FEATURED COURSES

• New! Acoustic Fundamentals for Solving Noise and Vibration Problems Webinar—Page 6
• Vehicle Sound Package Materials Webinar—Page 9
• Introduction to NVH Aspects of Hybrid and Electric Vehicles Seminar—Page 11
• Vehicle Noise Control Engineering Academies - Page 12 and page 14
Welcome to the Summer Issue of the Noise, Vibration, and Harshness Education and Training Guide. We have again included ALL the training and education SAE offers related to NVH technology—live classroom, live online, and online on demand courses. Training when you want it.

The technology covered by these courses include:

- Vibration analysis
- Diesel engine noise
- Hybrid and electric vehicle noise
- Brake noise and brake noise resolution
- Vehicle interior noise and vehicle powertrain noise
- Materials for noise control

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SAE International is a global association committed to being the ultimate knowledge source for the mobility engineering professional. By uniting over 135,000 engineers and technical experts, we drive knowledge and expertise across a broad spectrum of industries. We act on two priorities: encouraging a lifetime of learning for mobility engineering professionals and setting the standards for industry engineering.

SAE International is the world’s leader in mobility engineering knowledge. We are trusted by engineers and other professionals around the globe to provide a broad, multi-sector source for information and solutions. The SAE International Professional Development program offers access to over 300 classroom, live online, and online, on demand learning opportunities — training that supplies the right content to help solve your specific challenges.

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A LEARNING FORMAT TO FIT EVERY NEED

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What is your learning need?
SAE International offers a variety of learning formats to accommodate diverse learning styles. Explore classroom, live and online, and online and on demand courses.

Many courses are offered in multiple formats to fit your exact need. Be sure to watch for the icons that identify the format available for each course.

Seminars or workshops available as similar live, online webinars or online and on demand courses, will feature icons and information about the schedule and fees for all platforms.

CATALOG KEY

You will see the following icons with the course descriptions.

These icons indicate:
• Delivery formats available for the course
• That the course is part of a certificate program

Many courses are available in multiple formats. In addition to finding courses that fit your technology need, look for courses with icons that fit the way you want to learn.

CLASSROOM
indicates that course is an instructor-led seminar or workshop offered in a classroom setting

LIVE, ONLINE
indicates this course is an instructor-led webinar offered live and online via telephone and internet connection

ONLINE, ON DEMAND
These offerings are available online anytime the participant would like to access the course through the internet

CERTIFICATE
This icon indicates that this course is part of an SAE International curriculum-based, multi-course certificate.

As an IACET Authorized Provider, SAE International offers CEUs for its programs that qualify under the ANSI/IACET Standard.
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17  SELECTED LIVE LEARNING SCHEDULE

We do our best to schedule live learning offerings as far in advance as possible to help you better plan your training needs. The information in this resource guide reflects the most accurate information available at the time of publication. Rarely, unforeseen circumstances may force a change in the live learning schedule. For the most up-to-date listing of scheduled offerings visit training.sae.org/all/bydate. SAE International reserves the right to cancel courses and cannot be held responsible for costs incurred beyond registration fees.
Brake noise is one of the highest ranked complaints of car owners. Consumer expectations and the high cost of warranty repairs are pushing the optimization of brake NVH performance. This course will provide you with an overview of the various damping mechanisms and tools for analyzing and reducing brake noise. A significant component of this course is the inclusion of case studies which will demonstrate how brake noise squeal issues have been successfully resolved.

LEARNING OBJECTIVES

By attending this seminar, you will be able to:
• Describe the various brake shim damping mechanisms
• Compare the various brake shims available in the marketplace
• Describe the various tools available to reduce brake noise
• Utilize lessons learned in various brake noise problem case studies

WHO SHOULD ATTEND

The course is designed for a wide range of personnel from the brake test engineer who seeks to understand more about brake NVH to the experienced brake NVH/design engineer who wishes to know more about potential solutions. Anyone involved in the resolution of brake noise problems will find this course helpful.

