HOCHSCHULE BREMEN
UNIVERSITY OF APPLIED SCIENCES

Master of Engineering in Aeronautical Management

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• Ideas and Goals of the Programme

With aviation developing at accelerated speed it becomes increasingly interesting for pilots which graduated in aviation systems engineering and management to also enhance their knowledge in transport business and economy, risk management, international law and airlaw, simulation with coupled systems, airline and personnel management. The Master course will prepare pilots for management functions in airlines, air transport and governmental institutions.

The instructors staff will be composed of university professors and lecturers with practical airline business experience. Emphasis is laid on an interdisciplinary approach in teaching and learning, group work, and seminars.

The programme is run entirely in English.

• Key Features of the Programme

- Practice-oriented post-graduate education
- Studies in aviation systems engineering, economy and management
- One year full-time
- International lecturers and students
- Guest lecturers and excursions
- Practical training
- Orientation week
- German language course
- Social activities and gatherings
- Tutorial support and guidance

• Duration and Organisation of the Programme

The programme is a two semester, full-time Master degree course. The course begins in early March and ends in February the following year.

The Master thesis shall intentionally prepared in an appropriate association, airline, or premises of an aircraft manufacturer.

• Who is the course addressed to?

The course provides up to 15 places for applicants. Applications are welcome from world-wide. The programme is open for pilots/engineers with an academic degree in aviation systems engineering and management, or acceptable degrees in related areas like aircraft engineering, maintenance, or air traffic administration plus practical experiences of minimum 12 months. Due to the demanding time frame high academic standards and a very diligent work schedule are required.

• Prospects

The programme provides theoretical and practical background for careers in airlines, institutions and administrations. Graduates will be prepared for management functions in international aviation industry.

• Structure of the Programme

The first semester provides students with an interdisciplinary approach to key factors of aviation management. It will consist of 5 modules, which will be divided into lectures and seminars. Lectures provide essentials of "International Law, Law of the Air", "Transport Business", "Management", "Risk Management", and "Simulation with coupled systems -1-".

The second semester includes the modules "Leadership Competence, Human Factors/ Psychology", and " Simulation with coupled systems -2-". On completing the courses students opt for a Master thesis in one of the core areas. In the Master thesis, candidates are expected to use their theoretical understanding to deal with an appropriate topic in a methodological correct manner. Three modules of the second semester are foreseen for the preparation of the Master thesis. Candidates may propose a theme or project of their own choice.

Great importance will be attached to improve the students in analytical skills. In both semesters, research skills and methods will support the ability of the students to tackle a problem in a scientific way and to master the art of researching, writing and presenting research papers.

Throughout the academic year, international students can choose from a variety of German language courses. In addition, Hochschule Bremen offers a variety of international Summer Courses for those, who would like to acquire a basic knowledge of the German language before the beginning of the programme (please send inquiry to sgonina@hs-bremen.de).

• Partners Abroad

Hochschule Bremen cooperates with several universities world-wide:

- Universidad Tecnica Federico Santa Maria (UTFSM), Valparaiso, Chile
- Academia Ciencias Aeronauticas (ACA), Santiago, Chile
- Arizona State University (ASU), Mesa, Arizona, USA
- Embry Riddle, USA

• Degree

After successful completion of the courses and the thesis, students will be awarded the internationally recognised academic degree ***Master of Engineering*** in aeronautical management.

• Fees and Cost of the Programme

Fees for 2004: EURO 8.000.

Fees include tuition fees for all lectures and seminars, registration, examination and graduation fees, contribution to the Student Union, course materials (student manuals and handouts).

Hochschule Bremen offers an additional low-cost support service, which includes administrative cost and free public transport in Bremen and surrounding regions. In addition, students will profit from services offered by the *International Student Association (ISA*), a private service company working for Hochschule Bremen, including tutorial support, help with visa applications, regular social and cultural activities and

gatherings, a pick-up service from the airport or train station plus an accommodation arrangement service.

The fees do not include textbooks, living expenses (approx. EURO 650 monthly), and health insurance.

Regulation for payment:

a) A non-refundable fee of EURO 1.000 at acceptance of the applied enrolment.
(within three weeks after notification by Hochschule Bremen).
b) EURO 4.000 at the beginning of first semester
c) EURO 3.000 at the beginning of second semester.

