Invitation to Woodward Technical Seminars

· Turbine & Compressor Basics
· Power Generation & Management
· Gas Engine Control for Natural & Renewable Fuels

Ann Arbor, Michigan, Oct 2 - 4, 2012

Earn 6 Professional Development Hours per day

Day One: Tues, Oct 2

Steam Turbine, Gas Turbine & Compressor Basics

Featured Instructor: Rich Kamphaus

SEMINAR AGENDA:

9:00 – 10:30 AM
Steam Turbines – Part I
- Steam Turbine Applications
- Steam Turbine Basics

10:30 AM – 10:45 AM — Break

10:45 AM – 12:00 PM
Steam Turbines – Part II
- Steam Turbine Control and Protection Basics
- American Petroleum Institute Standard 612, 7th Edition Review
  - Control and Protection Sections 12.2 and 12.3
  - Focus on new 2012 Requirements

12:00 – 1:00 PM – Lunch

1:00 – 2:30 PM
Gas Turbines
- Gas Turbine Applications
- Gas Turbine Basics
- Gas Turbine Control and Protection Basics

2:30 – 2:45 PM – Break

2:45 – 4:00 PM
Compressors
- Industrial Compressor Applications
- Compressor Basics
- Compressor Control and Protection Basics

4:00 – 5:00 PM — Questions & Answers

Day Two: Wed, Oct 3

Introduction to Power Generation, Control & Power Management

Featured Instructor: David Cutro

SEMINAR AGENDA:

9:00 –10:30 AM
Generation Principles
- Asynchronous Generators
- Synchronous Generators
- Frequency, Speed, and Poles
- Generation of Three- Phase Power
- Voltage and Frequency Control
- Feedback Control and PIDs

10:30 AM – 10:45 AM — Break

10:45 AM – 12:00 PM
Synchronizing
- Load Sharing Basics: Islanded Generators
  - Droop and Isochronous Control
- Load Sharing Basics: Utility Paralleled
  - Droop and Isochronous Control
- Advanced configurations: Tie Circuit Breakers

12:00 –1:00 PM — Lunch

1:00 – 2:30 PM
Power Management and SCADA
- Control Levels
- I/O Considerations
- Load Shedding

2:30 – 2:45 PM — Break

2:45 – 4:00 PM
Basics of Generation System Protection
- Selection for Engines and Generators
- Circuit Breaker Coordination
- Generator Grounding

4:00 – 5:00 PM — Question & Answers

5:00 – 6:00 PM — Social Hour *(Hosted by peaker services, inc.)*

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Day Three: Thurs, Oct 4

Intro to Gas Engine Control for Natural & Renewable Fuels

Featured Instructor: Jim Collum

SEMINAR AGENDA:

9:00 – 10:30 AM
Combustion Chamber Physics
- Energy Conversion
- Pressure, Temperature
- 2 Stroke and 4 Stroke
- Volumetric Efficiency

10:30 AM – 10:45 AM – Break

10:45 AM – 12:00 PM
Combustion Chamber Chemistry
- Gas, Air and Spark
- Pre-Combustion, Combustion and Post Combustion
- Stoichiometry & Lean Burn Operation
- Air Fuel Ratio

12:00 – 1:00 PM – Lunch

1:00 – 2:30 PM
Types of Gases
- BTU Content
- Chemical Constituents Composition
- Bad Elements Wet Gas, Siloxaines, H2S

2:30 – 2:45 PM – Break

2:45 – 3:45 PM
Ignition Systems
- Spark Plugs
- Energy
- Timing

Fuel Systems
- Regulators
- Carburetors/Mixing

Speed Control
- Starting Steady-State and Transient Load Dynamics
- Fuel Control/ITB

3:45 – 4:30 PM
Air Fuel Ratio
- Stoichiometric - 3 Way Catalytic Converters
- Lean Burn - Oxidation Catalysts
- Full Authority
- Fuel Blending

Data Acquisition/Monitoring and Display
- Communications
- HMI
- Remote Access
- Diagnostics/Condition Based Maintenance

4:30 – 5:00 PM — Question & Answers

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Registration Form

Woodward Technical Seminars

Check which seminars you will attend:

[ ] All Days	[ ] Day One Only	[ ] Day Two Only	[ ] Day Three Only
Tues, Wed, Thurs, Oct 2, 3, 4	Tues, Oct 2 "Turbine"	Wed, Oct 3 "Power Gen"	Thurs, Oct 4 "Gas Engine"

Registration Deadline is Sept 18:

Three Days: $350 Two Days: $250 Single Day: $150

Includes seminar packet, continental breakfast, lunch, refreshments, and certificate of completion

Registration at door subject to availability plus an additional $25.

Attendee Information:

First Name:_____ Last Name:_____

Company: _____

Title / Functional Area: _____

Address: _____

City, State, Zip: _____ Country: _____

Telephone: _____ Fax: _____

E-mail address: _____

Payment:

[ ] $350 all [ ] $250 two [ ] $150 single

[ ] Check payable to: **peaker services, inc.**

[ ] Credit Card: [ ] Visa [ ] Mastercard [ ] AMEX

Card Number: _____

Cardholder Name: _____

Expiration Date: _____ / _____

To register, complete above Registration Form & email, fax, or mail to peaker services, inc.

E-mail: dbanks@peaker.com
Fax: 248-437-8280
Mail: Attn: Diane Banks, peaker services, inc.
8080 Kensington Ct., Brighton, MI 48116-8591
Phone: 800-622-4224, ext 106 (Diane)

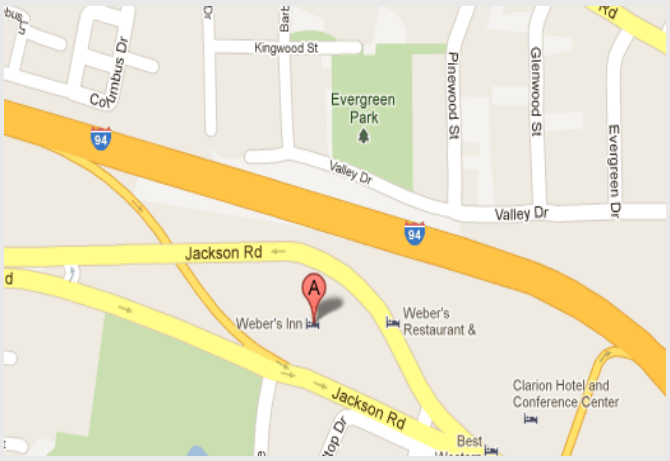
For general inquiries contact:

- *Keith Mellin, peaker services, inc.,* 248-760-9812; kmellin@peaker.com
- *Vicki Allen, Woodward, VM 800-543-5811, ext. 83076*

Seminar Hotel:

Weber's Inn
3050 Jackson Road, Ann Arbor, Michigan 48103
1-800-443-3050 or 1-734-769-2500
Group Number: WWI10022012
http://www.webersinn.com/hotel/hotel-reservations

$129 group rate available until Sept 18 (rooms subject to availability).



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Submit Form

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