



# Southeastern Meter School & Conference

The Hotel at Auburn University  
and Dixon Conference Center

Auburn, Alabama

March 19<sup>th</sup> - 22<sup>nd</sup>, 2018

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Sponsored by the  
**Southeastern Meter Technical Association**

In Cooperation with



## General Information

The **2018 Southeastern Meter School and Conference** will be held **March 19 - 22** 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 years' 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 (engineers, general managers, purchasing agents, operation managers) 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.

## Professional Development Hours

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

## 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 March 5, 2018 to insure availability. **The special room rate is \$139.00 plus tax.** Be sure to **identify yourself as being with the Southeastern Meter School & Conference to get the group rate.** **Room rate will increase after March 5<sup>th</sup>.**

## Directions

### Atlanta to Auburn (110 miles)

Take I-85 South towards Montgomery. Take the Auburn exit (exit 51.)

### 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.

## Exhibit Hall

The Exhibit Hall will be open **Monday, March 19 through Wednesday, March 21**. 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 Southeastern Meter School & Conference can be sent by mail 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.**

**Student Registration:** \$395

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

**One-Day Student Registration:** \$225

One-Day Registration Fee includes conference notebook, one Lunch, Networking / Hospitality Breaks and Admission to the Exhibit Hall.

**Pre-Registration By March 5<sup>th</sup>.** Late and OnSite Registration are subject to an Additional Charge of \$50.

## Mail

Southeastern Meter Technical Association  
c/o Utility Technology Association  
4711 Peachtree Industrial Blvd, Suite 100  
Berkeley Lake, GA 30092

## On-Line

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

## Cancellation Policy

Refunds, less a \$50 administrative fee, will be made for all cancellations received in writing before March 5, 2018. 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.

## Annual Dinner & Game Show

Registration includes a Wednesday evening dinner. After dinner enjoy an entertaining evening at the **Southeastern Meter School Casino Royale**. Network with your peers while playing blackjack, craps, roulette, Texas hold'em poker or slot machines. Play money will be provided.

## Modules to Choose From

### Module 100: Fundamental Metering

*Coordinators: Freddy Morgan, City of Covington; Tom Woods, Marietta Power; Mike Chirico, South Alabama Electric Cooperative; Scott Shipes, Pea River Electric Cooperative*

Module providing instruction in basic metering theory and application. This module will include topics of single and polyphase theory, instrument transformers, meter sockets, and meter form numbers.

### Module 200: Advanced Metering

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

Module on intermediate metering theory and polyphase meter installation. Topics include polyphase applications, reactive metering, troubleshooting with phasors, and pulse metering.

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

*Coordinator: Mark Wellden, Trent Christian, 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: Smart Grid, AMI and Emerging Technology

*Coordinators: Jeremy Morgan, Fairhope Utilities; Michael Longmire, Humboldt Utilities; Randall Black, Habersham EMC*

Module to learn about applications, trends and utilizing elements of Smart Grid, AMI and emerging technologies. Session will include AMI Technology, Data Analytics, Metering Renewable Energy along with many other classes.

### Module 500: Meter Programming

*Coordinators: Nathan Madison, Jr., South Alabama Electric Cooperative; Tom Ellis, Electric Supply, Inc.*

Module providing hands on of programming meters from the metering manufacturers. Laptops will be provided or bring your own.

*Exhibit Hall: Coordinators: Chip Kanour, Utility Specialists, Inc.; Geri Turner, Tri-State Utility Products, Inc.; Rhonda Reis, Independent*

## Contact Information

### Utility Technology Association

Suzanne Powell

(770) 519-1676

[suzanne@utilitytech.org](mailto:suzanne@utilitytech.org)



# Southeastern Meter School & Conference Class Schedule

## Monday, March 19<sup>th</sup>

Time	Module 100	Module 200	Module 300	Module 400	Module 500
10:00 - 1:00	Registration				
1:00 - 1:30	General Session				
1:30 - 2:30	Keynote Speaker - <b>Tami Barron, <i>Southern Telecom</i></b> "The Role of a Robust Communications Network in Today's Utility"				
2:30 - 3:00	Networking and Refreshment Break				
3:00 - 4:30	Meter Safety Combined Class				
4:30 - 6:00	Exhibit Hall / Hospitality				

