AEROSPACE
S H O R T   C O U R S E S

Operational Test and Evaluation: User-Centric Systems Training (AERO0531)

Instructors: George Cusimano and Kent Nelson

Course Description

The end user will inherit a system that is safe but has latent deficiencies, has been mostly tested against system specifications and has undergone limited "real world" integrated systems testing. Total system performance is of primary importance to the end user. This is the primary responsibility of Operational Test and Evaluation (OT&E) - to test an operationally representative system, in an operationally representative environment, using typical operators and maintainers against **user** requirements.

This OT&E course is designed to introduce students to the language, processes and assorted tools to estimate, plan, accomplish risk assessment, conduct, analyze and report on operational tests. It focuses on the challenges of safe and effective OT&E of ground support elements, aerospace vehicles, on-board systems, human-system interaction issues and logistics suitability.

The course focuses mainly on military systems but is equally applicable to commercial systems.

Who Should Attend?

This class is designed specifically for operators, maintainers, engineers and other support personnel. It is also appropriate for those personnel involved in planning, provisioning, conducting, reporting and supporting operational test activities. The course is applicable for military and civilian students as well as academic researchers. It may also be beneficial to those involved in writing user requirements or those involved with defining new system concepts based on market analysis.

Course Highlights

This course is designed to introduce the student to the essence of operational tests and the user's perspective, and focuses on:
- The requirements process - how and why system specifications may not accurately reflect user needs
- The users view of the world - why developers are from "Venus" and users are from "Mars"
- An OT&E process - differentiation between Development Test (DT) and Operational Test (OT) perspectives

- Areas of operational concern that are not addressed by DT - why DT alone is not sufficient to field a system
- Operational Test and Evaluation truths - mistakes made and lessons learned

Learning Objectives
- Where Developmental Test and Evaluation (DT&E) and OT&E fall in a generic acquisition cycle.
- The linkages with and differences between DT&E and OT&E.
- How operational requirements and capabilities are developed.
- How top level user (customer) requirements are dissected into specific operational test objectives, test conditions, test methods, and data collection.
- How to conduct and document an OT&E risk assessment and how to minimize identified risks during testing.
- How to safely, effectively, and efficiently conduct operational effectiveness and suitability tests
- How to **convert** OT&E test data and observations into **information**—the "So What?" for an operator, maintainer, and user.
- Why today's systems development and test programs typically cost too much, are late on schedules, and do not test the complete system.
- The challenges of testing highly integrated systems in a net-centric setting.
- "Truths" of operational flight test (lessons learned).

Course Outline
  Day One
  - Course Introduction
  - OT&E in Acquisition
  - Developing User Requirements
  - Dissecting User Requirements (including student exercise preparation)

  Day Two
  - Requirements exercise presentation preparation and briefing
  - T&E Planning and OT&E Thoughts
  - OT&E Risk Management

  Day Three
  - OT&E Products: Project Proposals; Test Plans; Test Reports
  - OT&E Planning & Test Cards
  - Human-System Interaction in Design & Operations (Part I)
  - Integrated Systems OT&E

  Day Four
  - Closed Loop Handling Qualities in OT&E
  - Human-System Interaction in Design & Operations (Part II)

- OT&E Configuration Management
- OT&E Suitability
- Initial Operational Assessment Assignments
- IOA Preparation Time

Day Five
- Initial Operational Assessments & Syndicate Discussions
- Lessons Learned
- Course Critiques

Classroom hours / CEUs
35.00 classroom hours
3.5 CEUs

Certificate Track
Flight Test and Aircraft Performance

Course Fees
Early registration course fee: $2,595 if you register and pay by the early registration deadline (45 days out).

Regular registration course fee: $2,795 if you register and pay after the early registration deadline.

U.S. Federal Employee Discount
This course is available to U.S. federal employees at 10% off the registration fee. To receive the federal employee discount, you must enter the code **FGVT116** during the checkout process. Please note that you must validate your eligibility to receive this discount by entering your U.S. government email address (ending in .gov or .mil) when creating your online registration profile. This discount is available for both the early registration and regular registration fees.

Instructor Bios

George Cusimano is the co-founder and Chief Operating Officer of Vector LLC aviation consulting services. He is a flight test engineer and educator with more than 40 years of experience in research, development, and test of important leading edge technologies. He has flight-tested complex systems, such as the F-117, B-2, X-33 (single stage to orbit prototype), DarkStar UAV and X-35 (Joint Strike Fighter prototype). In addition to multiple postings as a flight test engineer, George was: the Director of Test and Evaluation for the F-117 System Program Office; the Chief of Flight Test Engineering for the B-2 Combined Test Force; the Deputy Director of the Joint STARS Combined Test Force; and the Director of Flight Test at the Lockheed Martin Skunk Works. George has also taught at the National Test Pilot School and has served as a Technical Advisor to the United States Air Force. He retired from the United States

Air Force as a colonel after 24 years of service. George holds a B.S. in mechanical engineering and an M.S. in industrial engineering from Arizona State University. He is a graduate of the USAF Test Pilot School and a Fellow of the Society of Flight Test Engineers.

Kent Nelson is a co-founder and Chief Executive Officer of VECTOR LLC Aviation and Flight Test Consulting Services. He is a flight test engineer and educator with over 45 years of experience in aircraft maintenance, DT&E, and OT&E on a multitude of aerospace weapons systems including B-52s, B-1s, B-2s, cruise missiles, and ICBMs. During his USAF career, Kent worked as a flight line maintenance officer supporting KC-97, B-52D/H, and UH-1F strategic operations. After graduating from USAF Test Pilot School he worked on the B-1A; served an exchange tour with the Canadian Forces at the Aerospace Engineering Test Establishment, CFB Cold Lake Alberta; and served as a requirements officer at HQ Strategic Air Command on several systems including the Air Launched Cruise Missile, the B-1A, and classified programs. He was Deputy Chief of Flight Test Instrumentation at Edwards AFB; Deputy Director, B-2A OT&E; and Director, Test & Evaluation at HQ SAC responsible for three dedicated OT&E test squadrons with more than 660 people. He retired from the Air Force as a Colonel after 25 years of service. He has been an instructor at the USAF Test Pilot School and a contract instructor at National Test Pilot School. Kent has a B.S in mechanical engineering (Aero Option) from University of Wyoming and an M.S in Systems Management from USC. He is a USAF Test Pilot School Distinguished Graduate and Outstanding Flight Test Engineer. Kent is a Senior Member of the Society of Flight Test Engineers.

This class is available for delivery at your company.
Your company can realize substantial savings by bringing an aerospace short course to your workplace. On-site delivery is ideal for organizations that need to train 10 or more employees on a specific topic. For more information on on-site course delivery, or to request a cost proposal, please contact us at 913-897-8782, or email us at ProfessionalPrograms@ku.edu.

CONTACT US:

KU Jayhawk Global
Aerospace Short Course Program
1515 St. Andrews Dr.
Lawrence, KS 66047
Email: jayhawkglobal@ku.edu
Phone: 785-864-6779 (Registration)