

# SEMINAR PROPOSAL GUIDELINES

Instructor Resources



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## *Introduction*

Welcome to SAE Professional Development Seminar Proposal Guidelines.

These Guidelines are designed to assist you in preparing a proposal to teach a seminar/course\* for SAE.

All proposals are reviewed by SAE staff and a technical review committee to determine if the subject matter and content reflect current organizational goals and meet customers' needs.

The materials submitted will help us to:

- Ascertain course content
- Research the marketplace for interest in your course
- Review instructor credentials
- Generate a course description for promotion if the proposal is accepted

These materials will provide you with the information required for submitting your proposal and creating, designing and developing a seminar.

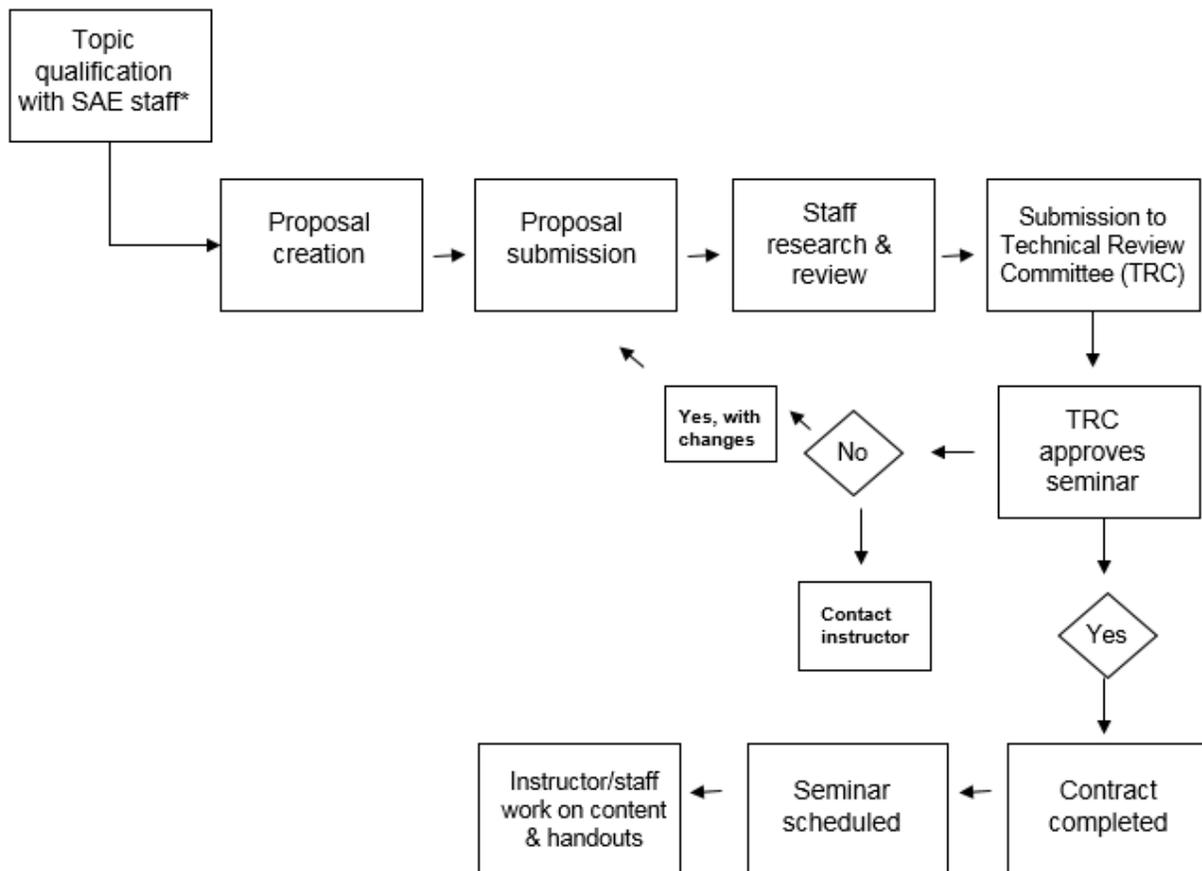
Questions and/or completed proposals should be directed to the Educational Program Developer you are working with or: [Teach@sae.org](mailto:Teach@sae.org)

\*Please note that seminar and course are used interchangeably throughout these Guidelines

## *SAE Professional Development*

### Seminar Proposal Review Process

Proposal submission activates the review process and is the first in a number of steps designed to determine the need for a given topic and ensure quality and consistency of SAE seminars.



