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# Short Course AIRCRAFT DESIGN 2010

31 May – 04 June 2010

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## LOGOS



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## HOMEPAGE

<http://www.flugzeugentwurf.de>

("Flugzeugentwurf" is German for "Aircraft Design")

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## AIM

The module gives an insight into the procedures and the multidisciplinary interactions of aircraft conceptual design. The process of iterative synthesis and analysis in aircraft design is illustrated. A software tool for preliminary sizing is demonstrated. Methods and data to enable case studies of subsonic aircraft design are provided.

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## TARGET DELEGATES

The module is intended for graduated engineers, equivalent professionals and/or managers. It is likewise suitable for specialists in search of a broader perspective as for newcomers to the field.

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## LEARNING OUTCOMES

On completion of the module, delegates will

- know aircraft design parameters and methods.
- know the fundamental relationship of aircraft design parameters.
- be able to size and design an aircraft to the detail as covered during the module.
- have a capability to structure aircraft design activities systematically and efficiently.

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## LEARNING ENVIRONMENT

The module includes lectures, a tutorial, a team assignment, case studies and a company visit. Speakers are senior experts from industry and academia. A comprehensive set of course notes is provided.

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## PRE-MODULE STUDY

Delegates who are students on the European Postgraduate Master in Aeronautical Engineering (EPMA) are expected to read pre-course material and to consult reference literature.

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## MODULE CONTENT

Introduction, development process, requirements, certification standards, aircraft configurations, preliminary sizing, fuselage and cabin conceptual design, wing design, empennage design, prediction of mass and CG-location, landing gear design and integration, drag prediction, design evaluation / DOC, special aspects of military aircraft design.

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POST-MODULE ASSIGNMENT	Delegates will be offered an assignment that has to be completed after the short course. The assignment typically consists of an aircraft conceptual design study. Successful completion of this task is compulsory for those delegates who are students on the European Postgraduate Master in Aeronautical Engineering (EPMA).
VENUE	Hamburg University of Applied Sciences and Airbus Deutschland GmbH.
MODULE LEADER	Prof. Dr.-Ing. Dieter Scholz, MSME, Department of Automotive and Aeronautical Engineering, Faculty of Engineering and Computer Science, Hamburg University of Applied Sciences, Berliner Tor 9, D-20099 Hamburg, Phone: +49-40-70971646, E-Mail: <a href="mailto:info@ProfScholz.de">info@ProfScholz.de</a> , <a href="http://www.ProfScholz.de">http://www.ProfScholz.de</a> .
LECTURER	Dipl.-Ing. Hannes G. Ross (EADS, retired), Dipl.-Ing. Ole Böttger (Airbus), Dipl.-Ing. Bernd Trahmer (Airbus), Dipl.-Ing. Philip Krammer (HAW Hamburg), Dipl.-Ing. Mihaela Niță (HAW Hamburg)
MODULE PROGRAMME	See last page.
HAW	With over 12000 students Hamburg University of Applied Sciences (Hochschule für Angewandte Wissenschaften Hamburg, HAW) is the second largest institute of higher education in the Hamburg region and one of the largest of its kind (University of Applied Sciences) in Germany. Founded in 1970, HAW's roots go back to the 18 <sup>th</sup> century. Its practice based teaching developed with industry, guarantees that participants can readily apply their knowledge. HAW aeronautical engineering graduates are well recognized and successfully engaged in all areas of aviation, nationally and internationally. The university has established a research focal point in aeronautical engineering. All research is done in close cooperation with industry. <a href="http://www.haw-hamburg.de">http://www.haw-hamburg.de</a> .
AERO	Aero is the "Aircraft Design and Systems Group" at HAW Hamburg. Aero's aim is to guide research assistants to cooperative dissertations and to conduct funded projects in research, development and teaching (short courses). Aero is organising the "Aircraft Design" short course. <a href="http://Aero.ProfScholz.de">http://Aero.ProfScholz.de</a> .
EPMA	European Postgraduate Master in Aeronautical Engineering (EPMA) is a joint master programme for part time students (under development). Partners in the programme are: Hochschule für Angewandte Wissenschaften Hamburg (HAW), Katholieke Hogeschool Brugge - Oostende (KHBO), Université Bordeaux 1 (UB1) and further associated European universities. If you are interested to pursue a Master Degree, please consult: <a href="http://www.EPMA.aero">http://www.EPMA.aero</a> .
WINQ	WINQ is the continuous education branch of the Hamburg University of Applied Sciences. Since 1995 WINQ offers high-value seminars and courses at low prices. WINQ's programme includes short courses as well as and long term development for professionals. <a href="http://www.WINQ.de">http://www.WINQ.de</a> .

