



# **Southeastern Meter School & Conference**

The Hotel at Auburn  
University and Dixon  
Conference Center  
Auburn, Alabama

March 16<sup>th</sup> - 19<sup>th</sup>, 2009

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Sponsored by the

**Southeastern Meter Technical Association**

In Cooperation with

**Utility Technology Association**

## General Information

The **2009 Southeastern Meter School and Conference** will be held **March 16<sup>th</sup> - 19<sup>th</sup>** at the Hotel at Auburn University in Auburn, Alabama. The school is sponsored by the **Southeastern Meter Technical Association**. It is held in cooperation with **Utility Technology Association**.

The school provides a forum for electric utility meter personnel to **discuss metering practices, procedures, new technologies, and common problems with peers and representatives from industry**. The school is open to anyone interested and involved in these areas. This year's school will be another outstanding educational event. **Great training and hands on learning opportunities are provided in each of five modules**. The modules are tailored to instruct utility professionals at all levels of experience. **Attend any class from any module**. You pick the class of interest.

## Day Participant Program

This provides an opportunity for management (general managers, purchasing agents, operation managers, engineers, etc.) to **attend one day for a reduced fee**. Come on any day and attend a few classes, then enjoy an evening of hospitality in the Exhibit Hall.

## Location

The **Hotel at Auburn University and Dixon Conference Center** is centrally located three miles from Interstate 85. The Hotel at Auburn University is situated in a charming university campus environment within easy walking distance to many shops and restaurants in the quaint, historical downtown **Auburn, Alabama**. Find out more about the hotel and location at [www.auhcc.com](http://www.auhcc.com).

## Hotel Accommodations

A block of rooms has been reserved for attendees at the **Hotel at Auburn University**. Reservations can be made through the hotel by phone at **(800) 228-2876**.

Please make your reservations by February 24<sup>th</sup>, 2009 to insure availability. **The special room rate is \$109.00 plus tax**. Be sure to **identify yourself as being with the Southeastern Meter School & Conference to get the group rate**. **Room rate will increase to \$179 plus tax after February 24<sup>th</sup>**.

## Directions

### Atlanta to Auburn (110 miles)

Take I-85 South towards Montgomery. Take the Auburn exit (exit 51.) The Auburn University Hotel and Dixon Conference Center is located approximately 3.5 miles on US 29, directly across from Draughon Library.

### Birmingham to Auburn (120 miles)

From Birmingham, take US Highway 280 East approximately 110 miles. Take a right onto

Highway 147 and follow it 5 miles to Auburn. The Auburn University Hotel and Dixon Conference Center is located on the left directly across from the Draughon Library, at 241 South College Street.

## Exhibit Hall

The Exhibit Hall will be open **Monday, March 16<sup>th</sup> through Wednesday, March 18<sup>th</sup>**. All the suppliers you need to meet will be in one place to answer your questions and demonstrate their products. **Exhibitor Registration Information available on school website**.

## Registration

The registration to the 2009 Southeastern Meter School & Conference can be sent by mail, fax or on-line. **Payment can be made with check, purchase order, or credit card**. Invoicing available upon request. **Credit Card payment is only accepted with on-line registration**.

### Participants Registration: \$295

Participant Fee includes Conference Notebook, Lunch on Tuesday and Wednesday, Dinner on Wednesday, Networking / Hospitality Breaks, and Admission to the Exhibit Hall.

### One-Day Registration: \$130

One-Day Registration Fee includes conference notebook, one lunch, and Admission to the Exhibit Hall.

### Presenters: No Charge

Extra lunch tickets can be purchased for \$15. Annual dinner ticket can be purchased for \$20.

**Pre-Registration Deadline is February 23<sup>rd</sup>, 2009**. Late and OnSite Registration are subject to an Additional Charge of \$30.

### Mail

Southeastern Meter Technical Association  
P.O. Box 695 Clermont, GA 30527

### Fax

(770) 662-0277

### On-Line

[www.semeterschool.com](http://www.semeterschool.com)

## Cancellation Policy

Refunds, less a \$25 administrative fee, will be made for all cancellations received in writing before March 2<sup>nd</sup>, 2009. No refunds will be made after that date, but a substitution of attendees may be made by notifying the Southeastern Meter Technical Association prior to the conference.