• Financial Aid

not yet available

• Application Procedure

The Master course addresses to candidates holding an eight semester Bachelor Degree due to the following list:

1) Graduates of the International Degree Course in Aviation Systems Engineering and Management, or pilots with a related degree and a minimum of one year practical experience as a pilot.
2) Graduates of any related engineering course plus practical pilot experience (minimum two years).
3) Graduates of any related engineering course plus practical experience in aircraft maintenance, in the related aircraft industry, or in the air traffic administration (minimum two years).

Fluency in English is required. Students whose native language is not English must demonstrate English proficiency with the TOEFL exam (minimum of 220 points computer-based or 560 paper-based) or an equivalent test like the IELTS (at least 6,0).
Do you need visa to enter Germany? Please be aware that the German government has set a standard amount that each student needs per year as proof of financial independence. The *International Student Association (ISA)* will assist you with arranging your visa. Please note that tuition fees are separate from the financial independence requirement above.

Students from India have to contact Career Consultancy, D.M.Estates, Flat No: 202, Street No:8, Himayatnagar, Hyderabad, Andhra Pradesh, India.

The complete application documents must be submitted not later than **January 15th**. Applications must consist of: a registration form (see below), a Curriculum Vitae, a photograph, proof of his or her university degree, the address and telephone number (e-mail address, if available) to which all correspondence should be sent.

For further information, please visit our website or contact:

Prof. Dr.-Ing. Bernd Steckemetz Head of Institute of Aerospace Technology Hochschule Bremen Neustadtswall 30 D- 28199 Bremen mailto:steckeme@fbm.hs-bremen.de Tel. ++49-421-5905-5519 Fax: ++49-421-5905-5536	Christiane Krebs Administration for MEAM Hochschule Bremen Neustadtswall 30 D- 28199 Bremen mailto:chkrebs@verw.hs-bremen.de Tel. ++49-421-5905-2214 Fax: ++49-421-5905-4192

For application, please contact:
Registration Office, Neustadtswall 30, D-28199 Bremen
Ms Ch. Krebs
Fax.-No.: ++49-421-5905-4192
E-mail: mailto:chkrebs@verw.hs-bremen.de

Contents of the Master course

	1st Semester **Master of Engineering in Aeronautical Management**		**SWS**	**ECTS Points**
	Module	Abbreviation		
1	International Law / Law of the Air	IRLR	4	6
2	Transport Business	BWLV	4	6
3	Management	MAN	4	6
4	Risk Management	RMAN	4	6
5	Simulation with coupled systems -1-	SVS	4	6
	Sum		20	30

	2nd Semester **Master of Engineering in Aeronautical Management**		**SWS**	**ECTS Points**
	Module	Abbreviation		
1	Leadership Competence, Human Factors/Psychology	MFPS	4	6
2	Simulation with coupled systems -2-	SVS	4	6
3	Master thesis		12	18
	Sum		20	30

Description of Modules

International Law / Law of the Air (IRLR)

Course aims:

Interpretation and application of national, supranational and international Law (basics and methods), preferably with regards to aviation and airlaw.

Course contents:

Legal basis of states and limitation of their souvereignty (main features). International public and private law - basics, interpretation and application. Collision of international, supranational and national rules.

International and supranational Organizations (i. e. ICAO, ECAC, JAA, EU, EASA, EUROCONTROL) – tasks, practice and application of rules (JAR OPS, JAR FCL).

International Business Law, Cooperate Law, European Law, European Business Law, European E-Commerce Law.

Political backgrounds, origin, alteration, interpretation and application of supra- and international law with regards to actual developments in international aviation business and air traffic. Cases and elaboration of solutions and the means of compliance.

Literature:

P. Malanczuk, Akehurt´s Modern Introduction to International Law, 8. Aufl. 2001

Prerequisites:

Basic knowledge of material with respect to national and international airlaw.

Proof of academic achievement:

1 written examination

Didactic approach:

Lectures
Group work
Analyses

Transport Business (BWLV)

Course aims

Based on the basic knowledge of business studies due to ILST aims, the student shall be able to reach working competence in transport business. Daily airline pilots have decisions to make where knowledge in transport business is a necessity. In addition, pilots are keeping positions in the middle and higher management in every airline.

