

COURSE GUIDE – short form

Academic year 2014 - 2015

Course name ¹	Advanced Robotic Systems Architecture					Course code	MSR.DI. DA.104		
Course type ²	DA	Category ³	DI	Year of study	M I	Semester	1	Number of credit points	8

Faculty	Mechanics	Number of teaching and learning hours ⁴						
Field	Mechatronics and Robotics	Total	L	T	LB	P	IS	
Specialization	Robotic Systems	56	28	-	28	-	140	

Pre-requisites from the curriculum ⁵	Compulsory	
	Recommended	

General objective ⁶	The discipline aims to introduce in the systems of robot architecture. The mechanical system is intended for the determination of kinematics parameters (position and velocity). Presentation of the actuator system and types of actuators used for robots. The main problems of the command system, and a trajectory generation by a point of the final element.
Specific objectives ⁷	<ul style="list-style-type: none"> • Presentation of the structure and the mechanical system parameters. • Actuator system and presentation of the main components used in the construction of the robots. • The presentation type of command, and to methods for generating path. • Presentation of programming methods used for robotic cells.
Course description ⁸	Introduction to robotic systems architecture. Definitions. Classification of the robots. Mechanical system structure. A robotic system architecture. Direct and inverse kinematics of positions. Trajectory generation. Actuation system. Electric actuators. Hydraulic and pneumatic actuators. Control systems. Types of orders. Command Electrical Drives. Programming robots. Programming processes.

Assessment			Schedule ⁹	Percentage of the final grade (minimum grade) ¹⁰
Continuous assessment	Class tests along the semester			%
	Activity during tutorials/ laboratory works/projects/practical work		Week 1-14	40%
	Assignments, homework			
Final assessment	Final assessment form ¹¹	Exam	Exam period	60%
	Examination procedures and conditions: 1. Exam with three subjects from the curriculum, time 2 h, percent of the final grade 60 %. 2. Applications evaluation, percent of the final grade 40 %.			

Course organizer	prof. dr. ing. Leohchi Dumitru	
Teaching assistants	prof. dr. ing. Leohchi Dumitru	

¹ Course name from the curriculum

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

³ DI – imposed, DO – optional, DL – facultative (from the curriculum)

⁴ 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)

⁵ According to 4.1 – Pre-requisites - from the Course guide – extended form

⁶ According to 7.1 from the Course guide – extended form

⁷ According to 7.2 from the Course guide – extended form

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

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

¹⁰ A minimum grade might be imposed for some assessment stages

¹¹ Exam or colloquium