

COURSE GUIDE – short form

Academic year 2014 - 2015

Course name ¹	Classical and Unconventional Powertrain Systems					Course code	105.DI.DS.		
Course type ²	DS	Category ³	DI	Year of study	1	Semester	1	Number of credit points	6

Faculty	of Mechanical Engineering	Number of teaching and learning hours ⁴						
Field	Automotive Engineering	Total	L	T	LB	P	IS	
Specialization	Conception and Project Management in Automotive Engineering	150	28	-	28	-	94	

Pre-requisites from the curriculum ⁵	Compulsory	-
	Recommended	Basics of construction and automotive design CMPA.DI.DS.101

General objective ⁶	Learning the fundamental notions concerning the construction, operation and design of classic and unconventional powerplant fitted to road vehicles.
Specific objectives ⁷	The course lays the foundation concepts and deepens understanding of the powerplant in terms of constructive - functional and designs them according to the requirements of modern vehicles. Are submitted and developed fundamental concepts, types and specific phenomena in automotive engine for the conventional propulsion systems, as well as particular aspects and specific solutions for the unconventional automobile powertrains.
Course description ⁸	0. Classical powertrains. Comparisons between theoretical cycles of the ICE 1. Variable distribution. Optimal distribution phases. 2. Rotary engines. Operating principles. 3. Variable compression ratio. 4. Change the fuel ignition. 5. Fuel mixture stratification. 6. Automotive propulsion using gas turbines. 7. Continuously variable transmission ratio. Planetary and automatic hydraulic converter. 8. Electric propulsion system.

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	weeks 1-14	30 %
	Assignments	weeks 1-14	20 %
Final assessment	Final assessment form ¹¹	exam period	50 %
	Examination procedures and conditions: 1. Thematic Development; written test; percent of the f. grade 30 % 2. Case study; oral examination ; percent of the final grade 20%		

Course organizer	Associate Professor, PhD. Eng. Gheorghe MANOLACHE	
Teaching assistants		

¹Course 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