



European
Postgraduate Master
in Aeronautical Engineering

EPMA – European Postgraduate Master in Aeronautical Engineering

F. Cazaurang
and
D. Scholz



**European
Postgraduate Master
in Aeronautical Engineering**

- ★ **Part time study programme**
- ★ **Joint European master programme**
- ★ **Awards joint/double master degree**
- ★ **Funded by European Commission**

Target group:

Graduates with

- **aeronautical or related engineering degree**
- **minimum of 4 years of academic training
(or equivalent credits) and**
- **some years of relevant industry experience**





**European
Postgraduate Master
in Aeronautical Engineering**

Contents

- 1. Rationale and Background**
- 2. Partner Universities**
- 3. Aims and Objectives**
- 4. Target Groups and Entry Requirements**
- 5. Structure and Organisation**
- 6. Pedagogical and Didactical Approaches**
- 7. Quality Assurance Mechanisms**
- 8. Joint and Double Degree**
- 9. Contracts and Examination Regulations**
- 10. Degree Accreditation and Dissemination**
- 11. Corporate Design**





European
Postgraduate Master
in Aeronautical Engineering

1. Rationale and Background

Dramatic shortage of qualified aviation engineers:

- big well known projects are A380, A400M and A350 XWB
- new Airbus projects (new single aisle)
- other projects (Dassault Falcon 7X)
- Demand from suppliers and engineering offices all over Europe
- "renewal rate" of 500 engineers each year at Airbus
- Hamburg government established a task force:
"Qualifizierungsoffensive Luftfahrtindustrie"





European
Postgraduate Master
in Aeronautical Engineering

2. Partner Universities

- Hochschule für Angewandte Wissenschaften Hamburg
- Katholieke Hogeschool Brugge - Oostende
- Université Bordeaux 1



Hochschule für Angewandte
Wissenschaften Hamburg

Hamburg University of Applied Sciences





European
Postgraduate Master
in Aeronautical Engineering

3. Aims and Objectives

- Support Life Long Learning (LLL)
- Support student's ambitions to go for a further degree while continuing at work
- Deliver short courses
- Combine academia's and industry's expertise
- Provide an international dimension for students (and lecturers)





European
Postgraduate Master
in Aeronautical Engineering

3. Aims and Objectives

Address key points of the Bologna process :

- Diploma Supplement
- Two-cycle system: Bachelor and Master
- Accumulation and transfer of credits: ECTS
- Mobility
- Cooperation in quality assurance
- European dimension





European
Postgraduate Master
in Aeronautical Engineering

3. Aims and Objectives

Further intentions:

- teach innovative subjects
- follow innovative pedagogical and didactical approaches
- collaboration between academia and industry in teaching
- include new European member states (Romania and Hungary) as "associated partner"
- include universities from other Airbus countries (Great Britain, Spain) as "associated partner"





European
Postgraduate Master
in Aeronautical Engineering

4. Target Groups and Entry Requirements

Target group:

- Students at graduate level (on degree programme)
- Life Long Learners (on single Short Courses)

Entry requirements (degree programme):

- 240 ECTS (or equivalent)
 - for participants from UB1 or KHBO 240 ECTS have to be obtained after finishing with a first Master Degree (M1)
 - for participants from HAW a 7-semester-Bachelor is required and additional relevant work experience.



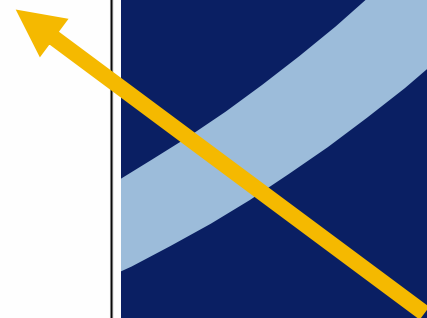


**European
Postgraduate Master
in Aeronautical Engineering**

Consecutive Bachelor / Master					Postgraduate Master
Semester	ECTS		UB1	HAW	EPMA
Master	4	30	M2	Master	60 ECTS
	3	30			
	2	30	M1		
	1	30			
Bachelor	6	30	L3	Bachelor	entry requirements: 240 ECTS
	5	30			
	4	30	L2		
	3	30			
	2	30	L1		
	1	30			

