SOFTWARE SAFETY, CERTIFICATION
& DO-178C

29 APRIL – 2 MAY, 2014
LEVEL 4, 210 KINGS WAY, SOUTH MELBOURNE VIC 3205
About this course

This course provides the fundamentals of developing and assessing software to the standard RTCA/DO-178B and RTCA-DO-178C Software Considerations in Airborne Systems and Equipment Certification as well as associated RTCA/DO-178C supplements in DO-330, DO-331, DO-332 and DO-333. Similarities and differences to RTCA/DO-278A for CNS/ATM equipment will also be addressed.

The course also offers insight into the U.S. Federal Aviation Administration’s (FAA) software review process, the FAA’s software policy, practical keys for successful software development and certification, common pitfalls of software development and software challenges facing the aviation community.

Practical exercises and in-class activities will be used to enhance the learning process.

TARGET AUDIENCE:

This course is designed for software developers, avionics engineers, systems integrators, aircraft designers and others involved in development or implementation of safety-critical software. The focus is on civil aviation, certification and use of RTCA/DO-178C. However, the concepts may be applicable to other safety domains, such as military, medical, nuclear and automotive.

A PARTICIPANT CAN EXPECT TO:

» Develop and document efficient RTCA/DO-178C and DO-278A compliant processes
» Create, capture and implement compliant requirements, design data and source code
» Evaluate compliance to RTCA/DO-178C and understand the how to integrate DO-178C supplements
» Generate and adhere to effective verification strategies
» Understand FAA’s software-related policy and guidance.

Details

DATE: 29 April – 2 May, 2014
8am - 4pm
VENUE: Level 4, 210 Kings Way, South Melbourne VIC 3205
COST: $4,300 per person + GST
REGISTRATION CLOSES: 2 April, 2014
STUDENTS RECEIVE: Course materials, morning tea, light lunch, afternoon tea, and course certificate.
REGISTRATION Register online at www.QTTraining.com.au

About the instructor

Jeff Knickerbocker is a consulting Designated Engineering Representative with nearly 30 years of experience as a systems/software engineer.

He has led technical teams in designing, developing and verifying real-time embedded software and Airborne Electronic Hardware devices. In addition to industry affiliations, he also provides consulting and training services to the FAA and other non-U.S. regulatory agencies. In 2002, he and his wife started Sunrise Certification & Consulting.

Knickerbocker has a Bachelor of Science in physics and a Master of Science in software engineering.
Course outline

DAY ONE
» Introductions and background
» Differences between DO-178B and DO-178C
» DO-178C supplemental documents and where they fit
» Overview of existing standards related to software safety
» Tie between the system, safety and software processes
» History, purpose, framework and layout of DO-178C
» Reading the Annex A Tables
» Configuration management, configuration management objectives and terminology, control categories.

DAY TWO
» Development and integration/test processes - development objectives, high-level requirements, traceability, design (low-level requirements and architecture), code/integration, integration/test objectives, normal and robustness testing
» Verification processes - overview of verification, verification of requirements, design, code and testing.

DAY THREE
» Quality assurance (QA) objectives, QA philosophy, SQA approaches, certification liaison objectives, life cycle data
» Supplements including DO-330– Tool Qualification, DO-331–Model Based Development, DO-332– Object Oriented, and DO-333– Formal Methods
» Special topics - partitioning and protection, structural coverage, dead and deactivated code, service history, Commercial- Off-The-Shelf software FAA software-related policy and guidance software review process, user-modifiable and field-loadable software, change impact analysis, tool qualification, previously developed software, software reuse, integrated modular avionics, databases (DO-200A), complex hardware (DO-254).

DAY FOUR
» Assessing compliance - the Software Job-Aid
» Planning process
» Common pitfalls
» Software challenges facing the aviation industry: off-shore development, use of real-time operating systems and other commercially available.