Southeastern Meter School & Conference

The Hotel at Auburn University
and Dixon Conference Center

Auburn, Alabama

March 17th - 20th, 2025

Sponsored by the

Southeastern Meter Technical Association

In Cooperation with

Southeastern Meter School & Conference Class Schedule

Monday, March 17th					
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	*"AMI System Selection & Implementation"*				
2:30 - 3:00	Networking and Refreshment Break				
3:00 - 4:30	Grounding & Bonding Meter Sockets			Planning To Maximize The Value of Smart Grid Investments	
				Optimizing Grid Management: Harnessing Device-Level Insights from AMI	
4:30 - 6:00	Exhibit Hall / Hospitality				

Tuesday, March 18th					
Time	**Module 100**	**Module 200**	**Module 300**	**Module 400**	**Module 500 A&B**
8:30 - 10:00	Electrical Fundamentals	Power Theory	Fundamentals of Single & PolyPhase Field Meter Testing	Matter - Playing a Role in Managing Loads	Meter Programming Honeywell — Meter Programming Sensus
				Case Study - Asset Management of AMI Exchange Program	
10:00 - 10:30	Networking and Refreshment Break in Exhibit Hall				
10:30 - 12:00	Single Phase Metering Theory	Principles & Applications of Polyphase Metering	Instrument Transformer Testing	Creating a Real Automated Distribution System with AMI	Meter Programming Honeywell Continued — Meter Programming Sensus Continued
				Mitigating Risks for an AMI Deployment	
12:00 - 1:00	Lunch Provided				
1:00 - 2:00	Meter Sockets - Meter Mounting Devices	Applications of Multifunction Metering	Testing & Verification of Meter Installation Using Customer Load	Meter Analytics and AI in Meter Shop Operations	Meter Programming Aclara
2:00 - 2:30	Networking and Refreshment Break in Exhibit Hall				
2:30 - 4:00	Service Types & Meter Forms	Application & Sizing of Current Transformers	Testing & Verification of Meter Installation Using Customer Load Continued	Creating Grid Intelligence with AMI	Meter Programming Aclara Continued
4:00 - 5:30	Exhibit Hall / Hospitality				

Southeastern Meter School & Conference Class Schedule

Wednesday, March 19th					
Time	**Module 100**	**Module 200**	**Module 300**	**Module 400**	**Module 500**
8:30 - 10:00	Meter Installation Wiring	Demand Metering / TOU & EV Rates	Meter Test Equipment Training Radian Research	Power Quality & Revenue Metering Using Continuous Waveform Recording Infrastructure	Meter Programming Itron
10:00 - 10:30	Networking and Refreshment Break in Exhibit Hall				
10:30 - 12:00	Instrument Transformer Fundamentals	DER Metering Applications	Meter Test Equipment Training Radian Research Continued	Data for Revenue Assurance Leveraging Cellular Networks for AMI	Meter Programming Itron Continued
12:00 - 1:00	Lunch Provided				
1:00 - 2:00	Distribution Transformer Connections	Intro to Vector Diagrams	Meter Test Equipment Training TESCO	Utilizing AMI Data to Correct Power Distribution System Models' Phasing and Linkage	Meter Programming Landis+Gyr
2:00 - 2:15	Networking and Refreshment Break				
2:15 - 3:15	Single Phase Meter Safety, Meter Installation & Removal	Troubleshooting with Phasors	Meter Test Equipment Training TESCO Continued	From Hype to Reality: Generative AI's Role in Electric Utility Transformation	Meter Programming Landis+Gyr Continued
3:15 - 3:30	Networking and Refreshment Break				
3:30 - 4:30	What is Demand Metering?	Reactive, KVA and 4 Quadrant Metering	Meter Test Equipment Training TESCO Continued	Best Practices for Evaluating and Implementing a Residential EV Charging Management Program	Meter Programming Landis+Gyr Continued
5:00 - 6:00	Annual Dinner in Grand Ballrom				
6:00 - 9:00	Casino Royale in Grand Ballroom				

Thursday, March 20th					
Time	**Module 100**	**Module 200**	**Module 300**	**Module 400**	**Module 500**
8:30 - 9:30	ANSI C12 Changes That May Impact You for 2025 & Beyond				
9:30 - 9:45	Networking and Refreshment Break				
9:45 - 11:15	Revenue Protection				
11:15 - 11:30	Closing Session				

Knowledge is Power

Opening Session

AMI System Selection & Implementation
Mary McDuffa, *Florence Electricity*

Learn about the process of determining the requirements and the selection of an AMI System. Discussion to include internal and external support of the process. Will learn about how to go from selection to implementation of the system along with the challenges and best practices.