\* SAE Staff responsible for new seminar development

## *Seminar Proposal Guidelines*

### *Directions:*

To begin, please download a copy of the “Submitting Your Seminar Proposal” document located by clicking on the [Find out](#) located at the bottom of the [Guidelines for Classroom Seminar Instructors](#) webpage.

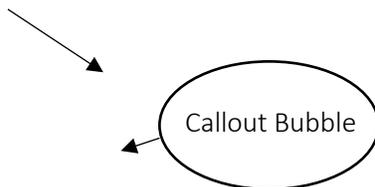
Please carefully review and complete each section of the “Submitting Your Seminar Proposal” document. Refer to the Seminar Proposal Guidelines for directions and examples on completing all sections of the proposal.

You may view the Guidelines by printing a copy or viewing the .pdf on your computer.

If a seminar is approved for open enrollment, a course description is generated from the information provided in the “Submitting Your Seminar Proposal” document. Please keep this in mind as you write the Proposal.

To illustrate how to develop a course description, we have provided a completed sample course description – entitled *Introduction to Brake Control Systems: ABS, TCS, and ESC* at the start and in various sections throughout the Guidelines.

Every section used to generate a final course description for promotional purposes is noted in the callout “bubbles” in the Sample Proposal by section number.



Additionally, we have provided instructions for completing the Proposal. Please view each section along with the samples and instructions provided.

## *Seminar Proposal Guidelines Checklist*

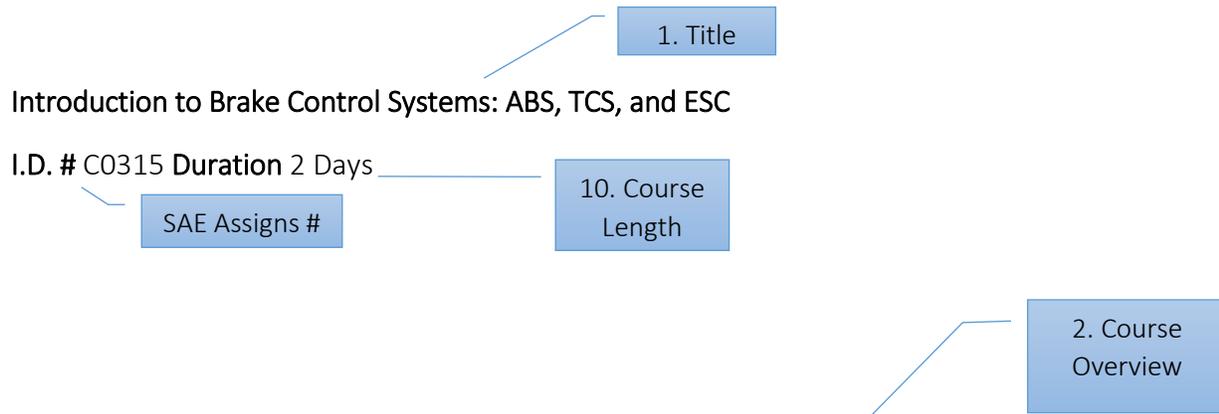
The following items are required to present your seminar proposal to the Technical Review Committee for consideration. Please prepare and submit your proposal in a Word document.

