</sup> According to 4.1 – Pre-requisites - from the Course guide – extended form

<sup>6</sup> According to 7.1 from the Course guide – extended form

<sup>7</sup> According to 7.2 from the Course guide – extended form

<sup>8</sup> Short description of the course, according to point 8 from the Course guide – extended form

<sup>9</sup> For continuous assessment: weeks 1 – 14, for final assessment – colloquium: week 14, for final assessment-exam: exam period

<sup>10</sup> A minimum grade might be imposed for some assessment stages

<sup>11</sup> Exam or colloquium