Module 100
Fundamental Metering

Metering Math & Electrical Fundamentals
Instructor: Mike Chirico, *Covington 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.

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.

Meter Sockets - Meter Mounting Devices
Instructor: Mark Barker, *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.

Service Types & Form Numbers
Instructor: Tim Hope, *Alabama Power*
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.

Meter Installation Wiring
Instructor: Keith Hardt, *Pungo Engineering*
Review of typical metering installations with emphasis on the ANSI meter wiring diagrams. A discussion of Blondel vs Non-Blondel compliant meter measurements. Also a discussion on some common metering installation errors.

Instrument Transformers Fundamentals
Instructor: Andrew Peterson, *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.

Distribution Transformer Connections
Instructor: Scott Sligh, *Gresco Utility Solutions*
Lecture on the understanding of distribution transformer connections and how to make them. A necessity to a well rounded meter person.

Meter Site Inspections and Billing Errors
Instructor: Terrell Walton, *Alabama 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.

Demand Metering
Instructor: Mark Bruss, *Itron*
Learn about demand metering to gain a better understanding on how this value is calculated and applied to the billing structure.

Module 200
Advanced Metering

Power Theory
Instructor: Paul Millan, *Southern California Edison*
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 power triangle, KW, KVA, power factor, reactive power, and demand.

Principles & Applications of Polyphase Metering
Instructor: Michael Albritton, *SEL*
Lecture on 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.

Applications of Multi-Function Metering
Instructor: Diego Barquero, *Landis+Gyr*
Session will cover the proper selection and application of the multi-function meter. Review of the considerations for the type of utility service.

Applications & Sizing of Current Transformers
Instructor: Frank Lopez, *GE Vernova*
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. Review of primary metering installations.

Demand Metering / Time of Use & EV Metering Rates
Instructor: Sy Schreiner, *Alabama Power*
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.

DER Metering Applications
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.

Introduction to Vector Diagrams
Instructor: Steve Hudson, *Radian Research*
An introduction to the concept of vector / phasor diagrams.

Troubleshooting Using Phasors
Instructor: Dale Prashad, *Aclara*
Learn about 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.

Reactive, KVA and 4 Quadrant Metering
Instructor: Nate Dunn, *Schneider Electric*
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.

Module 300
Meter Testing, Safety & Revenue Protection

Grounding and Bonding of Meter Enclosures
Instructor: Zach Dew, *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: Reid McBurnett, *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.

Instrument Transformer Testing
Instructor: Tom Lawton, *TESCO*
The importance of instrument transformer tests is often underestimated. Current and voltage transformers for metering purposes must have a high degree of accuracy to ensure precise billing. Course is designed to teach all aspects of testing instrument transformers.

Testing and Verification of Meter Installation Using Customer Load
Instructors: Zach Dew, Reid McBurnett, *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.

Radian Research - Meter Test Equipment Training
Instructor: Steve Hudson, *Radian Research*

Verification of electrical meter sites is crucial to ensure proper metering and billing for your utility. This class will cover the hardware and software used to perform a full meter site inspection for forms 9S, 5S/45S, 4S, and 3S meters on a live test board. Tests include waveform and vector diagram review, harmonic analysis, customer and phantom load testing, CT burden plus ratio testing, and CT burden measurement. Several meter site issues that result in reducing billing will be covered, along with the methods to identify and fix these problems. Students will learn about real stories from the field. Session includes an overview of the Powermaster 6618A field analyzer and 335V load box.

Radian Research - Meter Test Equipment Training
Instructor: Ryan Moffitt, *Radian Research*

The session will cover Shop, Field, and Lab Equipment used in the testing of electric revenue meters. The electric meter is the cash register for the utility, and it is important to test these meters with the test equipment that is reliable and has traceability to NIST. The Shop Test equipment portion of the class will cover the capabilities of the 4000 series test boards and the processes used in testing meters. The Field Equipment section will discuss the RW-3X site analyzer and how it is used at a polyphase meter site to test meter installation wiring, CT's and the meter. Lastly the class will cover reference standards and their role in keeping revenue meters and the test equipment traceable to NIST.

TESCO - Meter Test Equipment Training
Instructor: Vernon White, *TESCO*

The session will be a hands on class that will include the importance of performing a full analysis while at your transformer rated meter site with hands on training, validation of both your instrument transformers and meters in the meter shop prior to field deployment of these devices including hands on training on how to perform some of these tests, data analysis and troubleshooting along with case studies and real-world applications.

ANSI C12 Changes That May Impact You for 2025 & Beyond
Instructor: Steve Hudson, *Radian Research*

In the time since the 2014 edition of the ANSI C12.1 standard (which was published in 2016) was revised, the electric meters industry has undergone some significant technological advancements, which are reflected in the current standard. In 2022, ANSI C12.20 was merged into the larger ANSI C12.1 Code for Electricity Metering.

