MetEd / EPRI / Reading Area Community College Workshop

Keeping Industrial & Manufacturing Facilities Competitive & Productive

MetEd, the Electric Power Research Institute (EPRI), and Reading Area Community College are sponsoring the following workshop for industrial & manufacturing facility managers. For those needing continuing education certification, this workshop qualifies for four (4) Professional Development Hour (PDH) credits.

TUESDAY, October 27, 2015 (8:00 AM - 4:00 PM)

Location: The Schmidt Training & Technology Center, Reading Area Community College (RACC)
10 South Second Street, Reading, PA 19602

KEEPING INDUSTRIAL FACILITIES COMPETITIVE AND PRODUCTIVE WITH POWER QUALITY, EFFICIENCY AND ADVANCED MANUFACTURINGY SOLUTIONS

***Course Description**: This workshop will help industrial and manufacturing facilities improve their competitiveness through low-cost power quality (PQ) solutions, efficiency applications and advanced manufacturing technologies. Industrial technology has evolved from traditional labor-intensive mechanical processes to a sophisticated IT-based additive manufacturing process. These new advanced manufacturing systems employ state-of-the-art control and automation systems including sensors, robotics, motors/drives and 3D printing equipment. This course provides an overview of power quality principles, and addresses the PQ impacts for industrial facilities with traditional and advanced manufacturing equipment. This training will also review efficiency and process improvement technologies, and low-cost solutions to mitigate equipment susceptibility, keeping industrial facilities competitive and productive.*

Instructors:

- **Mark Stephens**, EPRI Principal Project Manager, Industrial PQ/EE, PE, CEM, $CP_{EnMS\text{ - Industrial}}$
- **Baskar Vairamohan**, EPRI Project Manager/ Technical Leader, Energy Utilization
- **Mark Josef**, FirstEnergy Supervisor, Distribution Planning & Protection
- **Bonnie Spayd**, RACC Executive Director- Workforce & Economic Development

Course Abstract:

This course reviews how PQ events can impact the traditional and advanced manufacturing industry, facility efficiency applications, and additive manufacturing concepts, providing:

1. An overview of power quality principles and tools for industrial engineers and technical personnel, to better understand their impacts on facility equipment.
2. A review of facility efficiency applications and technologies to improve industrial or manufacturing productivity.
3. An understanding of this new generation of advanced manufacturing equipment, EPRI/DOE/RACC initiatives in this area, and low-cost solutions for industry to mitigate the susceptibility of these systems to PQ events, keeping them competitive and productive.
4. A tour of RACC's facility including Mechanical, Electrical, Controls, and Precision Machinery Labs as potential resources for your facility.

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1. Improving Power Quality (PQ) through low-cost solutions
   - The Electrical Environment: Common Levels of PQ
   - Effects of Voltage Sags on Industrial equipment including demonstrations
   - Embedded Solutions through equipment design strategy (w/ demos)
   - Embedded Solutions through targeted power conditioning (w/ demos)
   - EPRI PQ Investigator Tool to Assess Equipment Susceptibility
   - Relevant Case Studies – Robotics and PQ
   - Economics of Downtime – Cost/Payback / Net Present Value of PQ Solutions

2. Reading Area Community College Lab Overview

3. Efficiency Applications
   - Adjustable Speed Drives
   - Compressed Air Best Practices
   - Chilled Water Systems

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4. Electrification Technologies
   - Industrial Process Heating
   - Machining and Welding
   - Applications and Case Studies

5. Advanced Manufacturing – The Future of How Things are Made
   - Technology Overview
   - Power Quality, Energy Intensity & Performance Characterization of Advanced Manufacturing Equipment

6. Reading Area Community College (RACC) Lab Tours
   - Mechanical Lab – Hydraulics, pneumatics, mechanical drives
   - Electrical Lab – Power Distribution, Motor Controls,
   - Controls Lab – PLCs, Robots, Process Control Equipment, Field Transmitters, Sensors
   - Precision Machinery Lab – QA, Mill Lathe, Band Saw, Drill Press