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## COST

Module fee: 1200 € (final price, no VAT) includes course notes and the programme as outlined on the last page with coffee, juice and biscuits/cookies and a dinner on HAW campus (transport, accommodation and further meals are not included). Registrants who cancel before 24 May 2010 will receive 25% refund, no refunds given for cancellation after 24 May 2010, but substitution of a registrant is accepted at any time.

Special rates are available for students – please ask!

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## APPLICATION

Please apply before 3 May 2010.

Please send all enquiries and your application to Dipl.-Ing. Mihaela Niță via e-mail ([Mihaela.Nita@haw-hamburg.de](mailto:Mihaela.Nita@haw-hamburg.de)).

In your application please state:

- Name (first, middle, last)
- Address (street, number, ZIP code, city, state, country)
- Date of birth \*
- Place of birth \*
- Nationality \*
- E-Mail
- Phone number
- Organisation (company, university)

\* This data is required for application to the Airbus visit.

After we receive your application we will send you an invoice with payment details, which will also serve as confirmation of your registration.

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## LECTURER'S BACKGROUND

### **Prof. Dr.-Ing. Dieter Scholz, MSME**

Professor at Hamburg University of Applied Sciences. Teaching and research in the area of Aircraft Design, Flight Mechanics, Aircraft Systems.

### **Dipl.-Ing. Hannes G. Ross**

Project Engineer at VFW, MBB, EADS, today: IBR, Aeronautical Consulting. Projects: US-FRG VSTOL Tactical Fighter Study. F-111 Crew Escape Module, F-15 Concept and Definition Phase. Pannap, TKF. Preliminary Design of Eurofighter. Programme Leader X-31 for MBB/Dasa/EADS. Lecturer at Technical University Munich: Design Requirements for Military Aeronautical Engineering.

### **Dipl.-Ing. Ole Böttger**

Future projects engineer at Airbus Deutschland since 1994. Overall design and follow up on A3XX. A380 competition studies in international project groups. Sketching, sizing, weight, drag and performance estimation. Discussion with component teams. Competition analysis with major focus on Boeing sonic cruiser and 787. Overall design A350 in international project group.

### **Dipl.-Ing. Bernd Trahmer**

Future projects engineer at Airbus Deutschland since 1991. Overall design and follow up on A3XX / VLCT (Airbus & Boeing). A380 competition studies in international project groups. Sketching, sizing, weight, drag and performance estimation. Discussion with component teams. Team leader of trans-national group "Future Project Concepts".

### **Dipl.-Ing. Philip Krammer**

Research assistant at Aircraft Design and Systems Group (Aero). PhD student at KTH Stockholm. Research project: Airport 2030. Degree in Aeronautical Engineering. Thesis "Integration of a noise analysis tool into a multidisciplinary design process" prepared at German Aerospace Center (DLR). Internship at Airbus in Hamburg and Toulouse, internship at Austrian Airlines and Museum of Flight, Restoration Center, Everett, Washington.

### **Dipl.-Ing. Mihaela Niță**

Research assistant at Aircraft Design and Systems Group (Aero). PhD student at UPB, Bucharest. Research project: CARISMA. Degree in Aeronautical Engineering. Thesis "Aircraft Design Studies Based on the ATR 72" prepared at Hamburg University of Applied Sciences.