ANNEX 2.5

DEGREE PROGRAM DIDACTIC REGULATIONS

AUTONOMOUS VEHICLE ENGINEERING

CLASS LM-33

School: Polytechnic School of Engineering and Basic Sciences

Department: Industrial Engineering

Regulations in force for the academic year 2024-2025

Course: DIGITAL MODELLING OF INTERACTIVE SYSTEMS AND INTERFACES	**Teaching Language:** English
SSD (Subject Areas): ING-IND/15	**CREDITS:** 6
Course year: I	**Type of Educational Activity:** B

Teaching Methods:
In-person

Contents extracted from the SSD declaratory list consistent with the learning objectives of the course:
"The morphological, functional, and aesthetic study of design solutions is combined with the development of representation methods, including operational simulation and virtual prototypes. The principles and methods of design and the associated tools of representation, modelling, and simulation are covered with reference to the various industrial sectors: aerospace, mechanical engineering, shipbuilding, and plant engineering."

Objectives:
The course aims at providing students with tools and methods for designing interactive systems and interfaces by using multidomain modeling, simulations, and virtual prototyping. At the end of the course, the student will be able to: develop 3D models of mechanical assemblies; choose appropriate graphics and technical communication tools for the design of mechanical systems; assign and evaluate characteristics and properties of mechanical systems in a virtual environment: shapes, proportions, materials, tolerances, appearance; manage reference protocols for data exchange; execute finite element structural analysis (FEM) in virtual environment on mechanical parts and assemblies; develop multidomain models and simulations using MATLAB Simscape environment; simulate the behaviour of electro-mechanical systems.

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.