CONTENT HIGHLIGHTS

• Brief Review of Brake Noise
• Types of brake noises
• Principles and Applications of Brake Shims
• Damping
• Tools for Brake Noise Analysis/Reduction
• Brake noise categorization
• Squeal
• Pressure distribution optimization
• Moan/Groan
• After-stop noise program -- Problem identification; Transmission of the road to the

INSTRUCTOR

Eric Denys
Vice President of Sales, Marketing & Technology
Material Sciences Corporation

Grunts, groans, squeaks, and squeals are common descriptions of the annoying problem which brake engineers spend many hours trying to resolve.
Brake Noise, Vibration, and Harshness (NVH) is recognized as one of the major problems currently faced by the automotive manufacturers and their suppliers, with customers warranty claims of more than $100 million per year for each manufacturer. With increasing consumer braking performance expectations, automotive OEM’s and suppliers need the ability to predict potential problems and identify solutions during the design phase before millions of dollars have been spent in design, prototyping, and manufacturing tooling. This seminar provides an introduction to brake NVH, including a concise summary of the various brake NVH problems, current lab and vehicle measurement techniques and SAE global standards which are utilized to characterize the noise correctly in order to get the best option/solutions quickly. The information provided will serve as an excellent foundation for understanding and characterizing brake NVH issues and is an excellent primer to the SAE Seminar - Brake Noise Problem Resolution (ID# C0831) - see course description on page 3.

LEARNING OBJECTIVES
By attending this seminar, you will be able to:
• Describe NVH and brake NVH
• Identify the various brake NVH problems
• Describe the components of a brake NVH dynamometer
• Configure and perform dyno and vehicle brake NVH tests measurements
• Utilize SAE J2521, the only international standard for brake NVH dynamometer evaluation
• Interpret basic noise and vibration data in the time and frequency domain
• Explain the premise behind various SAE Standards related to brake NVH

WHO SHOULD ATTEND
The information in this course is relevant to a wide audience, from the brake test technician who seeks to understand more about NVH and brake NVH, to the experienced brake NVH engineer who wishes to know more about the details of the tests performed and the meaning of the results. Brake development and brake component engineers who are not familiar with brake NVH will also find the course beneficial.
CONTENT HIGHLIGHTS

• Basics of Noise and Vibration
• Basics of Brake NVH
• Basic Dynamometer Testing
• Vehicle Brake Testing
• Brake SAE NVH Standards Currently Released and Under Development
• SAE J2598 - Automotive Disc Brake Pad Natural Frequency and Damping Test
• SAE J2786 - Automotive Brake Noise and Vibration Nomenclature
• SAE J2933 - Verification of Brake Rotor Modal Frequencies
• SAE J3001 - Brake Insulator Damping Measurement Procedure
• Introduction to Brake NVH Problem Resolution

INSTRUCTOR

Eric Denys
Vice President of Sales, Marketing & Technology
Material Sciences Corporation

L.D.# C1337

SCHEDULE

October 9, 2014
Burlingame, California
Held in conjunction with the SAE 2014 Brake Colloquium and Exhibition

FEES

List: $745
Members
Class: $675
Premium: $635
Elite: $595

ONE-DAY/.7 CEUS

Get more information and register:
training.sae.org/seminars/C1337

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NEW! ACOUSTIC FUNDAMENTALS FOR SOLVING NOISE AND VIBRATION PROBLEMS WEBINAR

This webinar will provide an introduction to the characteristics of sound waves, human perception of sound, sound and vibration measurements, measurement facilities, and various noise sources and noise control principles. It will include an overview of sound pressure, power, intensity, decibels, and frequencies. Practical examples will be used to familiarize participants with the acoustic fundamentals for solving noise and vibration problems and the associated solution principles.

LEARNING OBJECTIVES

By connecting with this webinar, you will be able to:
• Discuss the differences of various acoustic terminologies that are important to solve noise and vibration problems
• Define a relationship between sound pressure, sound power, and sound intensity
• Associate decibel to both sound and vibration
• Prepare effective acoustic specifications encompassing all variables that affect noise and vibration
• Select correct instrumentation for noise and vibration measurements recognizing the challenges of measurements
• Define the source-path-receiver relationship
• Determine the steps of noise and vibration source identification process for a given application
• Employ different noise control options to address specific noise and vibration issues

WHO SHOULD ATTEND

This fundamental webinar will be especially valuable for technical staff, engineers, and managers with limited experience in noise and vibration.