## Professional Development Hours

Participants attending the entire school will be awarded 18 Professional Development hours.

## Five Modules to Choose From

### Module 100: Introductory Metering

*Coordinators: Freddy Morgan, Marietta Power; Mike Chirico, South Alabama Electric Cooperative*

Module providing instruction in basic metering theory and application. This session should be attended by new metering employees or other operating personnel with little or no metering experience.

### Module 200: Advanced Metering

*Coordinators: David Ramsey, Cobb Energy; Ken Waddleton, Snapping Shoals EMC*

Module on intermediate metering theory and polyphase meter installation. It is recommended that students have attended Module 100 or have some experience in those areas.

### Module 300: Hands On Meter Testing & Safety

*Coordinators: Mark Wellden, Ricky Askew, David Philpott, Georgia Power Company*

Module providing both lecture and laboratory experiences on all aspects of meter testing. Session will include hands on experience in testing everything from simple single phase, polyphase and demand to multifunction meters.

### Module 400: Communications

*Coordinators: Todd Hubbard, Jackson EMC; Randall Black, Habersham EMC*

Module to learn about the communication technologies that can be used at the utility. Session on Smart Grid, Radio, Zigbee, Frame Relay, Satellite and more.

### Module 500: Computer Applications & Hands On Programming

*Coordinators: Tom Ellis, City of Vero Beach; Robert Bates, City of Covington; Nathan Madison, Jr., South Alabama Electric Cooperative*

Module providing hands on of programming meters from the metering manufacturers. Classes to gain a better understanding of the personal computer and using it for your metering applications.

## Southeastern Meter Technical Association

The Southeastern Meter Technical Association subscribes to the art of metering electric energy and power, and to the purpose of keeping abreast of new developments and techniques in the practice of this technology, and the sponsorship of educational programs and training for electric meter personnel. 501c(6) organization

## Contact Information

**Southeastern Meter**

**Technical Association**

**(770) 519-1676**

**[semsc@semeterschool.com](mailto:semsc@semeterschool.com)**

## Module 100

### Introductory Metering

#### Electrical Fundamentals

**Instructor:** Mike Chirico, *South Alabama Electric Cooperative*

Learn the principles of electricity, AC and DC circuit theory including ohms law and circuit components, along with current and voltage laws. Review of basic meter math skills.

#### Single Phase Meter Theory

**Instructor:** Bryan Seal, *SmartSynch, Inc.*

Explanation of the mechanics and electrical theory of single phase meters. Discussion of internal meter components, and how they interact to make the disk turn and register properly. Calculate watt-hour constants and register ratios of selected meters, along with dial multipliers and basic transformer factors.

#### Polyphase Metering Theory

**Instructor:** Randy Riley, *Landis + Gyr*

This class will introduce the student to the principles of polyphase metering. Explanations of different configurations and the uses for polyphase meters.

#### Single Phase Meter Testing/Maintenance Hands On

**Instructor:** David Thompson, *Georgia Power Company*

What does it mean to “test” a meter? This class includes discussion on testing methods and equipment along with ANSI requirements. Proper repair and maintenance of single phase meters are addressed.

#### Instrument Transformers

**Instructor:** Brian Sonneberg, *General Electric*

Course is designed to teach the fundamental characteristics of Current and Potential Transformers as they are applied to electric metering. Topics include ratio, rating factor, BIL, burden, polarity and ANSI accuracy class.

#### Setting & Removing Meters Safely

**Instructor:** Jim Kimberly, *Georgia Power Company*

Lecture on voltmeter use and methods to properly check voltage at the meter socket. This class focuses on aspects of safety related to setting and removing single phase meters.

#### Service Voltages / Types & Form Numbers

**Instructor:** Ken Waddleton, *Snapping Shoals EMC*

Focuses on service voltages and how they relate to meter selection. What is a meter “Form” and how does it relate to the type of service? Learn what does the nameplate information tell you. Overview of how meters, sockets and transformers are wired together? Although concentrating on single phase services, polyphase meter forms are also discussed.