Entry requirements
for EPMA:

240 ECTS





European
Postgraduate Master
in Aeronautical Engineering

5. Structure and Organisation

Course content highlights:

- those areas in aeronautical engineering that are crucial to today's aeronautical development activities:
 - composite structures
 - aircraft systems and maintenance
 - aviation economics
 - ...
- proposed modules place emphasis on topics that are not necessarily part of consecutive Bachelor / Master courses





European
Postgraduate Master
in Aeronautical Engineering

5. Structure and Organisation

Part time studies (participants work full time in industry)

1. EPMA based on 10 modules (each: 4 ECTS = 100 h):
 - home study (20 h)
 - contact time (30 h) (= short course)
 - project work (50 h) with e-mail support from lecturer
2. EPMA finishes with a Master thesis (20 ECTS = 500 h):
 - students are encouraged to find a topic in their company





European
Postgraduate Master
in Aeronautical Engineering

5. Structure and Organisation

Module



Master Thesis



$10 * 4 \text{ ECTS} + 20 \text{ ECTS} = 60 \text{ ECTS}$

60 ECTS = 2 semesters = 1 year (equivalent full time study)

60 ECTS obtained over a period of about 2,5 years





European
Postgraduate Master
in Aeronautical Engineering

5. Structure and Organisation

Modules:

1 introductory module is **mandatory**

- taught in the country of the partner responsible for the module
- responsibility is rotated among main partners

6 other modules that are **mandatory**

- each main partner is responsible for 2 mandatory modules

student must choose three option modules

- associated partners may take up responsibility



⇒
"students need to travel"
"European dimension"



European Postgraduate Master in Aeronautical Engineering

Joint Module

[Introduction to Aeronautical Engineering](#) (mandatory)

Region BE25:

Katholieke Hogeschool Brugge - Oostende, Belgium

[Avionic Systems Engineering and Flight Control](#) (mandatory)

Air Transport [Economics](#) (mandatory)

Spacionic Systems Design

Noise and Vibration Engineering

Unmanned Aeronautical Systems

Region FR61:

Université Bordeaux 1, France

[Aircraft Maintenance Management](#) (mandatory)

[Composite Materials and Maintenance](#) (mandatory)

Aircraft Propulsion and Maintenance

Reliability and Integrated Logistic Support

Finite Element Dimensioning for Composite Materials

Region DE 6:

Hamburg University of Applied Sciences, Germany

[Aircraft Design](#) (mandatory)

Design of [Lightweight Aircraft Structures](#) (mandatory)

Technical University Hamburg-Harburg, Germany

High-Performance Composites for Aircraft Construction

[Aircraft Systems Technology](#)

Aircraft Systems Integration

Associated Partner

CFD for Aircraft Aerodynamics

**EPMA
modules,
regions,
universities,
areas of
expertise and
mandatory
status**





European
Postgraduate Master
in Aeronautical Engineering

6. Pedagogical and Didactical Approaches

- home studies, project work
- short courses:
 - lectures
 - tutorials
 - group exercises
 - short visits to industry
- e-learning
- blended learning
- distance learning





European
Postgraduate Master
in Aeronautical Engineering

7. Quality Assurance Mechanisms

- EPMA Academic Quality Management Board (EAQ)
 - one person from each partner university
 - one from an associated university
 - one or several persons from industry
- EPMA Management Board (EMB)
- EAQ and EMB are in close contact with each other
- EAQ and EMB report to the EPMA project coordinator
- module assessed by participants with detailed questionnaire
- lecturer's experience with the module recorded





European
Postgraduate Master
in Aeronautical Engineering

8. Joint and Double Degree

- HAW awards EPMA joint degree together with partners
- Students can get double (second) degree from UB1 / KHBO if:
 - they write a thesis supervised at UB1 / KHBO on a subject from the UB1 / KHBO area of expertise

EPMA will probably not offer a "Real Joint Degree", but fulfils more than enough criteria to award simply a "Joint Degree": One degree is awarded in the name of the participating institution at which the student is registered (HAW). An additional unofficial degree certificate is awarded on behalf of the whole partnership, to testify that the programme has been developed and taught jointly.