## Tuesday, March 20<sup>th</sup>

Time	Module 100	Module 200	Module 300	Module 400	Module 500
8:30 - 10:00	Electrical Fundamentals	Principles & Applications of Polyphase Metering	Grounding & Bonding Meter Sockets	Meter Data Management	Meter Programming Landis + Gyr
10:00 - 10:30	Networking and Refreshment Break in Exhibit Hall				
10:30 - 12:00	Metering Terminology	Troubleshooting with Phasors	Fundamentals of Single & PolyPhase Field Meter Testing	Business Intelligence Tools	Meter Programming Landis + Gyr Continued
				Promised Value of Your AMI System	
12:00 - 1:00	Lunch Provided				
1:00 - 2:00	Single Phase Metering Theory	Applications & Sizing of Instrument Transformers	Hands On Self- Contained Single & PolyPhase Meter Testing	Metering Renewable Energy	Meter Programming Aclara
2:00 - 2:30	Networking and Refreshment Break in Exhibit Hall				
2:30 - 4:00	Single Phase Metering Theory Continued	Applications & Sizing of Instrument Transformers Continued	Hands On Transformer Rated Solid State PolyPhase Meter Testing	Metering Renewable Energy Continued	Meter Programming Aclara Continued
4:00 - 5:30	Exhibit Hall / Hospitality				

# Southeastern Meter School & Conference Class Schedule

## Wednesday, March 21<sup>st</sup>

Time	Module 100	Module 200	Module 300	Module 400	Module 500
8:30 - 10:00	Service Types / Meter Forms	Pulse Metering	Testing & Verification of Meter Installation Using Customer Load	Measuring & Proving Test Accuracy	Meter Programming Honeywell Elster
	Intro to Meter Sockets	Applications of Multifunction Metering		Finding Metering Errors Remotely	
10:00 - 10:30	Networking and Refreshment Break in Exhibit Hall				
10:30 - 12:00	Overview of Electric Distribution System		Testing & Verification of Meter Installation Using Customer Load <small>Continued</small>	The Active Grid - Edge Technology	Meter Programming Honeywell Elster <small>Continued</small>
12:00 - 1:00	Lunch Provided				
1:00 - 2:30	Distribution Transformer Connections	Reactive, KVA and 4 Quadrant Metering		Data Analytics - AMI and Beyond  Benefits of Remote Disconnects	Meter Programming Itron
2:30 - 3:00	Networking and Refreshment Break				
3:00 - 4:30	Instrument Transformer Fundamentals	Demand / Time of Use Metering		Field Testing Challenges of Renewable Installations  Utility Roundtable Session	Meter Programming Itron <small>Continued</small>
5:30 - 6:30	Annual Dinner in Grand Ballroom				
6:30 - 9:00	Casino Royale in Grand Ballroom				

## Thursday, March 22<sup>nd</sup>

Time	Module 100	Module 200	Module 300	Module 400	Module 500
8:30 - 9:45	Residential Theft <small>Combined Class</small>				
9:45 - 10:15	Networking and Refreshment Break				
10:15 - 11:30	Commercial Theft <small>Combined Class</small>				
11:30 - 12:00	Closing Session				



## Opening Session

### **The Role of a Robust Communications Network in Today's Utility**

**Tami Barron, *Southern Telecom***

Utilities are deploying smart technologies to enable new capabilities that will help them meet their commitments to customers and improve network reliability. A robust communication network has become a vital part in all aspects of the utility grid.

#### **Meter Safety**

**Instructor: Steve Shaw, *Georgia Power***

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.

## Module 100

### **Fundamental Metering**

#### **Metering Math & Electrical Fundamentals**

**Instructor: Mike Chirico, *South Alabama EC***

Review of basic meter math skills. This would include fractions, percentages, multipliers, ratios, algebra and how they apply to metering applications. Learn the principles of electricity, AC and DC circuit theory including ohms law and circuit components, along with current and voltage laws.

#### **Metering Terminology**

**Instructor: Joe Ostrowsky, *Ametek Power Instruments***

This session will cover terminology associated with metering. Areas to be covered will be single and polyphase metering, generation, calculations, forms, classes, instrument transformers, communications and many others.

