

Master of Science in Mechanical Engineering

Wind Energy

CC2



Contacts



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Track description

Wind energy is a leading source of clean power and represents a solid response to the growing global demand for energy services.

POLIMI is active in research and has strong collaborations with industries in this sector.

The Wind Energy track provides students with fundamental tools needed to make power from wind. Knowledge in the main disciplines involved in wind energy: aerodynamics and fluid mechanics, materials, control systems, electric conversion, operation, and maintenance.



Skills

Students will learn how to:

- design modern wind turbines
- control of wind turbines and wind farms
- assess the energy potential of a development site
- plant maintenance for a wind energy system



CC2: Core Courses

Course Title	YEAR	SEM	ECTS	ECTS GROUP
Energy Systems	1	1	10	10
Dynamics of Mechanical Systems	1	1	5	5
Advanced Machine Design for Transportation Systems	1	2	10	10
Advanced Manufacturing Processes B	1	1	5	5
Advanced Project Management	1	2	10	10
Materials for Energy	1	1	5	5

CC2: Track Specific Courses

Course Title	YEAR	SEM	ECTS	ECTS GROUP
Electric Conversion from Green Sources of Energy	1	2	5	5
Design of Fluid Machines for Clean Power Generation A	1	2	10	10
Wind Turbine and Wind Farm Modelling and Control A	2	1	10	10
Elective courses (Computational Fluid Dynamics - Fundamentals, Computational Fluid Dynamics - Advanced Methods and Applications, Flow Measurement Systems For Engineering, Computational Fluid Dynamics - Experimental Assessment, Resource Analysis and Atmospheric Boundary Layer, Rotordynamics and Diagnostics B, Wind Engineering, Wind Farm O&M, Lightweight Design of Mechanical Structures - Composite Structures, Renewable Energy Economics, ...)	2	1-2	5	20
Lab course (Turbomachinery: Design and Testing, Wind Energy, ...)	2	2	5	5

CC2: Master's Thesis

Novel control strategies for floating wind turbines

Wind farm flow models and control strategies

Aerodynamic models and experimental validation

Energy assessment for new plants and repowering of old assets