#### Instrument Transformer Testing

**Instructor:** Bill Hardy, *Powermetrix*

A how to look at the benefits analyzing metering circuits and the instrument rated equipment to provide the most accurate metering possible.

#### Meter Socket Applications

**Instructor:** David Benes, *Brooks Utility Products Group*

A discussion on the importance of proper torque in electrical connections. Study of various standards and testing procedures on meter sockets. Types of electrical services, polyphase meter forms are also discussed.

#### Demand / Time of Use Metering & Utility

##### Billing Rates

**Instructor:** Jack Pyburn, *Elster Electricity*

Lecture on what “demand” is and why do utilities use demand metering. It will cover different types of demand metering and technologies. This class will also cover “Time of Use” (TOU) metering and related technologies. It will address questions on why we use TOU metering and its benefits. Included in this class is an overview of applying rates to the customers bill.

## Module 200

### Advanced Metering

#### Power Theory

**Instructor:** Ed Hamby, *Kenneth E. Hamby Consulting*

An expansion of the popular course on the basics of electricity – volts, amps, power factor and all kinds of good stuff. Definition and applications of KW, KVA, power factor, reactive power, and demand. Introduction to complex math and phasors.

#### Principles of Polyphase Metering

**Instructor:** Randy Riley, *Landis + Gyr*

Lecture on “What is polyphase metering.” Why does the customer need this type of metering? Evolution of polyphase metering. Polyphase meter wiring connections are discussed.

#### Polyphase Metering Application

**Instructor:** Larry Waters, *General Electric*

A review of delta and wye metering applications, 2,2-1/2 and 3 element meter selection, “multi-form” meters and Blondel’s Theorem. The participant will have the opportunity to work on several meter application problems in order to assess his/her own skill level.

#### Reactive, KVA and 4 Quadrant Metering

**Instructor:** Dick Martin, *Sensus*

Explore reactive metering concepts and terminology. Look at why reactive measurements are important, their impact on system losses, equipment sizing, and cost of service. Review the mathematical derivation of reactive quantities. Explanation of 4 Quadrant metering.

#### Instrument Transformers

**Instructor:** Brian Sonneberg, *General Electric*

Combined with Module 100 Instrument Transformer class.

#### Installation Troubleshooting Using Phasors

**Instructor:** Larry Waters, *General Electric*

An introduction to the concept of phasor diagrams – what they represent, how they are developed, and how they may be used as effective diagnostic tools. Working with phasor information provided by new solid state electricity meters to troubleshoot new and existing metering installations. Includes some interactive exercises diagnosing miswired meters.

#### Distribution Transformer Connections

**Instructor:** Jeff Adams, *MEAG Power Distribution Service*

Lecture on the understanding of distribution transformer connections and how to make them. A necessity to a well rounded meter person.

#### Pulse / Load Profile Metering

**Instructor:** Chris Tripp, *Georgia Transmission Corporation*

What is pulse metering? When, why, and how you would use it in a modern day metering system. Explanations of pulse initiators, isolation relays, and pulse weight calculations.

#### Communication Technologies

**Instructor:** Dan Smith, *DataComm for Business*

Learn about the variety of communication methods and mediums that are used in the utility industry.

## Module 300

### Meter Testing & Safety

#### Meter Safety

**Instructor:** Jim Kimberly, *Georgia Power Company*

The check out procedures for self-contained meter sockets and the results of a fault in a self-contained meter socket. Demonstrations of the proper use of protective equipment and fire retardant clothing while working in reach of an energized circuit. Discussions on various accidents experienced by meterman. Safety precautions while working inside a substation.

#### Alternative Energy Metering

**Instructor:** David Philpott, *Georgia Power Company*

Learn about installing meters when the source is from alternative energy. Discussion on Alternative Energy, Solar, Wind, Renewable and NonRenewable Resources, metering applications and customer requirements in order to tie these systems to the grid. This discussion will also include a brief presentation on how a Solar system works.

