

COURSE GUIDE – short form

Academic year 2014-2015

Course name ¹	VEHICLES ACTIVE SAFETY AND STABILITY CONTROL SYSTEMS					Course code	METAR-107		
Course type ²	DS	Category ³	DI	Year of study	1	Semester	2	Number of credit points	8



Faculty	MECHANICAL				Number of teaching and learning hours ⁴				
Field	Automotive Engineering				Total	L	T	LB	P IS
Specialization	Technical Operation of Road Vehicle				56	28		28	

Pre-requisites from the curriculum ⁵	Compulsory	Automotive Fundamentals: Computation, Design and Construction ; Automotive Electric and Electronic Equipment
	Recommended	Electronic Circuits, Automotive Dynamics, Control Theory

General objective ⁶	VEHICLES ACTIVE SAFETY AND STABILITY CONTROL SYSTEMS course ensures to the students a basic understanding of the role of active safety in the context of traffic safety. After this course, the student in their profession as engineers should be able to understand concepts in the field of active safety, take part in tests of active safety systems, and prove basic knowledge of the complexity of designing active systems: ABS, TCS, ESP, EBD, BA, EBC, etc.
Specific objectives ⁷	<ul style="list-style-type: none"> The role playing by the active safety systems on the vehicle driving security; vehicle safety systems classification Active safety systems controlling vehicle longitudinally dynamics Active safety systems controlling lateral and yaw vehicle dynamics (ESP) Electromechanical braking systems EMB Electro Hydraulics braking Systems EHS Anti-rollover control systems (ARS) Night vision control systems <p>Driver assist systems used to improve traffic safety</p>
Course description ⁸	The Course explains means to avoid incompatibility between different road vehicles and road furniture, lists the most important sensor principles under consideration for automotive safety applications and details their technological advantages and limitations, Motivates the scope of active safety in the context of traffic safety, Describes the general architecture of state-of-art active safety systems, Provides examples of active safety systems on the market and describe their operation and implementation, Explains what cooperative systems are and how they can be used to extend the functionalities of state-of-art active safety systems, Illustrates the tools currently available for evaluating active safety system, Discuss the importance of human factors in the design of active safety systems.

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				40%
	Assignments				%
Final assessment	Final assessment form ¹¹				60%
	Examination procedures and conditions: 1. ; tasks ; working conditions ; percent of the final grade %				

	2. ; tasks ; working conditions ; percent of the final grade % 3.	
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Course organizer	Assist. Prof. PhD.Eng. Radu Drosescu	
Teaching assistants	Assist. Prof. PhD.Eng. Radu Drosescu	

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