

Academic year 2021-2022
MECA0525 VEHICLE PERFORMANCE AND DYNAMICS
 Prof. P. Duysinx
 Ir P. Alarcon
 Version 3 – May 03, 2022

Day		Title	Lecturer
Tuesday	08/02	Vehicle performance. Equilibrium	P. Duysinx
		Internal combustion engines and electric motors	
Tuesday	15/02	Tractive forces	P. Duysinx
		Road loads	
Tuesday	22/02	Performance criteria: stationary criteria (max speed, gradeability). Acceleration and elasticity.	P. Duysinx
		Exercise 1: Road loads, max speed, max slope, acceleration	P. Duysinx
		HW 1. Computer project (MATLAB): Vehicle performance	
Tuesday	01/03	MARDI GRAS	
		Laboratory: Chassis dynamometer	B. Loly, P. Duysinx
Tuesday	08/03	Energy consumption and emissions	P. Duysinx
		Exercise 2: Energy consumption	P. Duysinx
		HW 2. Computer project (MATLAB): Energy consumption.	
Tuesday	15/03	Braking performance	P. Duysinx
Tuesday	22/03	Tyre mechanics 1	P. Duysinx
Tuesday	29/03	Tyre mechanics 2 & 3	P. Duysinx
		Exercise 3: Tyre mechanics	P. Alarcon
		Seminar 1: Real-life consumption	M. Belhabib (Ford, chargé de cours adjoint)
Tuesday	05/04	Eastern break (compensation for Mardi Gras)	
Tuesday	12/04	Eastern break	
Tuesday	19/04	Vehicle dynamics: Steady state cornering	P. Duysinx
		Exercise 4: Understeer gradient	P. Duysinx
Tuesday	26/04	SST vehicle dynamics: influence of suspension	P. Duysinx
		HW3 - Analytical exercises: Vehicle dynamics	
Tuesday	03/05	Vehicle dynamics: stability	P. Duysinx
		Exercise 5: SST dynamics with roll, camber, etc.	P. Duysinx
Tuesday	10/05	Seminar 2: Development of suspension in passenger cars	E. Tromme (TME)
		Vertical dynamics: ride and comfort	P. Duysinx
Tuesday	17/05	Seminar 3: Crashworthiness and passive safety of vehicle and road infrastructure. A simulation	J. Marra & J. Himpe (GDTECH)

		approach	
		Crashworthiness and impact	P. Duysinx
Tuesday	07/06	ORAL EXAM	