Please check the box when complete. Instructions for each section are provided by page number in parentheses (Example: Page 11). The **Bold** and *Italics* items indicates inclusion in the Course Description. Please see Sample Course Description on Pages 5-9.

|   |   |
|---|---|
| <input type="checkbox"/> <b>1. Proposed Title(s) (Page 10)</b>  | <input type="checkbox"/> <b>10. Estimated Course Length (Page 15)</b>                                 |
| <input type="checkbox"/> <b>2. Course Overview (Page 10)</b>  | <input type="checkbox"/> 11. Audio-Visual Requirements & Room Set-Up; Resource Checklist (Page 16-17) |
| <input type="checkbox"/> 3. Course Justification (Page 11)  | <input type="checkbox"/> 12. Your Professional Resume (Page 17)                                       |
| <input type="checkbox"/> <b>4. Description of the Target Audience and Who Should Attend (Page 12)</b> | <input type="checkbox"/> <b>13. Your Professional Biography (Page 17)</b>                             |
| <input type="checkbox"/> <b>5. A list of Prerequisites (Page 12)</b>                                  | <input type="checkbox"/> 14. Three Professional References (Page 17)                                  |
| <input type="checkbox"/> 6. Mobility Industries Codes (Page 12)                                       | <input type="checkbox"/> 15. Key Words for Describing Your Seminar Topic (Page 18)                    |
| <input type="checkbox"/> 7. Top Companies or Suppliers Interested in the Seminar (Page 13)            | <input type="checkbox"/> 16. Similar Courses Offered to This Industry (Page 18)                       |
| <input type="checkbox"/> <b>8. Course Learning Objectives (Pages 13-14)</b>                           | <input type="checkbox"/> 17. Personal Contacts, Mail Lists, User Groups (Page 18)                     |
| <input type="checkbox"/> <b>9. Course Content (Page 15)</b>   |   |

## Sample Course Description

The course description appears on the SAE website and is used in the promotional brochure. It is one of the primary means by which an attendee decides to attend a seminar.



Once reserved for high-end luxury vehicles, electronic brake control systems are quickly becoming standard equipment on even the most inexpensive cars and trucks. Today, nearly every new vehicle benefits from the optimized braking, enhanced acceleration, or improved stability that these systems provide. This comprehensive seminar introduces participants to the system-level design considerations, vehicle interface requirements, and inevitable performance compromises that must be addressed when implementing these technologies.

The seminar begins by defining the tire-road interface and analyzing fundamental vehicle dynamics. Following an in-depth study of system electronics, hydraulic hardware, and sensor requirements, the participants learn about the control strategies employed by anti-lock brakes (ABS), dynamic rear proportioning (DRP), traction control (TCS), and electronic stability control (ESC) with strong emphasis placed on vehicle dynamic response. The seminar concludes with a study of unique applications, industry trends, and a look forward to advanced brake control system integration. Over 500 pages of detailed course notes and illustrations are provided for on-the-job reference.

## *Sample Course Description... Continued*

### 8. Learning Objectives

#### **Benefits of Attending**

By attending this seminar, you will be able to:

- Analyze brake system design parameters and their vehicle performance effects
- Evaluate the compromises between stability, steerability, and stopping distance
- Discern the discrete mechanical components required for ABS
- Specify fundamental ABS performance attributes
- Estimate dynamic brake balance and explain the benefits of DRP
- Reconcile TCS performance expectations vs. method of implementation
- Interpret ESC metrics and ultimate dynamic limitations
- Discuss opportunities for advanced brake control system integration

### 4. Who Should Attend

#### **Who Should Attend**

This course has been developed for engineers involved in all fields related to the design or development of vehicle dynamics, vehicle braking systems, powertrain systems, chassis systems, or suspension systems. In addition, this course can be valuable to those with component design responsibilities in brake, chassis, suspension, or tire disciplines.

Individuals new to the field of brake control systems will benefit most from the material; this introductory course is not intended for individuals with significant experience with brake control systems. In addition, please note that because of proprietary considerations this class does not provide details of algorithm design, algorithm performance, or algorithm application. Instead, the course places strong emphasis on vehicle dynamic responses.

### 5. Prerequisites

#### **Prerequisites**

An undergraduate engineering degree or a strong technical background is highly recommended. A basic knowledge of college algebra, college physics, and a familiarity with vehicle brake and suspension systems is required.