CONTENT HIGHLIGHTS

• Waves
• Pressure, power, intensity
• Frequency
• Decibels
• Frequency
• Human Perception of Sound
• Instrumentation and Facilities
• Various Noise Sources
• Noise Control Principles

INSTRUCTOR

Pranab Saha
Principal Consultant and Co-founder
Kolano and Saha Engineers, Inc.
NEW! VIBRATION ANALYSIS USING FINITE ELEMENT ANALYSIS (FEA) WEBINAR

Explore similar subject matter in the classroom seminar - Vibration Analysis using FEA: A Hands-on Workshop - see course description on page 16.

This six-session webinar introduces vibration analysis performed with Finite Element Analysis (FEA). By considering time-dependent loads and inertial and damping effects, vibration analysis allows for a more in-depth product simulation thus reducing product development cost and time. The course reviews basic concepts of vibration analysis and illustrates how they are implemented in FEA to simulate product behavior. The most common types of vibration analysis such as modal, time response, frequency response and random vibrations will be covered.

LEARNING OBJECTIVES
By connecting with this webinar, you will be able to:
• Evaluate the importance of dynamic effects in product simulation
• Analyze inertial and damping effects in structural response
• Perform modal analysis, time response analysis and frequency response analysis
• Apply proper FEA modeling techniques to model system vibration
• Use vibration analysis as a design tool

CONTENT HIGHLIGHTS
• Structure vs. Mechanism
• Simulation Process with the FEA
• Verification and Validation of FEA Results
• Modal Analysis
• Time Response Analysis
• Frequency Response Analysis
• Random Vibration
• Linear vs. Non-linear Vibration Analysis
• Modeling Considerations in Vibration Analysis

INSTRUCTOR
Dr. Paul Kurowski
Professor, Department of Mechanical and Materials Engineering, University of Western Ontario
President, Design Generator Inc.

I.D.# WB1401

SCHEDULE
Open enrollment dates being scheduled. Please view the course webpage for the most up-to-date schedule for this course.

FEES
List: $810
Members
Classic: $729
Premium: $689
Elite: $648

SIX, 2-HOUR SESSIONS/1.2 CEUS

Get more information and register: training.sae.org/webinars/wb1401
SOUND PACKAGE MATERIALS FOR VEHICLE NOISE CONTROL

Explore similar subject matter in the live online webinar - Vehicle Sound Package Materials - See course description on page 9.

This seminar provides a detailed analysis of three different classes of acoustical materials - absorbers, barriers, and dampers, and how they are different from each other. The seminar addresses new advances in acoustical materials that impact the vehicle acoustics; and covers ways to evaluate the acoustical performance of these materials using different test methods. The seminar starts with the fundamentals of NVH and sound quality related to sound package materials and discusses the importance of various noise sources that impact the development of sound package treatments in a vehicle.

LEARNING OBJECTIVES
By attending in this seminar, you will be able to:
• Identify various descriptors that are used in NVH and sound quality while working with sound package materials
• Recognize various noise sources and paths in a vehicle
• Identify three different classes of acoustical materials
• Describe ways that acoustical materials work and how they differ from each other
• Road map for vehicle sound package development
• Distinguish test methods used to evaluate the acoustical performance of material

WHO SHOULD ATTEND
This seminar is designed for those with responsibilities in the areas of manufacturing, design, engineering, process, noise and release engineering, supervision or management.

CONTENT HIGHLIGHTS
• Fundamentals of NVH and Sound Quality
• Vehicles Noise Sources and Solutions
• Noise control solution - source, path, receiver
• Noise control system using sound package materials
• Materials for Vehicle Noise Control
• Different Automotive Measurements
• Vehicle; Component; Material

INSTRUCTOR
Pranab Saha
Co-Founder and Principal Consultant
Kolano and Saha Engineers, Inc.

“This two-day seminar covered practical acoustics from A to Z.”

Jeff Anderson
Engineer
Textron

I.D.# 92032

SCHEDULE
Open enrollment dates being scheduled. Please view the course webpage for the most up-to-date schedule for this course.