**Intro to Single Phase and Three Phase Field Meter Testing / Fundamentals / Philosophy**

**Instructor:** David Philpott, *Georgia Power Company*

Discussion on the Basic theory, Philosophy, and ANSI Standards necessary to complete single phase and three phase meter testing. Includes details of phantom load testing and customer load testing.

**Hands On Self-Contained Single Phase and Three Phase Meter Testing**

**Instructors:** Ricky Askew, David Philpott, Mark Scott, David Thompson, *Georgia Power Company*

Hands on lab allowing students to test mechanical and electronic self-contained watt-hour meters using phantom load and portable watt-hour standard.

**Hands On Transformer Rated Solid State Three Phase Meter Testing**

**Instructors:** Ricky Askew, David Philpott, Mark Scott, David Thompson, *Georgia Power Company*

Hands on lab allowing students to test electronic transformer rated watt-hour meters. Using phantom load and portable watt-hour standard, three portable watt-hour standards, and newer technology test equipment. Testing from infrared test LED.

**Meter Testing Program**

**Instructor:** Cliff Hand, *Georgia Power Company*

Discussion on the benefits of a Meter Testing Program. Discussion will include ANSI Standards, Maintaining Compliance, Revenue Optimization and Trending Data. Demonstration on latest field testing operations utilizing Mobile Testing Vans.

**Testing and Verification of Meter Installation Using Customer Load**

**Instructors:** Ricky Askew, David Thompson, *Georgia Power Company*

Demonstration on how to properly check your overall meter installation and be assured of accurate billing. Class will include vector analysis, voltage measurement, CT burden verification and verifying CT ratios using latest test equipment and classroom discussion.

**Residential Theft**

**Instructor:** Jimmy Mosley, *Alabama Power Company*

The loss of revenue through unsecured meters, the use of tap detectors, the use of check meters and other methods of theft detection, the meterman's role in revenue protection, and how investigations are completed after a theft case is discovered.

**Commercial Theft**

**Instructor:** David Rogers, *Alabama Power Company*

Detection of loss of revenue due to theft on Commercial accounts. Ways to prevent loss

of revenue due to theft of services on Self Contained Three Phase and IT Rated accounts.

**Module 400  
Communications**

**Fiber Optic Communication**

**Instructor:** Emery Gary, *Corning Cable*

Learn how electric utilities take advantage of the broadband capabilities of fiber optic communications to benefit electrical operations. The fundamentals of optical communication will be discussed in enough detail for the student to have a basic knowledge of how thousands of voice and data signals communicate over fiber optic circuits.

**Naked on the Internet: Securing Remote Cellular Data Communications**

**Instructor:** Kevin Weaver, *Proxicast*

Security concerns are often overlooked when deploying remote communications using the increasing popular carrier-based cellular broadband data networks. Improperly secured cellular connections can not only compromise remote sites and data, but can provide a "back-door" into secure corporate networks. This class explores common myths, misconceptions and vendor half-truths about the need for implementing enterprise-class security for all remote cellular data communications.

**Cellular Communications & Advanced Utility Automation**

**Instructor:** Robert Gustin, *Sprint*

The focus of this class will be AMI, Demand Response, and SCADA applications, while highlighting 2.5/3G technologies and upcoming 4G WiMAX. WiMAX, meaning Worldwide Interoperability for Microwave Access, is a telecommunications technology that provides for the wireless transmission of data using a variety of transmission modes, from point-to-point links to portable Internet access.

**Smart Grid Communications Network**

**Instructor:** SmartSynch, *Inc.*

What is in store for the future of electric metering. Look at what is down the road for the interface of today's meter communication to how the utility Smart Grid will be tomorrow.

**Zigbee Wireless Standard**

**Instructor:** Charles Melvin, *SmartSynch*

Zigbee is an ultra-low power wireless networking technology that is making it practical to embed wireless communications into virtually any home/building automation products - from smart meters to security alarms.

**Satellite Communications 101**

**Instructor:** Dr. Ashok Rao, *SkyTerra Communications*

This class will begin with the basics of how satellites work, describe current and future satellite networks, discuss capabilities and

limitations of satellite communications and incorporate applications, benefits, and features that are relevant to the electric utility industry. This class will incorporate case studies and application scenarios along with current and next generation equipment demonstrations.