## *Sample Course Description... Continued*

### Seminar Content

#### DAY ONE

- Tire Road Interface Characteristics
  - Defining slip
  - Longitudinal  $\mu$ -slip relationship
  - Longitudinal vs. lateral slip capacity
  - The friction circle
- Hydraulic Brake System Overview
  - What do braking systems do?
  - How does each component contribute?
  - What are the underlying fundamental relationships?
  - How does this apply to brake control systems?
- Stability, Steerability, Stopping Distance
  - Define stability, steerability, stopping distance
  - Illustrate with  $\mu$ -slip curves
  - Illustrate with friction circle
- Mechanization of ABS
  - ECU functions and components
  - HCU functions and components
  - ABS hold, release, and apply functions
  - Diagnostics and warning lamp considerations
- ABS Sensor Overview
  - The role of sensors
  - Wheel speed sensor technologies
  - Brake apply state sensors
  - Longitudinal accelerometers
- ABS Performance
  - ABS objectives and strategies
  - Basics of ABS wheel control
  - ABS performance on homogeneous surfaces
  - ABS performance under other conditions



9. Course  
Content

## *Sample Course Description... Continued*

### Seminar Content

9. Course  
Content

#### DAY TWO

- DRP Performance
  - Weight transfer and brake proportioning
  - Proportioning valve design and performance
  - DRP strategies, wheel control and performance
  - DRP benefits, design compromises and limitations
- Mechanization of TCS and ESC
  - Additional ECU functions and components
  - Additional HCU functions and components
  - Pressure build sequence
- TCS and ESC Sensor Requirements
  - The role of sensors
  - Steering angle sensors
  - Brake pressure sensors
  - Lateral accelerometers and yaw rate sensors
- TCS Performance
  - TCS objectives and strategies
  - Basics of TCS wheel control
  - TCS performance under various conditions
  - Driveline architecture interactions
- ESC Performance
  - ESC objectives and strategies
  - Basics of ESC wheel control
  - ESC performance
  - Driveline architecture interactions
- Special Conditions and Considerations
  - 4 X 4 and off-road considerations
  - Racing and high-performance considerations
  - Impact of vehicle modifications
- Advanced Integration
  - o Adaptive cruise control
  - o Panic brake assist
  - o Tire inflation monitoring
  - o Brake-by-wire
- Learning Assessment
- Course summary

## Sample Course Description... Continued

### 13. Biography

**Instructor (s):** James Walker, Jr.

James Walker, Jr. is currently a Principal Engineer specializing in chassis, brake, and electronic brake control systems at Carr Engineering, Inc. His prior professional experience includes brake control system development, design, release, and application engineering at Kelsey-Hayes, Saturn Corporation, General Motors, Bosch, Ford Motor Company, and Delphi.

Mr. Walker created scR motorsports consulting in 1997, and subsequently competed in seven years of SCCA Club Racing in the Showroom Stock and Improved Touring categories. Through scR motorsports, he has been actively serving as an industry advisor to Kettering University in the fields of brake system design and brake control systems. Since 2001, he has served as a brake control system consultant for StopTech, a manufacturer of high-performance racing brake systems.

In addition to providing freelance material to multiple automotive publications focusing on chassis and brake technology, Mr. Walker is the author of the book *High-Performance Brake Systems: Design, Selection, and Installation*. In 2005, he was presented with the SAE Forest R. McFarland Award for distinction in professional development and education and in 2010 he was designated an SAE Master Instructor. He obtained his B.S.M.E. in 1994 from GMI Engineering & Management Institute.

Go to: <https://www.sae.org/learn/content/c0315/> to see how this looks on the SAE website.

# Seminar Proposal Guidelines

## 1. Title

### 1. Proposed Title (s)

To create the title:

- Provide two (2) or three (3) titles for consideration
- Be as descriptive as possible
- Capture target audience attention
- Approach the subject in a positive manner
- Keep it short, clear and concise

Sample Titles:

- Introduction to Brake Control Systems: ABS, TCS, and ESC
- Automotive Brake Control Systems
- Fundamentals of Brake Control Technology

## 2. Course Overview

### 2. Course Overview

The course overview is a brief summary (one or two short paragraphs) of the course and is used as the introduction in SAE's promotional brochures.

It should immediately grab the reader's attention and entice someone to attend the seminar.

To create a course overview:

Write a brief summary of your proposed course incorporating the following items:

- Explain why someone should attend
- Briefly tell them what they will learn
- Identify common problems/ issues that are currently high priority in the industry that you will address
- Identify cutting- edge knowledge or future trends related to your course
- Identify software

## Seminar Proposal Guidelines

### 3. Course Justification

Why should SAE offer this seminar?