#### **Single Phase Meter Theory**

**Instructor: Bryan Seal, *Itron***

Explanation of the mechanics and electrical theory of single phase meters. Discussion of internal meter components, and how they interact to make the meter register properly. Session will include how a solid state meter works along with the application of the meter in the electric service.

#### **Service Voltages / Types & Form Numbers**

**Instructor: Jeremy Morgan, *Fairhope Utilities***

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.

#### **Introduction to Meter Sockets**

**Instructors: Kevin Johansen, Robbie Staats, *The Durham Company***

Course is designed to teach the fundamental characteristics of meter sockets. A variety of sockets will be used to demonstrate construction, features, types, and application in electric service.

#### **Overview of Electric Distribution System**

**Instructor: Keith Hardt, *Pungo Engineering***

This session will cover generation, transmission, distribution and utilization of an electric grid. Topics include the equipment, design and function.

#### **Distribution Transformer Connections**

**Instructor: Mike McHan, Jason Waters, *Georgia Power***

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

#### **Instrument Transformers Fundamentals**

**Instructor: Rudolf Ogajanov, *ABB***

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.

## Module 200

### **Advanced Metering**

#### **Principles & Applications of Polyphase Metering**

**Instructor: Jack Pyburn, *Honeywell***

Lecture on "What is polyphase metering?" Why does the customer need this type of metering? Evolution of polyphase metering. A review of delta and wye metering applications, 2,2-1/2 and 3 element meter selection, "multi-form" meters and Blondel's Theorem. Polyphase meter wiring connections are discussed.

#### **Installation Troubleshooting Using Phasors**

**Instructor: Christopher Prince, *Aclara***

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.

#### **Applications & Sizing of Current Transformers**

**Instructor: Frank Lopez, *GE Digital Energy***

Learn the procedure to determine the proper current transformer size for an installation. Review the application of rating factors. Multi-Range current transformers will be covered in this session.

#### **Pulse / Load Profile Metering**

**Instructor: Sy Schreiner, *Alabama Power***

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.

#### **Applications of Multi-Function Metering**

**Instructor: Mike Bearden, *Landis + Gyr***

This session will cover the proper selection and application of the multi-function meter. A review of the considerations for the type of utility service.

#### **Reactive, KVA and 4 Quadrant Metering**

**Instructor: Christopher Prince, *Aclara***

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.

#### **Applications of Multi-Function Metering**

**Instructor: Mike Bearden, *Landis + Gyr***

This session will cover the proper selection and application of the multi-function meter. A review of the considerations for the type of utility service.

#### **Demand / Time of Use Metering**

**Instructor: Paul Millan, *Southern California Edison***

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.

## Module 300

### **Meter Testing & Safety**

#### **Grounding and Bonding of Meter Enclosures**

**Instructor: George Johnson, *Georgia Power***

Lecture of the proper and safe way to ground and bond a meter enclosure. National Electric Code requirements will be discussed.

#### **Fundamentals of Single & Polyphase Field Meter Testing**

**Instructor: Art Lowery, *Georgia Power***

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 Polyphase Meter Testing**

**Instructors: George Johnson, Art Lowery, Jason Overby, Rod Shadrix, *Georgia Power***

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 Polyphase Meter Testing**

**Instructors: George Johnson, Art Lowery, Jason Overby, Rod Shadrix, *Georgia Power***

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.

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

**Instructors:** Art Lowery, Jason Overby, Rod Shadrix, *Georgia Power*

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:** Paul Pulliam, *Georgia Power*

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:** Paul Pulliam, *Georgia Power*

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 Polyphase and Instrument Transformer Rated accounts.

**Module 400**

**Smart Grid, AMI and Emerging Technology**

**Meter Data Management**

**Instructor:** Skip Hall, *Central Service Association*

This class will cover the technical and/or practical level of a Meter Data Management system. Discussion on implementing AMI/MDM systems as part of the Smart Metering environment.

**Business Intelligence Tools**

**Instructor:** Ken Dunn, *Georgia Power*

The volume and frequency of data is growing. This session will be a discussion on the tools and applications used for meter data analysis. Will include how to use the tools to find discrepancies such as CT ratios and meter multipliers.

**Promised Value of Your AMI System**

**Instructor:** Sean Dempsey, *WESCO*

Many utilities have implemented an AMI system. This session will discuss the original purpose of the system and the current value the system is providing to the utility.