Consider the webinar on page 9.

FEES

<table>
<thead>
<tr>
<th>List</th>
<th>Members</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classic: $1,185</td>
<td>Premium: $1,125</td>
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</tbody>
</table>

TWO-DAYS/1.3 CEUS

Get more information and register: training.sae.org/seminars/92032
VEHICLE SOUND PACKAGE MATERIALS WEBINAR

Explore similar subject matter in the classroom seminar - Sound Package Materials for Vehicle Noise Control - See course description on page 8.

This webinar provides a detailed understanding of the source - path-receiver relationship for developing appropriate sound package treatments in vehicles and transportation devices. The webinar provides a detailed overview of absorption, attenuation (barrier), and damping materials and how to evaluate their performances on material, component, and vehicle level applications. Case studies that demonstrate how properly designed sound package materials successfully address vehicle noise issues are a significant part of this course.

LEARNING OBJECTIVES
By connecting with this webinar, you will be able to:
• Identify various descriptors that are used in acoustics while working with sound package materials
• Identify three fundamentally different sound package materials used in the industry; explain how these materials work and how to improve their performance
• Describe how various measurements are made and why they are necessary on a material, component, and vehicle level
• Prescribe appropriate sound package materials for specific NVH issues
• Construct proper protocols for combining different sound package materials for different components so that the final vehicle meets the required acoustic target

WHO SHOULD ATTEND
This webinar will be especially valuable for those new to the vehicle sound package area. The webinar is also designed for those involved with noise control materials and parts for mobility.

CONTENT HIGHLIGHTS
• Vehicle Noise Sources and Solutions
  • The noise system - sources
  • Ranking noise paths
  • Source-path-receiver relationship
• Sound Package Material - Absorber, Barrier, Damper
• Component and Vehicle Level Noise Measurements

INSTRUCTOR
Pranab Saha
Co-Founder and Principal Consultant
Kolano and Saha Engineers, Inc.

“I.D.# WBI204
SCHEDULE
September 10-19, 2014
Live Online
FEES
List: $620
Members
Classic: $558
Premium: $527
Elite: $496
FOUR, 2-HOUR SESSIONS/.8 CEUS
Get more information and register: training.sae.org/webinars/WB1204

ALSO AVAILABLE AS AN ONLINE, ON DEMAND COURSE
SAE Webinar Recordings are audio/visual captures of live webinars. The course sessions are unedited and include the results of interactions between the instructor and participants. A learning assessment is available at the end of the course to reinforce learning and retention and gauge your understanding of the topic.

“I.D.# PD331204ON
FEES
See above
8-HOURS/.8 CEUS
Get more information on this webinar recording: training.sae.org/webrecordings/PD331204ON

“Relevant, realistic and informative.”
Md Zakir Ahmed
Sr. Manager, Process Engineering
Volkswagen India Pvt Ltd.
This webinar provides an in-depth overview of diesel engine noise including combustion and mechanical noise sources. In addition, the instructor will discuss a system approach to automotive integration including combining sub-systems and components to achieve overall vehicle noise and vibration goals.

LEARNING OBJECTIVES
By connecting with this webinar, you will be able to:
• Identify and analyze commonly occurring diesel engine noise sources
• Understand how analytical and experimental techniques can be used to solve diesel noise issues
• Prescribe appropriate noise control analysis and solutions for specific diesel engine NVH issues

WHO SHOULD ATTEND
This webinar is ideal for those want to understand the root causes of many diesel engine noise issues, and how to use this understanding to better diagnose and control diesel engine-related noises.

CONTENT HIGHLIGHTS
• The Basics of Diesel Engine Noise
• Combustion Noise Forcing Functions
• Combustion Mode Switching
• Mechanical Forcing Functions in Diesels
• Separating Combustion and Mechanical Noise Sources
• Strategies for Reducing Forcing Functions
• Surface Radiated Noise
• Exterior Covers: Radiated Sound and Simulation Modeling
• Gear Train Noise Issues and Countermeasures
• Drive-By Noise Contribution
• Diesel Engine Design Considerations for Low Noise
• Application Noise Issues

INSTRUCTOR
Thomas Reinhart
Program Manager for NVH
Southwest Research Institute, Engine, Emissions, and Vehicle Research Division

“This was a great webinar for introduction into engine noise sources and paths, as well as techniques used to improve engine NVH quality.”

