



TEACHING/ACTIVITY COURSE SHEET

ANNEX 2.1

DEGREE PROGRAM DIDACTIC REGULATIONS

AUTONOMOUS VEHICLE ENGINEERING

CLASS LM-33

School: Polytechnic School of Engineering and Basic Sciences

Department: Electrical Engineering and Information Technology

Didactic Regulations in force since the academic year 2024-2025

Course: CONTROL ARCHITECTURES FOR AUTONOMOUS DRIVING	Teaching Language: English
SSD (Subject Areas): ING-INF/04	CREDITS: 12
Course year: I	Type of Educational Activity: B
Teaching Methods: In-person	
Contents extracted from the SSD declaratory consistent with the training objectives of the course: The sector studies methods and technologies for information processing aimed at automation (i.e., planning, management, and control, carried out automatically) of plants, processes, and dynamic systems in general. Such terms may include, for example, automatic operating machines (including robot systems), transport systems (ITS) and avionics systems.	
Objectives: The course objectives address the following domains: Control Systems for Autonomous Ground Vehicles (CSAGV) and Mobile Robots (MR). With reference to CSAGV the course is intended to provide general knowledge about the design of current and next generation control architectures for autonomous vehicles. Namely, it provides skills for designing intelligent ground vehicles, and related innovative applications in ITS and focuses on design, modelling, and control of highly interactive cyber-physical systems. In so doing, it integrates the expertise and attitude of modern industrial engineering topics (i.e., vehicles) with recent advances in ICT. With reference to MR, the course provides knowledge about the design of current and next generation control architectures for autonomous wheeled mobile robot planners and controller, including the implementation of autonomous navigation systems for mobile robots starting from the reconstruction of its pose with wheel encoders, the generation of control inputs, and the knowledge of the environment.	
Propaedeuticities: None	
Is a propaedeuticity for: None	
Types of examinations and other tests: The oral exam is focused on the presentation of a project and the assessment of course contents	