GSAW 2012 Tutorial H:

Robust Software Testing

Length: Half day

Overview:

Testing is one of the most critical development activities from a mission assurance perspective. This tutorial will define the various levels of software testing from software unit testing through ground system testing and will describe the characteristics of a robust software test program for mission-critical ground software. Exit criteria for each level of software testing will be described, as will best practices from the field of software testing and requirements of the SMC Standard "Software Development Standard for Space Systems" (Rev. B). Enhanced requirements for software testing from the draft "Software Development Standard for Space Systems" (Rev. C) will be presented, with rationale for the enhanced requirements.

Instructors: Suellen Eslinger, Karen Owens, The Aerospace Corporation

Biographies:

Suellen Eslinger is a Distinguished Engineer at The Aerospace Corporation with over 40 years experience in software engineering and the acquisition of software-intensive systems. During her 27 years at Aerospace, she has supported numerous national security space programs through all phases of the acquisition and development life cycles. She is a Principal Investigator for software acquisition research and also leads curriculum development and delivery of software acquisition training courses for The Aerospace Institute. Previously, she worked at Computer Sciences Corporation (CSC) and General Research Corporation (GRC), where she developed software and managed software development projects for DOD and NASA ground systems. Ms. Eslinger is widely published and has given numerous conference presentations and tutorials in the fields of software engineering and software acquisition. She has B.S. and M.S. degrees in mathematics, from Goucher College and University of Arizona, respectively.

Karen Owens is a Senior Project Leader in the Software Acquisition and Process Department at The Aerospace Corporation. She has over 35 years experience in software systems engineering. During 12 years at Aerospace she has supported several space programs through various acquisition and development life cycle phases. Previously, as a software systems engineer at JPL and Hughes Aircraft Company, she managed and developed software for engineering tools, software-intensive ground systems for NASA, and various other systems. She was a leader and member of engineering process groups at JPL and Litton. She established detailed technical reviews on many projects to proactively discover and remove defects early in the life cycle. Ms. Owens has taught classes on software acquisition, development, management, and technical reviews. She is founding member of the Southern California SPIN Steering Group. She has BA in Mathematics from University of California, Riverside.

What Participants Should Expect to Learn:

The participants should expect to learn the characteristics of a robust software test program from a mission assurance perspective and to become aware of upcoming changes in the software testing requirements in the Software Development Standard for Space Systems.

Who Should Attend:

Intended participants include (1) software engineers and systems engineers responsible for ground software (or ground system) development or test, and (2) software acquisition personnel responsible for acquiring or supporting the acquisition of software-intensive ground systems, especially those supporting the software test phase of their program. Some background in software engineering is required.