DO-178C Training

Two Day Course
Learn from the people who wrote it

Kings Place, London
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Aeronautique Associates Limited
Grangeside Business Support Centre
129 Devizes Road
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AERONAUTIQUE

Aeronautique Associates is a partnership between Sigma Associates (Aerospace), Verocel UK and Tudor Associates The company was formed specifically to deliver training and to conduct associated activities related to RTCA/DO-178C (published by EUROCAE as ED-12C) and the associated guidance provided in several supplementary documents.

Aeronautique Associates brings together valuable experience to deliver this training and related services to organisations developing aeronautical software in the avionic, space and the ground and air based Communication Navigation Surveillance and Air Traffic Management (CNS/ATM) domains.

Each of our partners has been closely involved in the development of DO-178C and associated documents, making us well placed to deliver training and provide services from a relevant and firm foundation.

Training courses cover all organisational disciplines from management to practitioners, and range from short courses for experienced staff covering the transition from DO-178B to DO-178C, to multi-day courses that address the entire DO-178C related document set including the Tool Qualification document and the Object Oriented Technologies, Model Based Development & Verification and Formal Method supplements.

If required, courses can be easily tailored to your particular business needs.

DO-178C/ED-12C TRAINING COURSE

Would you like to learn how to develop and verify avionic software to DO-178C/ED-12C?

Would you like to learn how the supplements to DO-178C/ED-12C provide additional guidance for model-based design, object-oriented programming and formal methods?

Aeronautique Associates are holding a two-day course on Software Development and Verification Using DO-178C/ED-12C. The course is presented by Ross Hannan, Nick Tudor and Dewi Daniels, who were active members of SC-205/WG-71, the committee that prepared DO-178C/ED-12C. The course will explain the rationale behind the objectives in DO-178C/ED-12C, the Tool Qualification document (DO-330/ED-215) and the THREE supplements (DO-331/ED-216, DO-332/ED-217 and DO-333/ED-218) as well as discussing the differences contained in DO-278A/ED-109A.

Who should attend?

This two-day course is aimed at software engineers and other professionals, such as QA staff, who have no previous experience of DO-178B/ED-12B. If you already know DO-178B/ED-12B and just want to know what's changed in DO-178C/ED-12C, then you will be interested in our 1-day course.

Course Fees and Booking

The course fee of £800 + VAT includes morning & afternoon refreshments together with a buffet lunch. Accommodation & other meals are the responsibility of the attendee.

Registration and further details may be made by contacting:

info@aeronautique-associates.com

Electronic copies of all course materials and a Certificate of Attendance will be provided.

Course Profile

On this two-day course, you will discover:

- How to develop and verify software to satisfy the objectives of DO-178C/ED-12C:
  - What is the difference between high-level requirements and low-level requirements?
  - What does DO-178C/ED-12C mean by requirements-based testing?
  - What is modified condition/decision coverage (MC/DC)?
  - What is analysis of data coupling and control coupling?
  - What are Parameter Data Items, and when would you use them?
- How to make use of the supporting information in DO-248C/ED-94C
- How to develop and verify software tools to satisfy the objectives of DO-330/ED-215
  - What are the 5 Tool Qualification Levels?
- What's in the supplement DO-331/ED-216 on Model-Based Development and Verification?
  - When does a model express requirements, and when does it express design?
  - What credit can be taken for model simulation?
  - What credit can be taken for use of a qualified auto-code generator?
- What's in the supplement DO-332/ED-217 on Object-Oriented Technology and Related Techniques?
  - What are the additional objectives when using object-oriented technology?
- What's in the supplement DO-333/ED-218 on Formal Methods?
  - What credit can be taken for the use of formal methods?
  - Can the amount of testing that needs to be done be reduced?
- What are the differences between DO-178C/ED-12C and DO-278A/ED-109A which covers CNS/ATM systems?
- What is the SOI process and how is compliance demonstrate?

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Additional Services

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Aeronautique offers DO-178B and DO-178C related services and training options to developers.

Aeronautique Associates is a partnership formed of experienced practitioners all of whom have been very closely involved with the development of the RTCA and EUROCAE documents containing the aeronautical software guidance.

Why Use Aeronautique?

We provide training courses for practitioners which are run by practitioners.

Our extensive experience in the development of DO-178B, DO-178C and all of the associated documents places us in a strong position to deliver the training needs to suit your business.

