



ITEA Sponsored Professional Development Courses

Android Forensics and Security Testing (Two Days)

This course will cover the most common issues facing mobile devices, and general tips for securing mobile applications. Upon completion of general mobile security overview, the course will delve into a proven practice in Mobile Device Forensics and Mobile Application Penetration Testing for Android devices. Over the two-day course, students will get hands-on time with open-source and commercial forensics tools, setup and explore reverse engineering development environments, and experience the process with which professional mobile security engineers have successfully applied to several projects. Areas covered include, identifying application vulnerabilities, code analysis, memory & file system analysis, and insecure storage of sensitive data. Course Objectives include: 1. Extract and analyze data from an Android device; 2. Manipulate Android file systems and directory structures; 3. Understand techniques to bypass passcodes; 4. Utilize logical and physical data extraction techniques; 5. Reverse engineer Android applications; and 6. Analyze acquired data.

Prerequisites: Windows command line and Linux/UNIX terminal. Good to have development experience with Android and Eclipse.

Cybersecurity and Information Assurance (Two Days)

This two-day course has been designed for the system engineer, program manager, and IA manager. This course is positioned as a mid-level introduction to cybersecurity and information assurance, and it covers a variety of topics in these areas. High-risk and labor-intensive processes such as security test & evaluation, and certification and accreditation procedures are covered in detail. IA risk management is covered across the spectrum of system, C&A, program protection and platform risks, illustrating a useful method of aggregation for comprehensive understanding of IA risk. The course concludes with a detailed exposition of secure network design and construction principles and techniques that can be applied immediately to existing and new networks and systems.



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Scientific Test and Analysis Techniques (STAT), a.k.a. Operational DOE (Five Days)

This 5-day course will provide the practitioner with the ability to apply the best tools and methods from combinatorial testing and DOE. It will cover the key terminology of DOE and various options to testing, showing why DOE is the most effective and efficient testing approach. This course will cover the activities that must precede a DOE, including the first line of defense against variation and Measurement System Analysis (MSA).

Testing strategies, such as screening, modeling, and confirmation, will be discussed along with how they fit into an integrated developmental and operational testing strategy. The 12-step approach to experimental design will be presented to provide a framework for adequately considering all aspects of the test. Basic graphical and statistical analysis of experimental data will be covered. The concept of and need for looking for variance shifting factors will be presented, along with screening designs.

Response surface designs such as Box-Behnken and Central Composite Designs will be shown to be more efficient than factorial designs for modeling non-linear responses. Simple Rules of Thumb will be provided for sample size and design selection, along with determining significance and power. Interpreting regression output and the coding of factors and their levels, along with residual analysis, will facilitate the analysis of data not collected under a DOE strategy and provide a means of analyzing data coming from multiple test scenarios.

High Throughput Testing (HTT) will provide a combinatorial testing approach that is extremely useful in operational testing when there are many factors, both qualitative and quantitative, each with many levels. Latin Hypercube Sampling and Descriptive Sampling will be shown to be very useful space-filling designs in high dimensions when only a limited number of tests can be conducted. Nearly Orthogonal Latin Hypercube Designs will be discussed and will provide the practitioner with power in screening many variables, such as is the case when dealing with high fidelity simulation models from which low fidelity models can be developed for prediction and risk assessment purposes.

This course will cover many examples in the world of test and evaluation and give the student practice at test design and analyzing test results. It will provide the practitioner with the ability and rationale to make good decisions when conducting both developmental and operational tests under a wide variety of circumstances. DOE will be shown to be the science of data collection as it applies to testing and that it must be in the toolkit of every tester.

Includes the DOE PRO and SPC XL software packages, a course notebook, and the following two textbooks: Understanding Industrial Designed Experiments and Design for Six Sigma: The Tool Guide for Practitioners. HD Tools and rdExpert will be demo'd.



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Fundamentals of T&E Processes (Three Days)

This three-day intensive course will describe the key principles of T&E as a critical part of systems engineering. The current world of T&E has evolved over the last 4 decades from a slogan mantra ("try before buy") to a set of widely accepted principles and integrated practices. Industry and government experience has produced processes that now enable T&E to be a dependable indicator of progress towards achieving system performance objectives during a development program. The course will describe the procedures and tools that have emerged from U.S. military weapons acquisition programs and have been embraced by other government agencies. The instructors not only will focus on the application of this experience in the U.S. government programs, but also will describe how they are similarly applied in commercial programs and consumer product developments. Past course participants have included professionals from industry and from government, including the Departments of Defense, Energy, Homeland Security and Transportation. This course addresses the role of T&E in systems development, the determination of effective test requirements, integrating developmental and operational T&E, preparing a T&E master plan, coverage of T&E requirements in government contracts, and the role of modeling and simulation (M&S) in T&E.

What T&E's Need to Know about Program Management and Systems Engineering and Why (Two Days)

Test and evaluation have too often and too long been perceived by many practitioners of these disciplines as stand-alone processes. Nothing could be further from the truth, as they are the foundations of developing the knowledge required to conduct effective and efficient program management and systems engineering. Therefore, testers and evaluators must understand, speak the language of, and properly integrate with the needs and processes of their major customers, the program managers and systems engineers.

This two-day course presents a basic overview of key program management processes such as leadership, planning, monitoring, control, work breakdown structure, scheduling, budgeting, contracting, and earned value management; and key systems engineering processes such as requirements analysis, functional analysis, partitioning, design, risk management, trade studies, and concurrent and specialty engineering.

This course also includes discussion of some developing engineering challenge areas such as software engineering and test, human systems engineering, autonomous systems development, and cyber engineering and test. All of the above subject areas are presented with a perspective that will help ensure that testers and evaluators become better informed and more effective members of any development team.