John Roxworthy
Sound Development Engineer
Caterpillar, Inc.
INTRODUCTION TO NVH ASPECTS OF HYBRID AND ELECTRIC VEHICLES

NVH refinement is an important aspect of powertrain development and the vehicle integration process. While developing the NVH behavior of the vehicle is critical to satisfy customer expectations, it is also important to consider the influence of reduced exterior noise levels on pedestrian safety. This seminar introduces participants to basic NVH principles and unique NVH challenges encountered in the development of HEV, ReEV, and EV including engine start/stop behavior, electric motor whine, driveline NVH, body structure, influence of noise from accessories, and sound quality development, as well as potential countermeasures.

LEARNING OBJECTIVES

By attending this seminar, you will be able to:
• Articulate the basic principles of NVH
• Describe the relative importance of powertrain noise, wind noise, and road noise in the vehicle’s interior
• Identify the key sub-components of powertrain noise and means to control them
• Explain the key NVH issues specific to electrified vehicles and means to develop appropriate countermeasures
• Identify key metrics available to assess the NVH performance of electrified vehicles
• Develop an awareness of advanced NVH methodologies available to design the sound character of electrified vehicle

WHO SHOULD ATTEND

This seminar has been developed for engineers involved in all fields related to the design or development of electrified vehicles.

CONTENT HIGHLIGHTS

• Automotive NVH Fundamentals
• Fundamentals of noise, vibration, and sound quality
• Powertrain-induced interior noise
• Engine, transmission, and driveline noise
• Intake and exhaust noise, road-induced noise
• “Road Map” for vehicle NVH development of HEV, ReEV, PHEV, and EV
• HEV/EV driveline NVH using case study examples
• Application of powertrain-induced vehicle interior noise simulation

INSTRUCTOR

Kiran Govindswamy
Director of NVH, Driveline and Vehicle Integration, North American Technical Center of FEV, Inc.
This Engineering Academy covers a variety of vehicle noise control engineering principles and practice. Two specialty tracks are available: Vehicle Interior Noise and Powertrain Noise. The Vehicle Interior Noise track focuses on the understanding and application of acoustical materials to optimize NVH in the passenger or operator compartment of a vehicle. Considerable attention is given to current measurement and instrumentation technologies and their effective use.

**Practical Component**
This Academy includes several equipment demonstrations and hands-on lab sessions. Specific instrumentation suppliers have been selected for an instrumentation workshop on one evening. There is also a field trip to one of the OEM’s noise and vibration facility in the metro Detroit area. Through these activities, you become acquainted with relevant instrumentation, measurement protocols, and problem solving strategies.

**LEARNING OBJECTIVES**
By attending this seminar, you will be able to:

- Define vehicle acoustics engineering terminology and principles
- Identify available acoustical materials and determine their optimum application
- Formulate a systematic approach to problem solving and measurement
- Conduct appropriate performance verification tests
- Analyze the contributing vehicle noise sources when devising noise solutions
- Produce valid measurements with noise instrumentation and accurately interpret results

**WHO SHOULD ATTEND**
This academy will be especially valuable for engineers who address interior noise in the following types of vehicles:

- Passenger cars
- Light trucks
- Heavy trucks
- Off-highway vehicles
- Farm machinery
- Small planes
- Personal watercraft
- Rail transit vehicles

**PRE-ACADEMY**
The SAE Pre-Academy consists of 2-1/2 hours of web-based lessons that can be accessed at your convenience. These lessons provide an overview of basic sound and vibration concepts that are the foundation of noise control engineering. Access to the Pre-Academy web site will be available to all registrants on October 14.
CONTENT HIGHLIGHTS

• Sound Quality
• Vehicle Interior Noise-Related Topics
• Numerical Methods and Modeling
• Test Facilities and Measurements
• Numerical Acoustics
• Sound and Vibration Sensors
• Sound Level Meters and Analysis
• Source-Path-Receiver System
• Acoustical Materials and Test Methods
• Acoustical Materials and Test Methods Instrumentation
• Modal Analysis
• Component Measurements
• Workshop/Demonstrations
• Team Discussion
• OEM Facility Tour

INSTRUCTOR

This academy has several expert instructors from industry. See the complete list of instructors on the course website.