Sample answers from “Introduction to Brake Control Systems: ABS, TCS, and ESC” are provided below:

Please write a brief summary that answers the following questions:

- **Does this course fill an unmet need? If so, what?**  
SAE currently does not offer any classes related to anti-lock braking systems, traction control systems, electronic stability control, dynamic rear proportioning, active chassis dynamics, or passenger car hydraulic brake system design. By developing a class around brake control systems (ABS, TCS, ESC, and DRP, specifically), all of these topics would be included by default. Heavy emphasis would be placed on practical application of these technologies.
- **Is this new technology that people need to know about?**  
Compared to most vehicle systems, electronic brake control systems are relatively new. While ABS itself has matured over the past fifteen years, electronic stability control systems have only been available to the public for approximately seven years. As this technology is becoming standard equipment on more vehicles every year, the need for awareness is growing in parallel.
- **Is this fundamental technology that is needed by certain groups?**
- Because electronic brake control systems interface with nearly every vehicle subsystem including the chassis, powertrain, driveline, and electrical architecture, engineers in nearly every discipline of automotive design need to be aware of the system integration challenges that brake control systems present.
- **Is this fundamental technology that is needed by certain groups?**
- Because electronic brake control systems interface with nearly every vehicle subsystem including the chassis, powertrain, driveline, and electrical architecture, engineers in nearly every discipline of automotive design need to be aware of the system integration challenges that brake control systems present.
- **How many people need this training?**
- This course should attract individuals from multiple disciplines as described in the “Who Should Attend” section. While difficult to quantify, I would estimate around sixty to eighty participants per year.

## Seminar Proposal Guidelines

### 4. Description of the Target Audience and Who Should Attend

To create the description:

Determine:

- Audience make-up (level of experience, specific types of engineers, industries in which they work, level of job, job title, etc.)
- Level of experience (beginner, advanced, etc.)
- Why they would need this information
- How this information will help them in their jobs/ lives

4. Who Should Attend

### 5. A List of Prerequisites

To create list of prerequisites:

Determine:

- The minimum level of education required
- If industry experience or related training is required to keep up with or gain full benefit from your course

5. Prerequisites

### 6. Industry Codes

Check all applicable mobility industries that employ your target audience

| AERO       |             |       | OFF ROAD           |                    | ROAD |     |       |       | MOTORSPORTS |
|------------|-------------|-------|--------------------|--------------------|------|-----|-------|-------|-------------|
| Fixed Wing | Rotary Wing | Space | Equipment/Vehicles | Specialty Vehicles | Car  | SUV | Truck | Cycle |             |
| ○          | ○           | ○     | ○                  | ○                  | ○    | ○   | ○     | ○     | ○           |

## Seminar Proposal Guidelines

### 7. Top Interested Companies

Please list top companies and/ or suppliers that would be interested in attending this seminar.

For example: General Motors, Caterpillar, Robert Bosch Co., Goodyear Tire and Rubber Co., Visteon, etc.

- Indicate manufacturer, supplier, etc., in the “Role” column
- Provide the geographic location of the companies

| Company           | Role     | Geographic Location |
|-------------------|----------|---------------------|
| a. General Motors | OEM      | Global – HQ MI      |
| b. Lear           | Supplier | Global – HQ MI      |

### 8. Course Learning Objectives (Benefits of Attending)

8. Learning Objectives

To create learning objectives:

- Write learning objectives by telling learners what they will be able to do at course conclusion... Start with the phrase: “**By attending this seminar, you will be able to:**”
- See following page for a step-by-step process to:
  - Write learning objectives
  - Use action verbs for writing objectives

Sample learning objectives:

- **Analyze** brake system design parameters and their vehicle performance effects
- **Evaluate** the compromises between stability, steerability, and stopping distance
- **Specify** fundamental ABS performance attributes

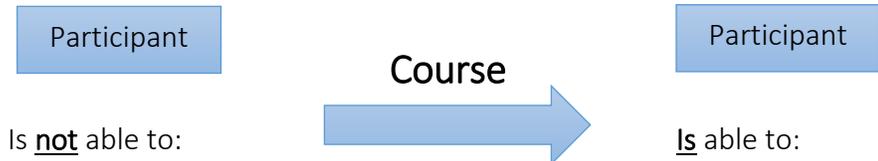
8. Course Learning Objectives\* (Benefits of Attending) (Cont.)