Course contents

- Economy compass
  - business and market
  - accountance administrative
  - global business
  - currencies
- International logistic
  - aims and methods
  - planning systems
  - provision and controlling
  - transport systems
- Business calculations
  - basics of statutes
  - accounting balance
  - analysis of balance
  - cost calculation
- Costs management
  - cost and efficiency
  - controlling
  - controlling concepts
  - management accounting and controlling
- Practical training to prepare economical decisions

  decision finding processes for complex situations of business administration will be simulated

Didactic approach

Lectures
Case studies (derived from company experience)
Group work

Proof of academic achievement

Written examinations and oral examinations

Leadership Competence/ Human Factors / Psychology (MFPS)

Course aims

To impart knowledge and methods in order to enable independent orientation in dynamic systems with variable regulations;

to analyse social and anthropo-technical processes;

to develop interdisciplinary problem solving strategies and their adaptation in the field of engineering and aeronautical management.

Course contents

The analysis of interface problems in aviation;

the research into psychologically relevant questions concerning the complex of networks in aviation;

the understanding of the relevance of areas from applied psychology and their transference to the interfaces of human, machine, environment and organizations;

the evaluation and application of psychological research to the questions raised by the all-encompassing systems of aviation.

Didactic approach

Lectures
Group work
Case studies (correlated with the module RMAN).

Proofs of academic achievement

1 written or oral examination

Management (MAN)

Course aims

Teaching the knowledge which qualifies the students to operate in a leading position under consideration of the actual challenge of the market.

Course contents

Organisation- and leading competence

Management of evolutionary systems

Global marketing management (sales and sourcing)

Stratetic management

Process management

Quality management

Orientation to customer

Airport management

Airline management

Team-orientation by managing engineering works

Organisation of engineering research for
development,
production,
service
in different European aerospace companies.

Developments in European aerospace system

Management in aerospace industry

Service management

Logistic management in airline business

Failure policy

Handling of complaints

Didactic approach

Lectures
Case studies

Proofs of academic achievement

Written examination, written paper with refuse and presentations

Risk Management (RMAN)

Course aims

Teaching the knowledge which prepares the students to collaborate at accident inquiries and to realise a safety work shop.

Course contents

1. Safety Culture, Safety Management
   - 1.1 Organisation structure for a safe flight line

2. Risk Management
   - 2.1 Interpretation and evaluation of incidents and accidents
   - 2.2 Analyses of incidents and formulation of recommendations
   - 2.3 Evaluation and interpretation of accident and incident statistics

3. Man - Machine - Interface
   - 3.1 Ergonomic requests for flight safety
   - 3.2 Personal performance of a HITEC aircraft's pilot
   - 3.3 The use of cockpit computer systems
   - 3.4 Reliability of data bases

4. Human Factor
   - 4.1 Pilot's performance and pilot's capacity
   - 4.2 Pilot's capacity under abnormal situations and flight safety

5. Risk Acceptance
   - 5.1 Problems:
     - RTO
     - CFIT
     - ALA
     - Complacency
     - Follow my leader syndrome
     - Target fixation

6. Pilot's Attitude due to Flight Safety
   - 6.1 Discipline
   - 6.2 Engagement
   - 6.3 Social competence

7. Seminar / Flight Safety
   - 7.1 Build up a conception for a flight safety course
   - 7.2 Practice a flight safety course

Didactic approach

Lecture and analysis of actual cases
Group work
Case studies (correlated with the module MFPS)

Proofs of academic achievement

1 written paper
Conception of a risk analysis

Simulation with coupled systems (SVS)

Course aims

Based on a systems engineering approach the module covers the simulation of coupled systems with engineering and economical origin and their interactions. In application for instance to the basics of automatic control and flight control (Dipl.-Ing.), this course touches some important and interesting aspects of modern flight control systems. Special emphasis is laid on the fact, that students realize their theoretical knowledge during hands-on computer based tutorial exercises using the simulation environment MATLAB®/SIMULINK®.