I.D.# ACAD01

SCHEDULE

October 27-31, 2014
Troy, Michigan

FEES

List: $3,345
Members
Classic: $3,011
Premium: $2,843
Elite: $2,676

FIVE-DAYS/4.0 CEUS

Get more information and register:
training.sae.org/academies/acad01

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SAE members who have completed an SAE training in the last 12-months can get an additional 20% off of additional courses if taken in the same 12-month period. Take a seminar in August; get 20% off two more seminars if taken by next August. Take a seminar in June; get 20% off of a seminar and an e-Seminar if taken by the next June. Some courses and learning products are not eligible. Visit training.sae.org/discounts/ to view exclusions and conditions.

Call SAE Customer Service to register and get your discount! 1-877-606-7323 (1-724-776-4970 outside the U.S. & Canada). Please use promo code FREQUENTPD when registering.
This Engineering Academy covers a variety of vehicle noise control engineering principles and practice. Two specialty tracks are available: Vehicle Interior Noise and Powertrain Noise. The Powertrain Noise track focuses on NVH issues generated by powertrain noise sources and the design strategies to minimize them. Noise sources include engines, transmissions/transfer cases, accessories, exhaust, gears, axles, joints, and couplings. Considerable attention is given to current measurement and instrumentation technologies and their effective use.

Practical Component
This Academy includes several equipment demonstrations and hands-on lab sessions. Specific instrumentation suppliers have been selected to for an instrumentation workshop on one evening. There is also a field trip to one of the OEM’s noise and vibration facility in the metro Detroit area. Through these activities, you become acquainted with relevant instrumentation, measurement protocols, and problem solving strategies.

LEARNING OBJECTIVES
By attending this seminar, you will be able to:
• Define vehicle acoustics engineering terminology and principles
• Articulate powertrain noise terminology and principles
• Formulate a systematic approach to problem solving and measurement
• Conduct appropriate performance verification tests
• Analyze the contributing vehicle noise sources when devising noise solutions
• Produce valid measurements with noise instrumentation and accurately interpret results

WHO SHOULD ATTEND
This academy will be especially valuable for engineers who address powertrain noise in the following types of vehicles:
• Passenger cars
• Light trucks
• Heavy trucks
• Off-highway vehicles
• Farm machinery
• Small planes
• Personal watercraft
• Rail transit vehicles
CONTENT HIGHLIGHTS

• Sound Quality
• Sound quality demonstration
• Engine NVH Mechanisms
• Powertrain & Driveline Noise Sources
• Powertrain Instrumentation Workshop
• Elastomer Properties and Tuned Mass Dampers
• Engine Mounting Systems
• Accessory Drive Noise and Vibration
• OEM Facility Tour
• NVH Signal Processing
• Diesel Engine Noise Sources and Control
• System Integration
• Instrumentation Workshop/Demo
• OEM Facility Tour
• Team Discussion

INSTRUCTOR

This academy has several expert instructors from industry. See the complete list of instructors on the course website.

I.D.# ACAD02

SCHEDULE

October 27-31, 2014
Troy, Michigan

FEES

List: $3,345
Members
Classic: $3,011
Premium: $2,843
Elite: $2,676

FIVE-DAYS/4.0 CEUS

Get more information and register:
training.sae.org/academies/acad02
This seminar introduces one of the advanced types of FEA: vibration analysis. By considering time dependent loads and inertial effects, vibration analysis allows for a more in-depth product simulation thus reducing product development cost and time. The course reviews basic concepts of vibration analysis and illustrates how they are implemented in FEA to simulate product behavior. The most common types of vibration analysis such as modal, time response, frequency response and random vibrations are covered. You will have the opportunity to practice skills learned utilizing the commercial FEA software SolidWorks Simulation.