**IP Networking**

**Instructor:** Frank Hummel, *LAN Systems*

An overview of the solutions available for IP using high-speed networks like Ethernet or Frame Relay. Review of requirements for data, VoIP, and surveillance applications. Includes discussion on security and comparison of topologies, switches and routers, copper and optical connections.

**Computer Security**

**Instructor:** Mary Hester, *Intelligent System Solutions*

How reliable is the data, and how secure is the computer you are using to obtain the data? Learn how to keep the utility computer secure from hackers, crackers, virus, spyware and malware.

**Radio Communications**

**Instructor:** Cecil Gibby, *Landis + Gyr EMS*

What are the components necessary to communicate via a radio frequency. Learn about the different licensed and unlicensed radio communications used by electric utilities. What are the regulations by the FCC? Discussion on the type of equipment required in a communication building and on a tower. Recognition of antenna arrays on communication towers.

**Frame Relay**

**Instructor:** Georgia Transmission Corporation

Frame Relay is a high-performance WAN protocol that operates at the physical and data link layers of the OSI reference model. Frame relay is often used to connect local area networks with major backbones as well as on public wide area networks and also in private network environments with leased lines over T-1 lines. Frame relay is used as the communication link to utilities for many AMI systems.

**Module 500  
Computer Applications &  
Hands On Programming**

Overview and hands on programming of manufacturers metering software. You will be creating and editing meter programs. *Students should bring their own laptops.*

**Meter Programming – Elster**

**Meter Programming – General Electric**

**Meter Programming – Itron**

**Meter Programming – Landis + Gyr**

**Meter Programming – Sensus**

# Southeastern Meter School & Conference Class Schedule

## Monday, March 16th

Time	Module 100	Module 200	Module 300	Module 400	Module 500
10:00 - 1:00	Registration				
1:00 - 2:00	General Session				
2:00 - 3:00	Meter Safety - Combined Class				Meter Programming Sensus
3:00 - 3:30	Networking and Refreshment Break				
3:30 - 5:00	Alternative Energy Metering - Combined Class				Meter Programming-Continued Sensus
5:00 - 6:30	Hospitality / Exhibit Hall				

## Tuesday, March 17th

Time	Module 100	Module 200	Module 300	Module 400	Module 500
8:00 - 9:30	Electrical Fundamentals	Power Theory	Intro to Single & Three Phase Field Meter Testing/ Fundamentals/ Philosophy	Fiber Optic Communication	Meter Programming Itron
9:30 - 10:00	Networking and Refreshment Break				
10:00 - 11:00	Single Phase Metering Theory	Principles of Polyphase Metering	Hands On Self-Contained Single & Three Phase Meter Testing	Naked on the Internet	Meter Programming - Continued Itron
11:00 - 12:00				Cellular Communications & Advanced Utility Automation	
12:00 - 1:00	Lunch Provided				
1:00 - 2:00	Polyphase Metering Theory	Polyphase Metering Applications	Hands On Transformer Rated Solid State Three Phase Meter Testing	Smart Grid Communication Network	Meter Programming Elster
2:00 - 3:00					
3:00 - 3:30	Networking and Refreshment Break				
3:30 - 4:30	Single Phase Meter Testing	Reactive, KVA, and 4 Quadrant Metering	Meter Testing Program	Zigbee Wireless Standard	Meter Programming - Continued Elster
4:30 - 6:00	Hospitality / Exhibit Hall				