Ask For Details
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Our Partners

Ross Hannan, Managing Director Sigma Associates (Aerospace), was the Joint Secretary of the RTCA/EUROCAE SC-205/WG-71 committee responsible for developing DO-178C (ED-12C) and a number of related documents including ED-109A. He has served on many EUROCAE, RTCA, SAE and IEEE committees dating back to the early 1980s, including those responsible for developing DO-178A, DO-178B (as Sub Group Chair and Editorial Committee member) and DO-248 and DO-278/ED-109 (as Joint Secretary of the committee and Sub Group Chair) and ARP4754. Ross has approaching 30 years of experience working with highly-complex and aeronautical computer software and has provided consultancy throughout the world on many new and high technology programmes in the Airborne, CNS/ATM and Space domains.

Dewi Daniels, Managing Director of Verocel Limited is a chartered engineer with over 30 years' experience of software development and verification. Throughout his career, he has specialised in safety-critical, mission-critical and other kinds of high integrity software. He has worked on projects ranging from a secure trading system for the Bank of England to a number of civil and military aircraft, including the Lockheed C-130J, BAE Systems Nimrod, Hawk, Harrier, Tornado, Bombardier Q400, Airbus A330/340, Airbus A330 MRTT, Airbus A380 and Boeing 787.

Prior to founding Verocel Limited in 2010, Dewi was the Chief Engineer (UK, Spain and India) at SILVER ATENA and has previously worked for Praxis Critical Systems, Lloyds Register and Logica. Eur Ing Daniels was an active member of SC-205/WG-71 a member of the DO-178C/ED-12C Editorial Committee.

Nick Tudor has been focused on improving embedded software systems development for over a decade. He has worked in government and industry on numerous projects providing advice on requirements, standards, development techniques and software safety. He has a track record of taking research through development to commercial success and has worked with certification authorities to ensure necessary compliance. He has been actively supporting the international effort to refresh DO178 and is a key member of Sub Group 6 (Formal Methods). He has successfully coached highly technical oriented personnel to present themselves and their subject to non-specialists. He has also developed and delivered training for software related material for both specialists and technically familiar audiences.

Nick is a graduate in Electrical Electronic Engineering and holds a Masters in Software Engineering using this knowledge throughout a full career in the Royal Air Force and subsequently in industry working for QinetiQ in aerospace and automotive alongside companies such as BAES, Jaguar Land Rover, MBDA, Airbus, Rolls-Royce and government organisations such as the UK MOD and NASA.

Gap Analysis

Over many years our partners have offered a gap analysis service that evaluates an organisation's software processes for compliance with DO-178B. This has proved to be a very useful activity for first time developers and now we are additionally offering a gap analysis service for those businesses looking to prepare for or transition to DO-178C.

Aeronautique can conduct a detailed analysis and present a report outlining how the developer's processes and products stand up to the expectation of the aeronautical software guidance. Such analyses can be conducted for first time developers of avionic system software, of CNS/ATM system software or space system software. For those already involved in the development and approval of such software, we can conduct analyses for those looking to transitioning from DO-178B to DO-178C or from Military Standards, such as DOD-STD-2167A to DO-178B or DO-178C. The Space and Communication Navigation Surveillance/Air Traffic Management (CNS/ATM) communities in Europe are taking on board DO-178C and, particularly, ED-109A (DO-278A) and are beginning to question their own suitability to make the step to the revised documents. With extensive experience in these domains and detailed knowledge of all of the documents, Aeronautique is ideally placed to assist. Each gap analysis conducted will result in a presentation to the organisation and the provision of a detailed report explaining the areas needing attention and proposing suitable solutions. Where staff need training following a gap analysis, we can tailor an on site course to suit individual client needs.

Compliance Determination

The partners in Aeronautique have extensive experience in the evaluation of software submitted to support formal certification or approval applications. This includes the conduct of Stage of Involvement (SOI) reviews in accordance with the FAA Job Aid and carrying out Certification Liaison activities on behalf of applicants.

The Space Community

For many years the European space community has been working with DO-178B (ED-12C) and DO-278 (ED-109) to develop mission critical software for space systems including EGNOS and Galileo.

Aeronautique partners have worked with the European Space Agency and their suppliers to develop variant standards that take account of the additional needs of the space community and to work on the approval and certification of EGNOS & Galileo software and systems. As such we are uniquely placed to offer courses covering the extant space standards and to work with the space community as it transitions to the new baseline.

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