LEARNING OBJECTIVES
By attending this seminar, you will be able to:
• Evaluate the importance of dynamic effects in product simulation
• Analyze inertial and damping effects in structural response
• Use vibration analysis as a design tool
• Perform time response, frequency response and random vibration analyses
• Apply proper FEA modeling techniques to model system dynamic

WHO SHOULD ATTEND
Design engineers who already use Finite Element Analysis (FEA) as a design tool and would like to explore if and how vibration analysis with FEA may benefit the design process.

CONTENT HIGHLIGHTS
• Structure vs. Mechanism
• Fundamental Assumptions in the FEA
• Verification and Validation of FEA Results
• Modal Analysis; Time Response Analysis
• Frequency Response Analysis
• Random Vibration
• Linear vs. Non-linear Vibration Analysis
• Modeling Considerations in Vibration Analysis

INSTRUCTOR:
Dr. Paul Kurowski
Professor, Department of Mechanical and Materials Engineering, University of Western Ontario
President, Design Generator, Inc.
SELECTED LIVE LEARNING SCHEDULE
for the most up-to-date and complete schedule visit
training.sae.org/all/bydate

Webinar – Live Online
Apr 29-May 1  Patent Litigation in the U.S.: What You Need to Know Webinar -- I.D.# WB0940

Greer, South Carolina - BMW Performance Center
May 19-21  Applied Vehicle Dynamics -- I.D.# C0414

Charlotte, North Carolina - Charlotte/Mecklenburg Police Training Academy
May 13-16  Accessing and Interpreting Heavy Vehicle Event Data Recorders -- I.D.# C1022

Troy, Michigan - SAE International Office
May 13-14  Introduction to Failure Mode and Effects Analysis for Product and Process -- I.D.# C1201
May 15-16  Sound Package Materials for Vehicle Noise Control -- I.D.# 92032
May 19-20  In-Vehicle Networking with LIN and FlexRay Applications -- I.D.# C0136
May 28-30  Advanced Vehicle Dynamics for Passenger Cars and Light Trucks -- I.D.# C0415

Troy, Michigan – SAE International Office
May 12-16  Engineering Management Academy -- I.D.# ACAD09

Webinar - via telephone/internet
May 5-9  Accelerated Concept to Product (ACP) Process using a 3G Design Approach Webinar I.D.# WB1403
May 6-8  Plug-In Vehicle Conductive Charging, SAE J1772 Explained Webinar -- I.D.# WB1046
May 7-16  Tolerance Stack-up Fundamentals Webinar -- I.D.# C0842
May 13  Introduction to Hybrid Powertrains Webinar -- I.D.# C0903
May 21-30  Root Cause Problem Solving: Methods and Tools Webinar -- I.D.# WB0931
May 22  Hybrid and Electric Vehicles: Current Production, Future Strategies Webinar -- I.D.# C0906

Norwalk, California - Cerritos, College (SCCT)
Jun 9-10  Design for Manufacturing & Assembly (DFM/DFA) -- I.D.# 92047

Troy, Michigan - SAE International Office
Jun 2-6  Diesel Engine Technology Engineering Academy -- I.D.# ACAD03
Jun 2  Introduction to NVH Aspects of Hybrid and Electric Vehicles -- I.D.# C1128
Jun 2-3  Control Systems Simplified -- I.D.# C0525
Jun 5-6  Vehicle Frontal Crash Occupant Safety and CAE -- I.D.# C0621
Jun 23-25  Commercial Vehicle Braking Systems -- I.D.# C0233
Jun 24  Surface Texture: Specification and Control -- I.D.# C1110
Jun 30-Jul 2  Strategic Leadership -- I.D.# C0620

Webinar - via telephone/internet
Jun 2-13  Finite Element Analysis (FEA) for Design Engineers Webinar -- I.D.# WB1241
Jun 9-12  Design FMEA Update: What’s New in J1739 Webinar -- I.D.# WB0955

We do our best to schedule live learning offerings as far in advance as possible to help you better plan your training needs. The information in this resource guide reflects the most accurate information available at the time of publication. Rarely, unforeseen circumstances may force a change in the live learning schedule. For the most up-to-date listing of scheduled offerings, visit training.sae.org/all/bydate. SAE International reserves the right to cancel courses and cannot be held responsible for costs incurred beyond registration fees.