**Metering Renewable Energy**

**Instructor:** Keith Hardt, *Pungo Engineering*

Learn about installing meters when the source is from alternative energy. This session covers

the metering and protection requirements for the interconnection of utility scale renewable generation to utility electric distribution systems. Discussion topics will include the utility interconnection process, metering, protection and safety considerations and components used.

**Measuring and Improving Test Accuracy**

**Instructor:** Bob Whitmore, *Radian Research*

There are many factors to consider when testing meters accurately. Some of these variables include stability, temperature, power factor, traceability uncertainty, and test system errors. This session will provide a valuable understanding of meter testing accuracy.

**Finding Metering Errors Remotely**

**Instructor:** Sean McCarty, *Sensus - A Xylem Brand*

The smart meter provides useful information about the meter site. This session will cover how to remotely determine errors with meter installations.

**The Active Grid - Edge Technology**

**Instructor:** Bryan Seal, *Itron*

Grid edge is a term that refers to the varying hardware, software and business innovations that are increasingly enabling smart, connected infrastructure to be installed at or near the “edge” of the electric power grid. They encompass all of the major technologies – such as distributed storage, distributed generation, smart meters, smart appliances and electric vehicles – that are impacting the electricity system. Smart meters, connected devices and grid sensors will increase the efficiency of network management and, more importantly, allow customers to have real-time information about energy supply and demand across the system.

**Data Analytics - AMI and Beyond**

**Instructor:** George Dobbins, *Southern Company Services*

Many utilities have adopted new technologies to improve system reliability and improve the customer experience. Using the data provided from today’s smart meter for billing is only one application of this valuable information. This session will look at other data available from the smart grid and the practical applications of this information.

**Benefits of Remote Disconnects**

**Instructor:** Paul Whitmire, *Central Georgia EMC*

Many utilities have now implemented a system for remotely disconnecting the electric service via the meter. This session will cover expected benefits along with real practical experience.

**Field Testing Challenges of Renewable Installations**

**Instructor:** John Jones, *Powermetrix*

This session will cover challenges with testing renewable energy installations. Learn about what you should be aware of as these installations are added to the utilities system.

**Utility Roundtable Session**

**Instructors:** Various Utility Meter Professionals

This session is for utility personnel only. Various discussions about challenges and benefits to working in the field of metering.

**Module 500**

**Meter Programming**

Overview and hands on programming of manufacturers metering software. You will be creating and editing meter programs.

*Laptop computers are provided but students can bring their own.*

**Meter Programming**

- Aclara
- Honeywell Elster
- Itron
- Landis + Gyr

Attend Any Class From Any Module



# Student & 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 (engineers, general managers, purchasing agents, operation managers) 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 One Day Participants.

## Cancellation Policy

Notification of cancellation must be submitted in writing to:

SE Meter Technical Assn  
c/o Utility Technology Association  
4711 Peachtree Industrial Blvd.,  
Suite 100  
Berkeley Lake, Georgia 30092

Refunds, less a \$50 administrative fee, will be made for all cancellations received in writing before March 5<sup>th</sup>. 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  
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The Hotel at Auburn University, Auburn, Alabama

_____		
First Name	Last Name	
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Badge Name (if different from above)		
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Title		
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Company		
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City	State	Zip Code
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Work Phone	Mobile Phone	
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## Registration Fees

- |              |  |
|--------------|--|
| _____ \$ 395 | <b>Student Registration Fee</b> includes Conference Notebook, Lunch on Tuesday and Wednesday, Dinner on Wednesday, Networking / Hospitality Breaks, and Admission to the Exhibit Hall. |
| _____ \$ 225 | <b>One-Day Student Registration Fee</b> includes conference notebook, one lunch, and admission to the Exhibit Hall.  |
| _____ \$ NC  | <b>Presenter - No Charge - All Presenters Must Register</b>  |

## Pre-Registration By March 5<sup>th</sup>

Late and OnSite Registration are subject to an additional charge of \$50.

## Payment Methods

Check Payable to **Utility Technology 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**  
c/o Utility Technology Association

4711 Peachtree Industrial Blvd, Suite 100  
Berkeley Lake, Georgia 30092

Please email questions to  
**suzanne@utilitytech.org**

or

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

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