HISTORY OF THE DEPARTMENT

The University "Politecnico di Milano" was founded in 1863. Its mission is to teach technologies and educate students to become researchers. The University is continuously updating its tradition as a school that focuses on quality and innovation in teaching and research. Scientific research at Politecnico di Milano has always been oriented toward innovation and quality, always seeking a strong relationship with the industrial world through technology transfer. Attuning to the needs of the industrial sector helps research to continuously explore new areas and stay at the leading edge of science and technology.

The scientific community of Politecnico di Milano is made of more than 1,300 professors and research fellows, with 38,200 students (2013 update). According to QS World University Rankings 2012/2013, Politecnico di Milano ranked 28th worldwide in the area of Engineering and Technology. On a worldwide scale, it is the first Italian university entering the QS ranking among the top 30 technical universities. Furthermore, Politecnico di Milano participates in the coveted "club" of universities ranked in the top 100 in the world in the most prominent international rankings, along with only 15 other European universities.

Politecnico di Milano is currently articulated in 12 departments, where research is co-ordinated and carried out, and 6 schools, where education is co-ordinated and implemented. Several service Centres provide support for technical and administrative purposes.

DIPARTIMENTO DI SCIENZE E TECNOLOGIE AEROSPAZIALI

The Dipartimento di Scienze e Tecnologie Aerospaziali (Department of Aerospace Science and Technology, DAER-PoliMi) was established within Politecnico di Milano as an autonomous institute in the 1950s. The personnel of DAER-PoliMi currently consists of 43 faculty, 27 technical and administration staff, 70 research assistants and Ph.D. students. The main activity within the Department is scientific research.

The Department itself is the main reference body for the B.Sc. (Laurea) course in Aerospace Engineering, the M.Sc. (Laurea Magistrale) course in Aeronautical Engineering and Space Engineering, and the Ph.D. (Dottorato di Ricerca) course in Aerospace Engineering. M.Sc. and Ph.D. courses are offered in English. Each year, about 250 students complete the B.Sc., 180 the M.Sc., and 15 the Ph.D. In parallel, DAER-PoliMi staff is strongly involved in several research activities with academia, industries and research bodies worldwide. Politecnico di Milano Department of Aerospace Science and Technology (DAER)

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CAMPUS BOVISA - La Masa e Candiani

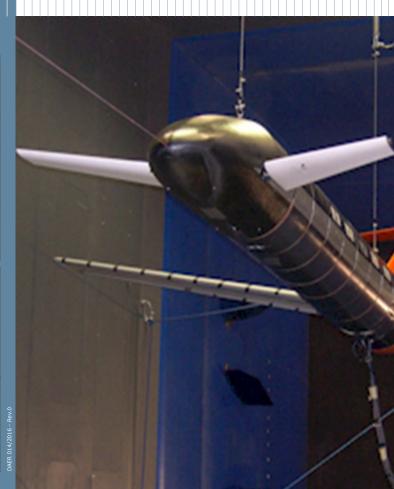
LA MASA Aerodini Experimental Tes and Technologica B12 Dipartimento di Scienze e Tecnologie Aerospaziali nace Propulsion B13 Educational Labs CANDIANI B6 La S.T



DIPARTIMENTO DI SCIENZE E TECNOLOGIE AEROSPAZIALI

SCIENTIFIC LAB

ASDL AeroStructures Design Lab



SCIENTIFIC LABS

DEPARTMENT OF AEROSPACE SCIENCE AND TECHNOLOGY (DAER)

Research activities within the Aerospace Science and Technology Department (DAER) of Politecnico di Milano are organized in scientific laboratories. These laboratories represent the core of the research competences developed at DAER over the years. They are highly specialized, agile and vital competence centers.

SCIENTIFIC LABS

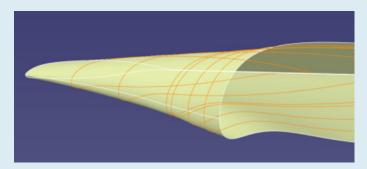
The Department has formed 14 research laboratories, which contribute to the majority of research activities.

- AMATECH Aerospace MAterials and TECHnologies
- ASCL Aerospace Systems and Control Lab
- ASDL AeroStructures Design Lab
- AVLab Aeroelasticity and Vibroacoustics Lab
- CrashLab
- FlowCon Instability and Flow Control Lab
- FMSlab Flight Mechanics & Flight Systems Lab
- FRAME Fixed and Rotary-wing Aircraft Multidisciplinary Eng.
- PFDLab Physical Fluid Dynamics Lab
- POLI-Wind Wind Energy Lab
- RAL Rotorcraft Aerodynamics Lab
- SIAMS Structural Integrity of Advanced Materials and Structures
- SME Space Missions Engineering
- SPLab Space Propulsion Laboratory and Nanoenergetics

ASDL

AEROSTRUCTURES DESIGN LAB

ASDL specializes in the development of multi-fidelity analysis and design methods to enable fast and efficient generation of aero-structural models for new, environmentally friendly aerospace systems. The availability of a structural model since the beginning of design loop, i.e. at the conceptual design level, allows the designer to immediately evaluate the potential impacts from aeroelasticity on the definition of global aircraft design parameters, as well as the possible benefits from new materials and technology like morphing, in terms of global performances and weight saving.



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http://www.aero.polimi.it/en/research/research-laboratories/

ONGOING ACTIVITIES

- Automatic generation of low-medium fidelity aerostructural models.
- Fast structural sizing, aeroelastic analysis and optimization.
- Multi-objective topological optimization of compliant structures for morphing application.
- Active aeroelastic control, including wind tunnel validation.

FUTURE PLANS

- Development of conceptual-preliminary design procedures to analyze non linear highly flexible aircraft
- Implementation of integrated aero-structural optimization procedures for the optimal design of passively and actively controlled flexible aircraft
- Design, implementation and experimental validation of morphing devices for transport aircraft based on compliant structures
- Design, implementation and experimental validation of active devices and strategies for Maneuver and Gust Loads Alleviation

ERC KEYWORDS

PE8_13 Lightweight construction, textile technology

PE8_4 Computational Engineering

- PE7_1 Control Engineering
- PE8_1 Aeospace Engineering

FREE KEYWORDS

- Conceptual and preliminary aircraft design.
- Active, aeroelastic and morphing aircraft.