



## **Safety Instrumented Burner Management Systems Class**

### **2 day (14hr) BMS class**

**That is 14 hours of continuous education to satisfy PE requirements.**

**Date: November 29 & 30, 2017, 8am—4pm**

**Where: aeSolutions, 3800 Centerpoint Drive, Anchorage, AK**

**Instructor: Mike Scott, PE, CFSE**

**Talk to folks in your company or business associates  
to see who else is interested in taking this class**

**Please contact Carrie Ziecina, aeSolutions**

**carrie.ziecina@aesolns.com**

**or (864) 373-6829**

**Interested in the November 29 & 30, 2017 BMS Class in Anchorage**

**Cost: \$1,000.**

**Registration needs to be completed online**

**[The Direct Registration Link:](http://events.r20.constantcontact.com/register/event?llr=azulfngab&oeidk=a07eeqmn0tte81b65d5)**

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**Registration will close by November 20<sup>th</sup>**



## Safety Instrumented Burner Management System

Length: 2 days

PDU: 14

Course Hours: November 29<sup>th</sup> – November 30<sup>th</sup>, 2017, 8:00 a.m. - 4:00 p.m.

Registration Fee: \$1,000

Visit <http://www.aesolns.com/what-is-new/training-seminars.html> and click on the Upcoming Training to register.

### Description:

Fired equipment is found throughout the process industry in many applications, including various types of boilers, ovens, kilns, incinerators, reboilers, bath heaters, process heaters, furnaces, etc. The hazards associated with the burner operation are managed by an instrumented system commonly referred to as the burner management system (BMS). The BMS provides interlocks and permissives to prevent misoperation of equipment and to safely handle faults caused by equipment failure. These events potentially result in uncontrolled fires, explosions, or implosions and in the unintended release of the materials being heated. This course shall provide a thorough overview of the BMS unit operation, as well as, the associated combustion control techniques typically used to maintain a safe firing rate with emphasis on understanding associated hazards and design requirements to mitigate these hazards.

### Objectives:

This course starts with a review of the NFPA, API, ISA, IEC and FM standards that describe Burner Management System design. The requirements of a Burner Management System, based on the standards, are then used to design an example Burner Management System. The details of the design and the design rationale are presented so that attendees will understand how to expand the design into custom solutions often needed by particular fired device installations. In addition the course will present an overview on combustion control fundamentals, burner management system design and application of safety instrumented system concepts to burner management systems.

Most OEM supplied fired devices come pre-equipped with a Burner Management System. However, these designs most often are not capable of meeting all of the requirements associated being classified as a safety instrumented system. As such, if this issue is not identified in time it could result in significant budget / schedule issues on new installations or modification to existing installations.

This issue is becoming more and more present and problematic in industry at this time. Thus, this course will identify these risk items so the attendee is knowledgeable and can address these items at the appropriate stage in the project to allow them to be cost effectively managed

# Safety Instrumented Burner Management System

## Skills you will learn:

Understand the hazards associated with the combustion process with emphasis on special hazards associated with arctic installations including low NOx burners

Develop a thorough understanding of NFPA, API, ISA, FM and IEC standards requirements for Burner Management Systems associated with their modes of operation: pre-firing, purging, light off, normal operation and shutdown / post-purge

Develop an understanding on combustion control and instrumentation requirements for Burner Management Systems

Develop an understanding on application of the Safety Lifecycle to Burner Management Systems

Be able to identify Burner Management System safety functions based on standards and hazard analysis

Select safety integrity levels appropriate for reducing process risk to an appropriate level for the example problem

Be able to quantitatively verify that SIL requirements for Burner Management System designs are met by the selected example equipment

Be able to determine manual test frequencies

Be knowledgeable on documentation requirements

## Instructor – Mike Scott, PE, CFSE:

Mike has over 25 years of experience in risk analysis, safety instrumented systems and control systems engineering. He has performed conceptual design, detailed design, configuration, commissioning and startup on many projects in the process industry. Mike is a licensed Professional Engineer in four states, a Certified Functional Safety Expert (CFSE), an ISA Fellow, a voting member of both the ISA 84 and IEC 61511 committees on safety systems, chair of the ISA 84 fire & gas working group, and liaison to the America Boiler Manufacturer's Association (ABMA) and NFPA 86. Mike is co-inventor of 6 patents on safety system lifecycle tools and implementation.

## The Direct Registration Link:

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