Consider this information as you write the “Learning Objectives” section in the course description

Tell participants what they will be able to do at course conclusion...

Start with the phrase: **By attending this seminar, you will be able to...**

8. Learning Objectives



|        |   |
|--------|---|
| Step 1 | Define what the successful participant is able to do as a result of taking your course. Use action verbs to develop learning objectives.                |
| Step 2 | State your learning objectives (examples):<br>A. State the 4 steps of ____<br>B. Apply principles of ____<br>C. Integrate __ with ____<br>D. ____ _ _ _ |
| Step 3 | Make sure your objectives are verifiable, and then teach to the stated objectives   |
| Step 4 | Evaluate whether students are able to do A – D as a result of taking your course  |

**Typical Action Verbs Used to Write Learning Objectives\***

|               |   |
|---------------|---|
| Knowledge     | Cite, label, name, reproduce, define, list, quote, pronounce, identify, match, recite, state  |
| Comprehension | Alter, discover, manage, relate, change, explain, rephrase, substitute, convert, give examples, represent, summarize, depict, give main idea, restate, translate, describe, illustrate, vary, interpret, paraphrase |
| Application   | Apply, discover, manage, relate, classify, employ, predict, show, compute, evidence, prepare, solve, demonstrate, manifest, present, utilize, direct  |
| Analysis      | Ascertain, diagnose, distinguish, outline, analyze, diagram, divide, point out, associate, differentiate, reduce, conclude, discriminate, find, separate, designate, dissect, infer, determine                      |
| Synthesis     | Combine, devise, originate, revise, compile, expand, plan, rewrite, compose, extend, pose, synthesize, generalize, propose, theorize, create, integrate, project, write, design, invent, rearrange, modify          |
| Evaluation    | Appraise, conclude, critique, judge, assess, contrast, deduce, weigh, compare, criticize, evaluate  |

\*Adapted from Bloom’s Taxonomy of Educational Objectives

## Seminar Proposal Guidelines

### 9. Course Content

- Course Content is comprised of:
  - Course delivery / methodology strategies
  - Interactive course activities
- SAE requires a bulleted outlined inclusive of:
  - Actual course content (including estimate of time for each major topic)
  - Day designation (e.g. DAY ONE, DAY TWO)

9. Course Content

### 10. Estimated Course Length

- Note that a “day” is defined as approximately 6.5 hours of instruction and related activities
- Use the bulleted outline with related times to estimate the course length
- Plan to include two 15-minute breaks (one a.m. and one p.m.) and a one-hour lunch in the course day. The course day typically runs from 8:30 a.m. – 4:30 p.m.

10. Course Length

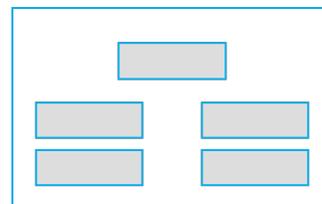


### 11. Audio-Visual & Room Set-Up

To indicate audio-visual requirements and room set-up:

- List all audio- visual requirements and room set-up
  - LCD Projector
  - Computers and required software
  - Flipcharts and markers
  - Demonstration pieces
  - Calculators
  - Other
- Provide information on how the room should be set-up:
  - classroom style
  - extra demonstration tables, if needed
  - other

Default Classroom set-up is traditional:



## Seminar Proposal Guidelines

### Resource Checklist

Please complete prior to course start and attach another sheet, if necessary.

