

Related Resources from SAE International

Introduction to Failure Modes and Effects Analysis for Product Design (Design FMEA) Seminar

This seminar covers analytical process in which potential failure modes, failure effects, and causes of failure are identified. Criticality and risk analysis concepts for dealing with the effects of failure are also covered. This seminar is designed to assist individuals responsible for design and development activities in the completion of a Design FMEA. This course covers the AIAG standardized format for FMEA and the succeeding SAE Recommended Practice for FMEA, J1739, which is included in the course materials. (I.D.# 90034; \$665 List/\$615 Member; January 10, 2005, Troy, MI)

Practical Reliability Engineering, Testing and Growth Management Seminar

This course focuses primarily on designing products for very high reliability and durability at lower life cycle costs through a variety of techniques. The cost savings that engineering changes made through qualitative analysis such as FMEA, FTA during the initial design can offer are discussed as well as optimization techniques for life cycle management. (I.D.# 88018; \$1,045 List/\$965 Member; November 16-17, 2004, Troy, MI)

NEW Safety Test Methodology, and Accelerated Testing and Vehicle Reliability

This special publication includes 19 technical papers from the SAE 2004 World Congress, including subjects such as new methods of side impact simulation, accelerated tests of wiper motor retainers, hybrid accelerated stress testing, and test design and acceleration for product lifetime reliability. (SP-1879; \$89.95 List/\$71.96 Member)

The New Weibull Handbook – 4th Edition

By Dr. Robert Abernethy

A world standard reference for Weibull analysis techniques, this handbook contains step-by-step instructions for performing a Weibull analysis and related techniques such as forecasting failure quantity expected, Wei Baynes comparison, substantiation test planning, least cost replacement interval, and related techniques, with several case studies for each method included. (PD0494006; \$98.00 List/Member)

System Integration Process for Accelerated Development

By M. Rechs and Rudolf J. Menne

This book explains how the integration of simultaneous engineering processes into the higher-level strategic business process can help accelerate the conversion of an idea into a finished product, resulting in a competitive advantage. Although examples in this book center on the development of the combustion engine, the processes and models presented are transferable to virtually any other mass-produced article. (R-319; \$79.95 List/\$63.96 Member)

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Accelerated Test Methods for Ground and Aerospace Vehicle Development Seminar

October 4-5, 2004



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NEW

Accelerated Test Methods for Ground and Aerospace Vehicle Development Seminar

Earn CEUs towards a graduate degree program or professional certificate by attending this seminar

October 4-5, 2004

Held in conjunction with
IEEE ASTR 2004
Chicago, Illinois
See inside for details.

www.sae.org

Accelerated Test Methods for Ground and Aerospace Vehicle Development Seminar

October 4-5, 2004

This seminar is also offered on December 6-7, 2004 and April 14-15, 2005

Engineers and managers involved with product development are constantly challenged to reduce time to market, minimize warranty costs, and increase product quality. With less and less time for testing, the need for effective accelerated test procedures has never been greater. This course covers the benefits, limitations, processes, and applications of several proven accelerated test methods including accelerated reliability, step stress, FSLT (Full System Life Test), FMVT[®] (Failure Mode Verification Testing), HALT (Highly Accelerated Life Testing), and HASS (Highly Accelerated Stress Screening). A combination of hands-on exercises, team activities, discussion, and lecture are used throughout the course. Participants will also receive a copy of the instructor's *Accelerated Testing and Validation Management*, which includes numerous hands-on exercises and a CD with analytical spreadsheets.

Attendees are requested to bring a calculator to the seminar.

Benefits of Attending

By attending this seminar, you will be able to:

- Choose the accelerated test method for a given application
- Analyze accelerated testing results
- Explain how to accelerate one's current test methods
- Explain how to accelerate one's validation program
- Adjust accelerated test programs for business situations
- Describe how product development cycles can be reduced from 18 to 6 months

Who Should Attend

This seminar is designed for anyone involved in product design, life testing, reliability testing and validation for passenger cars, light trucks, heavy duty, off-highway or aerospace vehicles, including reliability engineers, validation engineers, design engineers and their managers. Users or purchasers of testing or engineering services will also find this course to be valuable. There are no prerequisites for this course although a technical background is helpful.

