SOFTWARE ASPECTS OF CERTIFICATION & RTCA/DO-178B/C TRAINING

Seminar Description

This seminar provides a thorough review of RTCA/DO-178B and C, as well as the supplements in RTCA/DO-178C which include Model-Based Development & Verification, Tool Qualification, Object-Oriented Technology, and Formal Methods all with practical guidance application examples. Created for both system and software engineers, this seminar focuses on the certification and system aspects of developing airborne software as well as the detailed guidelines applicable to software engineers.

Seminar Organization & Duration

This seminar is organized over 3 days, which will be dedicated to the core RTCA/DO-178B/C documentation and main aspects, as well as a cursory overview of the supplements addressing RTCA/DO-330 (Tool Qualification), RTCA/DO-331 (Model-Based Development), RTCA/DO-332 (Object-Oriented Technology) and RTCA/DO-333 (Formal Methods). An optional 4th day is dedicated to a more detailed review of the RTCA/DO-178C supplements.

Seminar Location

Residence Inn by Marriott
Ottawa Airport
1172 Walkley Road
Ottawa, Ontario
K1V 2P7
http://www.marriott.com/hotels/travel/yowap-residence-inn-ottawa-airport/

Seminar Date & Time

3 day course ~ Tuesday to Thursday, 24 to 26 January 2017
4th optional day ~ Friday, 27 January 2017
Daily Schedule ~ 8:30 to 17:00

Registration Fees

For early registration before December 23rd 2016
$1,500 Canadian for the 3 day course + $200 for the 4th optional day

For registration after December 23rd 2016
$1,750 Canadian for the 3 day course + $250 for the 4th optional day
Note: Fees include coffee breaks and lunch for all registered days

Registration & Queries

For registration or queries regarding our offering, please contact

Ms. Amanda Melles
DAO Chief Airworthiness Computer Scientist
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Email: amanda.melles@mss.ca

About MANNARINO

Mannarino Systems & Software Inc. (MANNARINO) is a Transport Canada approved Design Approval Organization (DAO) for Airborne Software (RTCA/DO-178) and Airborne Electronic Hardware (AEH) (RTCA/DO-254), and also provides safety-critical systems, software and electronic hardware engineering services to the aerospace, defense, space, simulation and power generation industries. We are highly specialized in the specification, design, verification, validation and approval of safety-critical systems with particular expertise in the following areas:

- Software Engineering
- Systems Engineering
- Electronic Hardware Engineering
- Aerospace Certification
- RTCA/DO-178B/C & RTCA/DO-254 Design Assurance
- Engineering Project/Program Management
- Safety and Reliability Engineering
- RTCA/DO-178B/C Training

For more information about MANNARINO, please visit our website at www.mss.ca.

Instructors

Mr. **John Mannarino** is **President and Founder of MANNARINO Systems & Software Inc.** (est. 1999). Initially an expert consultant in the field of gas turbine control systems and RTCA/DO-178B software, Mr. Mannarino has grown the company into a world-class engineering services firm serving over 20 customers in various safety-critical business sectors. Mr. Mannarino has over 25 years of experience with airborne systems and software ranging from Level A FADEC systems, to Level B, C & D avionic systems. Prior to founding the company, Mr. Mannarino was employed by a world-leading engine Original Equipment Manufacturer where he held roles of increasing responsibility within the engineering organization, including **Chief of Control System Design**. Mr. Mannarino graduated from Concordia University (Montreal, Canada) in 1989, where he received a Bachelor's Degree in Mechanical Engineering (Great Distinction) and numerous awards for academic excellence.

