



UNIVERSITAT POLITÈCNICA
DE CATALUNYA
BARCELONATECH

Sessió informativa

Open Day

21 de maig 10:30

Cal inscriure's enviant un correu a comunicacio.epsem@upc.edu
Inscripció gratuïta

Curs de Postgrau

**Advanced Mechatronics and NVH
Systems for Automotive Applications**

ESCOLA POLITÈCNICA SUPERIOR D'ENGINYERIA DE MANRESA

Contingut teòric-pràctic

Classes Online

- dijous de 17:30 a 21:00

Classes pràctiques (EPSEM)

- dissabtes de 09:00 a 13:30

Inici curs: 24/09

Finalització: 17/12

Ajuts CETIM 250€

Professorat expert provinent de la indústria
d'automoció i experts d'universitats europees

Dr. Stefano De Pinto, **Dynamics Expert,**
Principal Vehicle Dynamics Engineer

McLaren Automotive

Dr. Davide Palmieri, **NVH Expert,**
Principal NVH Engineer

McLaren Automotive

Advanced Mechatronics and NVH Systems for Automotive Applications

Dr. Stefano De Pinto, **Dynamics Expert, Principal Vehicle Dynamics Engineer McLaren Automotive**

Dr. Davide Palmieri, **NVH Expert, Principal NVH Engineer McLaren Automotive**

Course Program

	Vehicle Dynamics & Mechatronics		Noise and Vibration	
	Hours	Hours	Hours	Hours
Propaedeutic Part	Tyre behaviour	4 h	Introduction to vibrating systems	9 h
	Longitudinal Performance		SDOF + MDOF	
	Lateral Performance		Modal Identification Systems	
			Workshop MATLAB	
	Fundamentals of Vehicle Dynamics	4 h	Introduction to Random Vibrations	8 h
	Longitudinal Performance		Stochastic vs Deterministic functions	
	Modelling of a Simple Drivetrain		Stochastics Loads for Automotive	
			Workshop MATLAB	
	Introduction to lateral dynamics	8 h	Introduction to acoustics	4 h
Bicycle Model		Radiated Sound		
7 DOF Model		Acoustic Absorption/Isolation		
Vehicle Setup		Psychoacoustics for Vehicles		
Hours	16 h	21 h	37 h	
Advanced Part	Handling Evaluation Criteria	6 h	Vehicle Brand Definition	8 h
	Vehicle Instrumentation		IC Engine Sound (Nr Cylinders, Exhaust Line, Intake Systems)	
	Manoeuvres (Ramp Steer, Chirp)		Cabin Sound Quality & Sound Design	
	Objective KPIs		Electric Vehicle (overview)	
	Semi-Active/Active Systems	4 h	On Field NVH	8 h
	Rear Wheel Steering		NVH Test	
	Limited Slip Differential		Acquisition Systems	
	Torque Vectoring		Post Processing Tools	
	Variable Roll Moment Distribution			
	Modelling of Automotive Systems	11 h		
Backward Facing Approach				
Forward Facing Approach				
Tyres				
Chassis				
Powertrain, Engine and Electric Motors				
Bicycle Model Development and Analysis				
Hours	21 h	16 h	37 h	

Month	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Sep. 2022	19	20	21	22	23	24 10:30 – 12:30 1 st Session Presentational Meeting Presentation of the course and lecturers	25
	26	27	28	29 17:30 – 20:00 2nd Session On-Line Meeting	30	1 09:00 – 13:30 3th Session Presentational Meeting Computer Room + Laboratory UPC-Manresa	2
	3	4	5	6 17:30 – 20:00 4th Session On-Line Meeting	7	8 09:00 – 13:30 5th Session Presentational Meeting Computer Room + Laboratory UPC-Manresa	9
	10	11	12	13 17:30 – 20:00 6th Session On-Line Meeting	14	15 09:00 – 13:30 7th Session Presentational Meeting Computer Room + Laboratory UPC-Manresa	16
Oct. 2022	17	18	19	20 17:30 – 20:00 8th Session On-Line Meeting	21	22 09:00 – 13:30 9th Session Presentational Meeting Computer Room + Laboratory UPC-Manresa	23
	24	25	26	27 17:30 – 20:00 10th Session On-Line Meeting	28	29 09:00 – 13:30 11th Session Presentational Meeting Computer Room + Laboratory UPC-Manresa	30
	31	1	2	3 17:30 – 20:00 12th Session On-Line Meeting	4	5 09:00 – 13:30 13th Session Presentational Meeting Computer Room + Laboratory UPC-Manresa	6
	7	8	9	10 17:30 – 20:00 14th Session On-Line Meeting	11	12 09:00 – 13:30 15th Session Presentational Meeting Computer Room + Laboratory UPC-Manresa	13
Nov. 2022	14	15	16	17 17:30 – 20:00 16th Session On-Line Meeting	18	19 09:00 – 13:30 17th Session Presentational Meeting Computer Room + Laboratory UPC-Manresa	20
	21	22	23	24 17:30 – 20:00 18th Session On-Line Meeting	25	26 09:00 – 13:30 19th Session Presentational Meeting Computer Room + Laboratory UPC-Manresa	27
	28	29	30	1 17:30 – 20:00 20th Session On-Line Meeting	2	3 09:00 – 13:30 21th Session Presentational Meeting Computer Room + Laboratory UPC-Manresa	4
	5	6	7	8	9	10	11
Dec. 2022	12	13	14	15	16	17 09:00 – 13:30 22th Session Presental Meeting - Closing Day Computer Room + Laboratory UPC-Manresa	18

Curs de Postgrau

Advanced Mechatronics and NVH Systems for Automotive Applications

Course Calendar

Curs de Postgrau

Advanced Mechatronics and NVH Systems for Automotive Applications

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