European
Postgraduate Master
in Aeronautical Engineering

8. Joint and Double Degree

TAUCH explains: "Joint degrees are normally awarded after a study programmes that correspond to all or at least some of the following characteristics:

- the programmes are developed and/or approved jointly by several institutions;
- students [come] from each participating institution;
- the students' stays at the participating institutions are of comparable length;
- periods of study and exams passed at the partner institution(s) are recognised fully and automatically;
- professors of each participating institution also teach at the other institutions, work out the curriculum jointly and form joint commissions for admission and examinations;
- after completion of the full programme, the student either obtains the national degrees of each participating institution or a degree (in fact usually an unofficial 'certificate' or 'diploma') awarded jointly by them."

All six criteria seem to be fulfilled by EPMA



European
Postgraduate Master
in Aeronautical Engineering

9. Contracts and Examination Regulations

1. During time of (EU funded) curriculum development:

- Application for Curriculum Development
- Trilateral Partner Agreement (for EU)

2. After time of (EU funded) curriculum development:

- Trilateral Partner Contract
- Examination Regulations





European
Postgraduate Master
in Aeronautical Engineering

10. Degree Accreditation and Dissemination

Accreditation:

- HAW is responsible for accreditation
- accreditation will be done via "Zentrale Evaluations- und Akkreditierungsagentur Hannover" (ZEvA Hannover)

Dissemination:

- aviation congress, workshop, fair
- EPMA website
- poster, leaflet (flyer)
- mailings of leaflet and covering letter
- advertisements in an official aviation magazine





European
Postgraduate Master
in Aeronautical Engineering

11. Corporate Design

- Corporate Identity requires

Corporate Design (Corporate Visual Identity):

1. Corporate visual identity provides an organisation with visibility and 'recognisability' ...
 2. Corporate visual identity symbolises an organisation ... and, hence, contributes to its image and reputation ...
- For EPMA the corporate design encompasses:
 - logo, web design, PowerPoint template
 - poster, flyer
 - URL:

www.EPMA.aero

EPMA poster



European Postgraduate Master in Aeronautical Engineering

Modules *

Introduction to Aeronautical Engineering

Oostende:

Avionic Systems Engineering and Flight Control **
Air Transport Economics **
Spaceonic Systems Design
Noise and Vibration Engineering
Unmanned Aeronautical Systems

Bordeaux:

Aircraft Maintenance Management **
Composite Materials and Maintenance **
Aircraft Propulsion and Maintenance
Reliability and Integrated Logistic Support
Finite Element Dimensioning for Composite Materials

Hamburg:

Aircraft Design **
Design of Lightweight Aircraft Structures **
High Performance Fibre Reinforced Composite Materials
Aircraft Systems Technology
Aircraft Systems Integration

Other Location:

CFD for Aircraft Aerodynamics

* to be confirmed
** mandatory module



- ✦ Part time study programme
- ✦ Joint European master programme
- ✦ Awards joint/double master degree
- ✦ Funded by European Commission



Target group: Graduates

- with aeronautical engineering degree
- minimum of 4 years of academic training (or equivalent credits) and some years of relevant industry experience

Study programme:

- 60 ECTS (equivalent to 1 year full-time study)
- 10 short courses:
 - duration one week each
 - preparation and homework required
- master thesis
- combined in teaching:
 - academia's and industry's expertise

Partners in the programme:

- Hochschule für Angewandte Wissenschaften Hamburg
- Katholieke Hogeschool Brugge - Oostende
- Université Bordeaux 1

<http://www.EPMA.aero>



Hochschule für Angewandte Wissenschaften
Hamburg University of Applied Sciences