Ms. **Amanda Melles** is a **Transport Canada Civil Aviation (TCCA) Software & Airborne Electronic Hardware (AEH) Design Approval Representative (DAR) and the Design Approval Organization (DAO) Chief Airworthiness Computer Scientist at MANNARINO**. Ms. Melles has been working with Airborne Software and Airborne Electronic Hardware design assurance since 2002, and has been a design assurance delegate since 2005. Having worked with major aerospace industry OEMs, Ms. Melles has been involved with highly complex safety-critical airborne software and AEH systems, including Integrated Modular Avionics (IMA), electronic displays, fly-by-wire, landing gear and air management systems for Part 25 aircraft. Ms. Melles has participated in the complete life cycle of multiple aircraft certification programs, having been deeply involved in software and AEH certification plans and strategies as well as process improvements. For several years, she was involved in fly-by-wire software and AEH, resulting in successful certification of large aircraft programs. Throughout her career, Ms. Melles has accumulated vast experience as it relates to design assurance processes, oversight and audits. She has liaised with multiple certification authorities namely, Transport Canada Civil Aviation (TCCA), the Canadian Department of National Defense (DND), the Canadian Directorate of Technical Airworthiness and Engineering Support (DTAES), the Federal Aviation Administration (FAA), and the European Aviation Safety Agency (EASA). Ms. Melles had also led several on-site audits for software, AEH development and verification organizations, including major avionics and flight control manufacturers in the United States. As a result, Ms. Melles has accumulated extensive experience with RTCA/DO/178-B/C and RTCA/DO-254 standards and the writing of all associated life cycle data and compliance reports. From 2005 to 2010, Ms. Melles was part of the **RTCA Special Committee SC-205 "Software Considerations"** responsible for DO-178/B updates, where she was part of the Model-Based Development & Verification Sub-Group.

Software Aspects of Certification & DO-178B/C Training

Schedule

DAY 1 - 24 January 2017	
08:30 – 09:00	Welcome, Introductions, Opening Remarks and Training Expectations
09:00 – 10:15	Certification Aspects of the Software Life Cycle Software Certification/Approval Process Certification Authority Liaison
10:15 – 10:30	*Break*
10:30 – 11:30	DO-178C Overview and Objectives
11:30 – 12:30	System Safety and Software Level
12:30 – 13:30	*Lunch*
13:30 – 14:30	Software Planning
14:30 – 15:00	*Break*
15:00 – 16:00	Software Reviews with Certification Authorities – FAA Job Aid & SOIs
16:00 – 17:00	Question & Answer Period

DAY 2 - 25 January 2017	
08:30 – 10:15	Requirements Management (Workshop #1 – capturing, deploying, tracing requirements per DO-178C)
10:15 – 10:30	*Break*
10:30 – 11:00	Information flow from Software to System Process
11:00 – 12:30	Requirements Verification (Workshop #2 – Requirements Verification & Allocation)
12:30 – 13:30	*Lunch*
13:30 – 15:00	Software Problem Reports (Workshop #3 – Dispositioning of Problem Reports)
15:00 – 15:30	*Break*
15:30 – 16:00	Change Impact Analysis
16:00 – 17:00	Question & Answer Period

DAY 3 - 26 January 2017	
08:30 – 09:00	Software Life Cycle
09:00 – 09:30	Software Partitioning
09:30 – 09:45	*Break*
09:45 – 12:30	Software Testing – Selected Topics (Workshop #4 – Robustness Test Case Generation)
12:30 – 13:30	*Lunch*
13:30 – 14:00	Configuration Management
14:00 – 15:00	Quality Assurance
15:00 – 15:30	*Break*
15:30 – 16:30	Additional Considerations
16:30 – 17:00	Question & Answer Period

DAY 4 - 27 January 2017	
08:30 – 08:45	Welcome, Introductions, Opening Remarks and Training Expectations
08:45 – 10:00	DO-330 ~ Software Tool Qualification Considerations
10:00 – 10:15	*Break*
10:15 – 12:30	DO-331 ~ Model-Based Development & Verification
12:30 – 13:30	*Lunch*
13:30 – 15:00	DO-332 ~ Object-Oriented Technology and Related Techniques
15:00 – 15:30	DO-333 ~ Formal Methods
15:30 – 16:00	*Break*
16:00 – 17:00	Question & Answer Period