This seminar qualifies for CEUs toward a graduate degree program or professional certificate

Seminar Content

Statistical Model for Reliability

Testing

- Fundamentals of a statistical reliability test
- Effects of automotive supply chain on sample size and duration
- Common pitfalls
- Examine and solve two or three real life statistical data set problems

Key Accelerated Tests, Terms, and Methods

- Definitions: Information goal, basic method, limitations
- Full System Life Test (FSLT)
- Step Stress
- Accelerated Reliability Highly Accelerated Life Test (HALT)
- Failure Mode Verification Test (FMVT)
 - Development
 - Warranty
 - Life prediction

Test Acceleration vs. Program Acceleration

- Advantages of accelerating a full validation program compared to an individual test
- Examples of time/cost saved on individual test acceleration
- Examples of time/cost saved on program acceleration

Hybrid – Acceleration Methods

- Using information goals of individual test methods to combine and leverage tests
- Hands-on team exercise: combine test methods to solve a particular information need

Decision and Selection Process

- How to choose which method
- Considering position in supply chain
- Considering business model and product type
- Considering development phase
- Considering component, subsystem, and system level testing
- Hands on team exercise: selecting optimal testing solution for several scenarios

Earn CEUs toward a graduate degree program or professional certificate.

A certificate of achievement indicating the number of Continuing Education Credits (CEUs) will be awarded to participants upon completion of this seminar. Visit www.sae.org/contedu/credits for more information and a list of colleges/universities.

Maximize your learning investment-- Attend this seminar and ASTR 2004!

This offering of the SAE Accelerated Test Methods Seminar will be held immediately prior to the IEEE/CPMT Workshop on Accelerated Stress Testing and Reliability (ASTR 2004), October 6-8, Chicago, Illinois. Plan to attend this course and also register for ASTR 2004 for even greater educational benefit. See <http://www.ewh.ieee.org/soc/cpmt/tc7/ast2004> for more information.

Instructor: Alexander (Alex) J. Porter

Mr. Porter is the engineering development manager for the Testing and Engineering Division of Entela, and has been with the company since 1992. Since 1996, he has been developing accelerated testing methods for mechanical components and systems. Mr. Porter has three patents relating to accelerated testing equipment and methods. His work in the past has included implementation of FEA in a laboratory setting and development of a thermal management system for an advanced data acquisition package developed by NASA's Dryden Flight Research Facility. He holds a B.S. in aircraft engineering and an M.S. in mechanical engineering, both from Western Michigan University. He is a member of SAE and IEEE.



Sending 5 or more people to the seminar?

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Accelerated Test Methods for Ground and Aerospace Vehicle Development Seminar

CEUs awarded upon completion: 1.3

Fee: \$1,085; SAE Members: \$985

When registering, refer to ID# C0316

To register

Web: www.sae.org/seminarinfo

Phone: 1-877-606-7323 (U.S. & Canada only) 1-724-776-4970

E-mail: CustomerService@sae.org

Fax: 1-724-776-0790

Mail: SAE Customer Service, 400 Commonwealth Drive, Warrendale, PA 15096-0001

 If you have a disability that may impact your participation in this seminar, please call 2 weeks prior to the start date so that we can address your needs.

Cancellations — If you cannot attend, you may send a substitute or transfer to a future offering. A full refund is issued if you notify SAE at least 14 days prior to seminar start date. If canceled less than 14 days prior, the full fee is charged. For \$50, you may process a one-time transfer to a future offering within one year of canceled seminar. Canceling may reduce group discounts. To cancel, transfer or send a substitute, call SAE Customer Service (numbers listed above).

Note: SAE reserves the right to change instructors or cancel seminars and cannot be held responsible for costs incurred other than the registration fee. Prices subject to change.