AIRCRAFT DESIGN

25 – 29 May 2009

LOGOS	
HOMEPAGE	http://www.flugzeugentwurf.de ("Flugzeugentwurf" is German for "Aircraft Design")
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.
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.
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.
LEARNING ENVIROMENT	The module includes lectures, a tutorial, a multi media presentation, a team assignment, case studies, a company visit and an evening lecture. Speakers are senior experts from industry and academia. A comprehensive set of course notes is provided.
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.
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.

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: info@ProfScholz.de, http://www.ProfScholz.de.
LECTURER	Dipl.-Ing. Ole Böttger (Airbus), Dipl.-Ing. Bernd Trahmer (Airbus), Dipl.-Ing. Philip Krammer (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 18th 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. http://www.haw-hamburg.de.
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. http://Aero.ProfScholz.de.
EPMA	European Postgraduate Master in Aeronautical Engineering (EPMA) is a joint master programme for part time students (under development). EPMA will award a joint/double master degree. 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: http://www.EPMA.aero.
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. http://www.WINQ.de.

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 17 May 2009 will receive 25% refund, no refunds given for cancellation after 17 May 2009, but substitution of a registrant is accepted at any time. Special rates are available for students – please ask!
APPLICATION	Please apply before 26 April 2009. Please send all enquiries and your application to Dipl.-Ing. Mihaela Niță via e-mail (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.

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. 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). 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.

Short Course **Aircraft Design**

Day:	Monday, 25.05.2009	Tuesday, 26.05.2009	Wednesday, 27.05.2009	Thursday, 28.05.2009	Friday, 29.05.2009
Location:	Airbus	HAW	HAW	Airbus	HAW
08:30 - 10:00	SCHOLZ: • Welcome • Assignment / Teamwork • Introduction • Aircraft Design Sequence • Requirements and Certification	TRAHMER: Fuselage and Cabin Conceptual Design	SCHOLZ: Multi-Media "From Requirements to Configuration"	TRAHMER: Prediction of Mass and CG-Location	KRAMMER: Tutorial Aircraft Design: Guided & Hands On Example: Fairchild Dornier 728
10:15 - 11:45	SCHOLZ: • Aircraft Configurations		SCHOLZ: High Lift	TRAHMER: Landing Gear Conceptual Design and Integration	
12:00 - 12:45	SCHOLZ: Preliminary Sizing (I)	BÖTTGER: Wing Design	SCHOLZ: Empennage General Design	SCHOLZ: Design Evaluation / DOC	
12:45 - 13:45	Lunch	Lunch (and Library)	Lunch (and Library)	Lunch	Lunch (and Library)
13:45 - 15:15	SCHOLZ: Preliminary Sizing (II)	BÖTTGER: Wing Design	SCHOLZ: Empennage Sizing	KRAMMER: Case Study The Fairchild Dornier Story	SCHOLZ / NIȚĂ: Team-Presentations
15:30 - 17:00	SCHOLZ: Tutorial Preliminary Sizing	**Teamwork:** **Preliminary Sizing** (Tutor: NIȚĂ)	BÖTTGER: Drag Prediction	**Airbus -Visit** (Translator: NIȚĂ)	SCHOLZ / NIȚĂ: • Test • Feedback
17:00 - 18:00	**Dinner in Blankenese** www.sagebielsfaehrhaus.de		**Dinner on HAW Campus** www.meetingpoint-hh.de		On the way home?
18:00 - 19:00		Free		Free	

Short Course Location: HAW: Berliner Tor 5, D-20099 Hamburg. Building A, Room 04.12 (Tuesday, Wednesday, Friday). Directions: http://lageplan.ProfScholz.de
Airbus: Nesspriel 5, D-21129 Hamburg. THF, Room 3.016 (Monday); Room 4.011 (Thursday). Directions: http://www.flugzeugentwurf.de.

Catering included: Coffee, juice and biscuits/cookies are served during the breaks. The dinner on HAW campus is included in the short course fees.
Catering not included: The dinner in Blankenese and lunches (HAW Hamburg refectory / Airbus refectory) have to be paid individually by each participant.

Short course organization: Mihaela Niță (for contact information see: http://Aero.ProfScholz.de)

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