Course Title: \_\_\_\_\_

Course ID: \_\_\_\_\_

Instructor: \_\_\_\_\_

|                      |  |                      |   |
|----------------------|--|----------------------|---|
| Print Materials      | <ul style="list-style-type: none"> <li>▪ Handout (s)</li> <li>▪ Texts (s)               <ul style="list-style-type: none"> <li>- Title _____</li> <li>- Publisher _____</li> </ul> </li> <li>▪ Group exercise worksheets</li> <li>▪ Website resource locations</li> <li>▪ SAE standards and papers               <ul style="list-style-type: none"> <li>- # _____</li> <li>- Title _____</li> </ul> </li> </ul>                    | Computers & Software | <ul style="list-style-type: none"> <li>▪ PC for instructor's PowerPoint presentation</li> <li>▪ Attendee PCs:               <ul style="list-style-type: none"> <li>- 1PC per # _ attendee(s)</li> </ul> </li> <li>▪ Microsoft Office</li> <li>▪ Matlab, Advisor &amp; Simulink</li> <li>▪ Minitab</li> <li>▪ CarSim</li> <li>▪ COSMOSDesignSTAR</li> <li>▪ Other: Please specify _____</li> </ul> |
| Projection Equipment | <ul style="list-style-type: none"> <li>▪ LCD Projector (computer projector)</li> <li>▪ Overhead projector</li> <li>▪ Video player with monitor</li> <li>▪ Screen</li> <li>▪ Audio Projection equipment</li> <li>▪ Laser pointer</li> </ul>   | Misc.                | <ul style="list-style-type: none"> <li>▪ Calculators</li> <li>▪ Highlights</li> <li>▪ Other: Please specify: _____<br/>_____</li> </ul>   |
| Display Materials    | <ul style="list-style-type: none"> <li>▪ PowerPoint slides</li> <li>▪ Videotape</li> <li>▪ Parts, prop, or model cutaway</li> <li>▪ Display tables: # _____</li> <li>▪ Location of display table (s)               <ul style="list-style-type: none"> <li>- Front of classroom</li> <li>- Back of classroom</li> </ul> </li> <li>▪ Instructor flipchart with markers: # _____ charts</li> <li>▪ Whiteboard with markers</li> </ul> | Room Set-up          | <ul style="list-style-type: none"> <li>▪ Classroom</li> <li>▪ U-Shaped</li> </ul>   |

## Seminar Proposal Guidelines

### 12. Professional Resume

Provide your professional resume:

- Outline your educational background
- Outline work experiences
- Provide a list of other organizations for whom you teach or other courses
- Attach with the Proposal or attach a separate file

### 13. Professional Biography

#### 13. Biography

The instructor biography should be one or two short paragraphs that highlight the instructor's background and credentials, including the following

#### Content and Sequence

- Current professional status, including job title and company affiliation
- Brief career history related to the current seminar subject
- Other professional accomplishments including awards, patents, memberships in relevant professional associations, etc.
- Educational credentials including degrees earned and educational institution (s)

#### Dates

- Do not use dates that would require the biography to be updated frequently
- Use approximate numbers of years of experience (e.g., Dr. Smith has over 20 years of experience in brake design)
- Avoid reference to retirement

#### Abbreviations and Acronyms:

- Use abbreviations for educational degrees (e.g., B.S. in Mechanical Engineering)
- Use acronyms for professional societies (e.g., SAE, IEEE, ASQ, etc.)

### 14. Professional References

- List three professional references familiar with your level of technical expertise and instructional experience, and/or evaluations from previous presentations of your course
- Include with reference:
  - Name
  - Title & affiliation
  - Address
  - Telephone and/or email

## Seminar Proposal Guidelines

### 15. Key Words for Describing Your Seminar

To create a list of key words describing your seminar, provide 5-10 key words that can be used to:

- Describe the information in your course
- Identify “hot” topics of interest to the target audience
- Attract potential attendees
- Potentially assist in marketing your seminar

Sample Key Words for a Brake Seminar:

- Brake control system
- Anti-locking braking system (ABS)
- Traction control system (TCS)
- Vehicle stability enhancement system (EST, ICD, VSC, VSE)
- Dynamic rear proportioning (DRP)
- Vehicle dynamics, wheel slip control

### 16. – 17. Additional Items

Please answer items 16-17 as requested:

- Are you aware of similar courses being offered to this industry? If so, please provide the website address or date and location of the event.
- Do you have personal contacts, mail lists, user groups and/or individuals you feel would be interested in attending this seminar? If so, please provide

**Thank you for your submission!**