

# Postgraduate Course in Rotary Wing Technologies II Edition 2011

POLITECNICO DI MILANO



Dipartimento di  
Ingegneria Aerospaziale



Postgraduate Course in Rotary Wing Technologies  
Politecnico di Milano  
Dipartimento di Ingegneria Aerospaziale  
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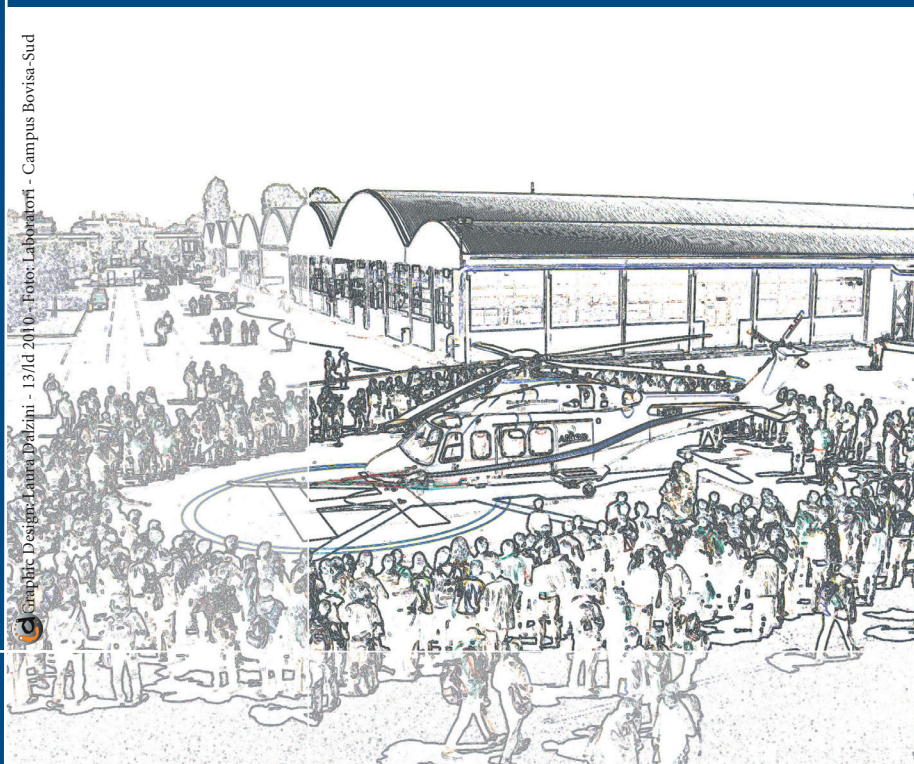
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# Postgraduate Course in Rotary Wing Technologies II Edition 2011

Organized by:

**Dipartimento di Ingegneria Aerospaziale  
Politecnico di Milano**

## 1. PURPOSE

The course offers new graduates or engineers already employed in similar sectors the possibility to widen their knowledge in disciplines specific to the rotorcraft field. This will allow them to be quickly and effectively introduced into companies operating in the field.

At the end of the course a selection of students, based on a final evaluation, will be offered a six month (July-December 2011) apprenticeship at AgustaWestland, a worldwide leader in the rotary wing field. The apprenticeship will be divided up into two phases. During the first phase, the topics studied during the course will be thoroughly analyzed and the students will be assisted by a tutor. In the second phase, the students will be assigned to a department in the company and will work on a hands-on project.

## 2. PROGRAM

**Module: Rotorcraft description and utilization.**

History of helicopters, Helicopter and tilt rotor components basic description and functioning, Rotor types, Hub types.

Engines.

Avionics, Communications, Navigation.

Basic mission systems, Monitoring and display, Avionic systems integration.

Survivability.

**Module: Aeromechanics, performance, stability and control, noise and vibration.**

Momentum and blade element theory of hover and forward flight, Helicopter performance.

Rotor aerodynamics and aero acoustics, CFD.

Helicopter trim and stability, Ground resonance.

Elastic Rotor blade behaviour, Coupling between rotor and fuselage, Noise, Vibration.

Drive trains, Engine interface, Power requirements and supply.

Active and passive vibration reduction.

**Module: Design and structural analysis.**

Mission payload, Gross weight, Configuration layout, Loads survey.

Analysis (hand, computer aided, finite elements) metallic and composite structures.

Blade section analysis and stiffness evaluation.

Static and fatigue analysis, Crash survivability.

**Module: Certification, Airworthiness requirements, Risk analysis and test.**

Helicopter Certification.

Human factors engineering, Ergonomics, Human error, Reliability and risk analysis.

Static and fatigue tests, Nondestructive testing, Flight testing,

Wind tunnel testing.

Preparation, Execution, Analysis and reporting.

**Module: Production and customer care.**

Quality control, Rational unified process, Reproduction, Production, Postproduction.

Customer relationship management, Civil, Military and public administration.

Total of hours: 240.

ECTS (European Credit Transfer System): 20.

The language of the course will be English.

## 3. TITLE OF STUDY REQUESTED

The postgraduate course is reserved to candidates with Master of Science (Laurea Magistrale) in Aeronautical, Space, Aerospace, Mechanical, Electronic or Electrical Engineering, or a University degree of three years as a minimum in the same fields and two years of working experience in the aerospace or contiguous field.

For candidates who graduated abroad, equivalent study titles in the respective educational institutions will be considered. The Admission Board will select the students to be accepted.

Admission requests should be received by March 15th, 2011.

A maximum of 20 and a minimum of 10 students will be admitted.

## 4. FEE

€ 4500 in two installments.

## 5. SCHOLARSHIPS

Up to ten scholarships covering the whole tuition fee will be made available by AgustaWestland. They will be assigned by the Admission Board after the expiration of the admission deadline and within March 21st, 2011.

## 6. BEGINNING AND END OF THE COURSE

April 4th - June 29th, 2011.

## 7. LOCATION

Politecnico di Milano, Bovisa Campus, Via La Masa 34, Milano.

AgustaWestland, Via G. Agusta, Cascina Costa di Samarate.

For further information:

[www.aero.polimi.it](http://www.aero.polimi.it) - [rotorcraft.course@aero.polimi.it](mailto:rotorcraft.course@aero.polimi.it)