

The Instructors

Andrea MUSONE has more than twenty years experience in software engineering and software quality. He contributed to the definition of software standards for large Space programs. Consultant to International Organizations and other relevant Companies. Teacher of ECSS and DO-178 standards. Team member for CMMI appraisals. He has also a large technical experience in several software domains, such as GIS, and Earth Observation. Several years consultant to Air Navigation Services in the frame of European Projects.



Silvia MAZZINI has more than twenty years of experience in the Software Engineering field. She is involved both in technical and management activities in the context of several international industrial and research projects. She participates to the ECSS E40 and Q80 working groups. She is Methodologies and R&D Manager at Intecs. Mrs. Mazzini took his degree in computer science at Pisa University in Italy.



The Company

Since 1974, INTECS has been operating at the forefront of the software market, where safety, reliability, innovation, and quality are essential ingredients for success. INTECS provides leading-edge software technologies to support the major European and Italian organisations in the design and implementation of advanced electronic systems for Defence, Space, and Civilian markets.

Intecs is ISO-9000 certified since 1994. Currently it holds **ISO 9001:2008** quality certification for software development in Defense, Space, and Civilian domains. Moreover, Intecs Defence and ATC Divisions were positively appraised at **CMMI® Maturity Level 3**.



General Information

Location

Courses may be arranged in-house at the customer site upon request.

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the Brainware company

ECSS E40 Software Engineering Standard

A two-day modular course



The course material has been prepared by Intecs under ESA/ESTEC contract.

ECSS Software Engineering Standards

The European Cooperation for Space Standardization (ECSS) is a cooperative effort of the European Space Agency, national space agencies and European industry associations for the purpose of developing and maintaining a coherent, single set of user-friendly standards for use in all European space activities.

Software is addressed in the ECSS by two standards: ECSS-E-40 for Software Engineering and ECSS-Q-80 for software Product Assurance. They are both based on ISO/IEC 12207 and available at the ECSS Web site: <http://www.ecss.nl/>. They are applicable to software activities of ESA projects.

The Course

The objective of the course is twofold: one is to present the basic principles of the whole ECSS standards series, and the other is to provide a detailed knowledge of the ECSS-E-40 software engineering standards and the related processes and activities.

The course is organized in two days:

- Day1: An overview of the ECSS Standards series, Software, System and M-Series, the role of software in the ECSS, and overview of E-40 principles and its key concepts. Preliminary description of E-40 processes.
- Day2: Detailed description of the E-40 processes, with its associated documentation and reviews, and tailoring.

Intended audience

At least Day 1 should be selected by:

- project managers and system engineers who need to understand how the software standards can help them to manage the software part of their project or system,
- software project managers and software engineers who need to understand the software standards, with a view toward tailoring and applying them in their project.

Both Day 1 and Day 2 should be selected by:

- software project managers who want to have in addition a deeper view and knowledge of the new

standards and be able to tailor them and applying them in their project,

- software engineers who will be operationally involved in the requirement analysis, design, development and test of Space software systems.

Prerequisites

The participants are expected to be familiar with the fundamental concepts of software project management and software standards, and have some experience as practicing software development engineers

Benefits

The Day 1 course will primarily familiarize the managers and engineers with the specific approach and terminology found in the ECSS standards as well as the structure and nature of the inter-relationship between software processes and system processes, so that they will be able to interact with higher-level project managers, and with their development teams. They will know where to find more detailed material when necessary for further study in an operational context.

In the Day 2 course software project managers and software engineers will understand and refine the concepts and terminology of the ECSS E40 standard.

Methods and Media

Classroom presentations with Power Point slides and practical exercises.

Material

The participants are provided with copy of course handouts.

Course Outline

Day 1

An Overview of the ECSS Standards

The Role of Software in the Overall System

A Road Map to the E-40C Standard (first part)

Break

Overview of E-40C principles and key concepts

Break

Overview of E-40C principles and key concepts (cont.)

Break

Survey of E-40C Processes

Closure

Day 2

Details of E-40C Processes

Break

Details of E-40C Processes (cont.)

Break

Details of E-40C Processes (cont.)

Break

Open discussion time/Exercises

Closure
