Postgraduate Course in Rotary Wing Technologies

POLITECNICO DI MILANO

Dipartimento di
Ingegneria Aerospaziale

AgustaWestland
Una Società Finmeccanica

Postgraduate Course in Rotary Wing Technologies
Politecnico di Milano
Dipartimento di Ingegneria Aerospaziale
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Postgraduate Course in Rotary Wing Technologies

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 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 configurations, Rotor types, Hub types.
Engines, Power generation and distribution.
Mission and tactical avionics, Communications, Navigation.
Mission systems, Monitoring and display, Survivability.
Mission profile, Reconnaissance and surveillance, Medical emergency.

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

Momentum and blade element theory applied to hover and forward flight, Helicopter performance.
Rotor aerodynamics and aero-acoustics, CFD.
Helicopter trim and stability.
Elastic rotor blade behaviour, Coupling between rotor and fuselage, Ground resonance, Noise, Vibration.
Drive train, Engine, Power requirements and supply.
Active and passive vibration reduction.

Module: **Design and structural analysis**.

Mission payload, Gross weight, Configuration layout, Loads survey.
Analysis of 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, Reliability and risk analysis.
Static and fatigue tests, Nondestructive testing, Flight testing.
Preparation, Execution, Analysis and Reporting.

Module: **Production and customer care.**

Quality control, Rational unified process, Production.
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 for candidates with a Master of Science (Laurea Magistrale) in Aeronautical, Space, Aerospace, Mechanical, Electronic or Electrical Engineering.

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.

Enrolment requests should be received by October 31st, 2009.

A maximum of 25 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 enrolment deadline and within Novembre 15th, 2009.

6. BEGINNING AND END OF THE COURSE

January 11th - March 31st, 2010.

7. LOCATION

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

For further information:

www.aero.polimi.it
rotorcraft.course@aero.polimi.it

Enrico Forlanini's Helicopter Flying Model, Milan 1877.