Course contents

- Automatic Flight Control
  - Feedback Control / Feedforward Control
  - Flight Control / Flight Guidance / Flight Management
  - Stability Augmentation / Active Control / Care-free Maneuvering
  - Auto Pilot / Auto Throttle
  - Flying Qualities / Handling Qualities / Ride Qualities
  - Pilot Induced Oscillations / Aircraft Pilot Couplings
  - Control System Optimization / Adaptive Control
  - Robust Control

- Simulation
  - Simulation Environment MATLAB® / SIMULINK®
  - Model Identification
  - Flight Control System Simulation
  - Model Following Control
  - In-flight Simulation

Option

- Filter Techniques

Option

- Operations Research

Didactic approach

Lectures
Practical training by computer work
Group work

Proof of academic achievement

written examination
Preparation of simulations (case studies) by computer work

ADMISSIONS OFFICE

An die
HOCHSCHULE BREMEN
Immatrikulations- und Prüfungsamt
Neustadtswall 30
D-28199 Bremen

☎ +49 - 421 5905-2214

Address for correspondence:

surname and first name: .....

street and house number: .....

postal code and town: .....

country: .....

telephone number: .....

fax number: .....

APPLICATION FOR ADMISSION TO A DEGREE COURSE AT THE HOCHSCHULE B R E M E N

Admission deadline for the summer semester is the 15th of January.

I am applying *for the summer semester* 200_/____

For the degree course:

***Master Of Engineering* in Aeronautical Management**

With this application I am enclosing the following:

(Please tick as appropriate!)

- ☐ passport photograph
- ☐ birth certificate or copy of identification card
- ☐ curriculum vitae
- ☐ evidence of qualifications required for university entrance (secondary school leaving certificate * and, if appropriate, university certificates*)
- ☐ evidence of first university degree*
- ☐ evidence of practical knowledge or work experience
- ☐ evidence of knowledge of the English language*

[* Please enclose only certified copies!]

1. surname

2. first name

3. name at birth male ☐ female ☐

4. date of birth 5. place of birth

6. street and no.

7. postal code town

8. country

9. nationality: _____

9. evidence of qualifications required for university entrance

Which qualifications have you gained?

(GC.S.E, G.C.E. A-Level, baccalaureat, Lise Diplomasi, Apolyterion, Maturität etc.?)

original name of the certificate: _____

_____

place and date of the examination: _____

10. information on first degree

What degree programme have you attended? At which university?

Name of the university subject time (from/to)

_____ _____ _____

_____ _____ _____

Which degree have you been awarded?

Which degree? When?

_____ _____

_____ _____

11. Knowledge of the German language (for statistical reasons only)

Have you learned German? ☐ yes ☐ no

Where_____ How long _____

_____

12. Knowledge of the English language

TOEFL results _____ IELTS results_____

Equivalent: _____

13. Have you done any practical training related to the course or do you have work experience in the field?

☐ no ☐ Yes, description of the training/ work:

_____

_____

14. Declaration

I I confirm that the above information is correct:

Place, date: _____ Signature: _____

for official use only!

FB-Nr.: ☐

Studiengangsnr.: ☐☐

Sprachkombination: ☐

Matrikelnummer

Bevorzugte Zulassung (J/N): ☐

Vorrangige Zulassung (J/N): ☐

Eignung und Leistung (§ 9 VO): ☐,☐

Wartezeit (§ 10 VO):

Erwerb der Hochschulreife:

(1.3.-31.8. u.1.9.-28./29.2.) =____(H)

Berufsabschluß vor HZB (4H) =____(H)

nach HZB (1H) =____(H)

§10 (5) Pkt. 3 (1H) =____(H)

Summe: =____(H)

Abzüglich Studienzeit: ./. ____(H)

Wartezeit (Halbjahre): ☐☐

Härteantrag: Ja ☐ Nein ☐

Härtepunkte: ☐

Landesschlüssel: Aus Punkt 8: ☐☐

Landesschlüssel: Aus Punkt 13: ☐☐

HZB-Schlüssel (0...9): ☐

Praktikum/Beruf erfüllt: Ja ☐ Nein ☐

Sonderzulassung: Ja ☐ Nein ☐