**Attend Any Class You Want**

# Southeastern Meter School & Conference Class Schedule

## Wednesday, March 18th

Time	Module 100	Module 200	Module 300	Module 400	Module 500
8:00 - 9:30	Instrument Transformers Combined Class		Testing & Verification of Meter Installation Using Customer Load	Satellite Communications 101	Meter Programming Landis + Gyr
9:30 - 10:00	Networking and Refreshment Break				
10:00 - 11:00	Setting & Removing Meters Safely	Troubleshooting with Phasors	Testing & Verification of Meter Installation Using Customer Load - Continued	IP Networking	Meter Programming Landis + Gyr - Continued
11:00 - 12:00	Service Voltages/ Types & Form Numbers			Computer Security	
12:00 - 1:00	Lunch Provided				
1:00 - 2:00	Instrument Transformer Testing	Distribution Transformer Connections		Radio Communications	Meter Programming General Electric
2:00 - 3:00	Meter Socket Applications	Pulse Metering			
3:00 - 3:30	Networking and Refreshment Break				
3:30 - 4:30	Demand / Time of Use Metering & Utility Billing Rates	Communication Technologies		Frame Relay	Meter Programming - Continued General Electric
5:00 - 6:30	Annual Dinner - BBQ Ribs & Chicken from SouthPit BBQ				

## Thursday, March 19th

Time	Module 100	Module 200	Module 300	Module 400	Module 500
8:30 - 9:30	Residential Theft - Combined Class				
9:30 - 10:00	Networking and Refreshment Break				
10:00 - 11:00	Commercial Theft - Combined Class				
11:00 - 12:00	Closing Session				

**Attend Any Class You Want**

# Participant & Presenter Registration Form

## Southeastern Meter Technical Association

The Southeastern Meter Technical Association subscribes to the art of metering electric energy and power, and to the purpose of keeping abreast of new developments and techniques in the practice of this technology, and the sponsorship of educational programs and training for electric meter personnel.

The purpose is to organize an annual electric Meter School for the benefit of the attending employees in the electric utility industry.

## Day Participant Program

This provides an opportunity for management (general managers, purchasing agents, operation managers, engineers, etc.) to **attend one day for a reduced fee**. Come on any day and attend a few classes, then enjoy an evening of hospitality in the Exhibit Hall. Lunch is provided for Day Participants.

## Cancellation Policy

Notification of cancellation must be submitted in writing to:

Southeastern Meter Technical Association  
P.O. Box 695  
Clermont, Georgia 30527

Refunds, less a \$25 administrative fee, will be made for all cancellations received in writing before March 2<sup>nd</sup>, 2009. No refunds will be made after that date, but a substitution of attendees may be made by notifying the Southeastern Meter Technical Association prior to the conference.

Southeastern Meter School & Conference  
March 16<sup>th</sup> - 19<sup>th</sup>, 2009  
The Hotel at Auburn University, Auburn, Alabama

First Name \_\_\_\_\_ Last Name \_\_\_\_\_

Badge Name (if different from above) \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Postal / Zip \_\_\_\_\_ Country \_\_\_\_\_

Work Phone \_\_\_\_\_ Mobile Phone \_\_\_\_\_

Email \_\_\_\_\_

T-Shirt Size \_\_\_\_\_

## Registration Fees

_____	\$ 295	Participant Fee includes Conference Notebook, Lunch on Tuesday and Wednesday, Dinner on Wednesday, Networking / Hospitality Breaks, and Admission to the Exhibit Hall.
_____	\$ 130	One-Day Registration Fee includes conference notebook, one lunch, and admission to the Exhibit Hall.
_____	\$ NC	Presenter - No Charge - All Presenters Must Register
_____	\$ 15	Extra Lunch Ticket - Tuesday
_____	\$ 15	Extra Lunch Ticket - Wednesday
_____	\$ 20	Extra Annual Dinner Ticket - Wednesday
_____		
_____	Total Payment	

## Pre-Registration By February 23<sup>rd</sup>, 2009.

Late and OnSite Registration are subject to an additional charge of \$30.

## Payment Methods

Check Payable to **Southeastern Meter Technical Association** enclosed for \$ \_\_\_\_\_

Please Invoice \_\_\_\_\_ Purchase Order Number \_\_\_\_\_

**Credit Card Payments accepted only with On-Line Registration**

## Return Registration Form To

**Southeastern Meter Technical Association**

P.O. Box 695  
Clermont, Georgia 30527

Please email questions to  
[semsc@semeterschool.com](mailto:semsc@semeterschool.com)

**Fax Registration Form To**

Fax (770) 662-0277

**Contact Suzanne Powell**  
at (770) 519-1676

Register On-Line at [www.semeterschool.com](http://www.semeterschool.com)