This session will cover changes that have occurred over the last 4-5 years on any ANSI C12 standard with a heavy focus on the most recent changes. It will also touch on new items which the ANSI C12 group is discussing that could cause changes in the industry.

Revenue Protection
Instructor: Doug Stephens, *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.

Module 400
Smart Grid, AMI and Emerging Technology

Planning To Maximize the Value of Smart Grid Investments
Instructor: Patrick Jordan, *NRTC*

Session will review the trends and best practices for establishing outcomes and objectives for smart grid technology investment. The intention of this session is to ensure future technology investments produce the desired outcomes, by identifying the metrics for project success early and measuring progress often.

Optimizing Grid Management: Harnessing Device-Level Insights from AMI
Instructor: Patrick Jordan, *NRTC*

Session will cover the capabilities of Advanced Metering Infrastructure (AMI) in providing device-level insights to revolutionize grid management. Explore how utilities can leverage these insights to enhance grid reliability, optimize distribution networks, and streamline operations.

Matter - Playing a Role in Managing Loads
Instructor: Jeff Miller, *Sensus*

This session will cover the uses of the new standard protocol Matter as it replaces Zigbee, ZWave and other various proprietary protocol in home automation. Matter is adopted by all major manufacturers and will control lights, thermostats, and coming soon, EV charging. The session will cover the use case for each of these and how the electric meter can play a role in managing loads in the home using AI technology.

Case Study - Asset Management of AMI Exchange Program
Instructor: Jody Killian, *QUES*

Learn about case studies on a program to assist large and small electric utilities with the transition to AMI metering, highlighting proprietary meter data capture and inventory management systems. Session includes discussion of challenges with supply chain, customer interactions, and data management across AMI implementation projects.

Creating a Real Automated Distribution System with AMI
Instructor: Angelo Borrelli, *Aclara*

See what the next generation AMI looks like. Including all the new and exciting offerings to create a real automated Distribution System - from smart metering to smart reclosers, cap banks and other equipment on the Distribution network.

Mitigating Risks for an AMI Deployment
Instructor: Jill Goff, *Radian Research*

Deploying a new system or upgrading an existing one involves a structured process to mitigate risks and ensure a successful rollout. This session will review the steps and considerations in an AMI deployment, focusing on key questions and real-world deployment issues.

Meter Analytics and AI in Meter Shop Operations
Instructor: Tom Lawton, *TESCO*

Discussion on how AI is starting to be used in metering applications and some of the potential that exist for coupling AI with Meter Analytics. Introduction to AI and how it can be used to filter data. Specific examples will be used.

Creating Grid Intelligence with AMI
Instructor: Bryan Seal, *Itron*

What is Distributed Intelligence? Using Distributed Intelligence for maintenance, troubleshooting, detecting and monitoring renewable energy, EV, power quality, and to detect grid anomalies – all from the grid edge.

Power Quality & Revenue Metering Using Continuous Waveform Recording Infrastructure
Instructor: Michael Albritton, *SEL*

Accounting for non-linear loads. An introduction to the concepts of Continuous Waveform Recording infrastructure. Pilot applications will be shared demonstrating the identification of power discontinuities that threaten industrial processes and to capture the true exchange of energy under transient conditions.

How to Use Data for Revenue Assurance
Instructor: Andrea Johnson, *Alabama Power*

AMI data is being used for many purposes at the utility. Learn how the data is being used for Revenue Assurance.

Leveraging Cellular Networks for AMI
Instructor: Eric Roberts, *Landis+Gyr*
Session will provide an overview of how utilities can leverage cellular networks to enhance their Advanced Metering Infrastructure (AMI). Attendees will gain a fundamental understanding of cellular communication technology, its applications in AMI, and key considerations for implementation.

Utilizing AMI Data to Correct Power Distribution System Models' Phasing and Linkage
Instructor: Justin Perry, *Alabama Power Company*
Alabama Power Company is utilizing AMI technologies to correct GIS models and maps of the distribution system, with high accuracy and greatly reduced effort when compared to manual verification efforts in the field. This improved model accuracy enables use of the latest GE ADMS advanced applications such as Distribution Power Flow, Fault Location, and FISR - in addition to improving accuracy of customer communications and distribution planning efforts.

From Hype to Reality: Generative AI's Role in Electric Utility Transformation
Instructor: Alnoor Ebrahim, *Southern Cross*
Starting with an overview of AI's vast landscape, the session will address the pressing challenges employees in the electric utilities face and demonstrate how generative AI offers tangible solutions for everyone to use. Real world use cases will be covered.

Best Practices for Evaluating and Implementing a Residential EV Charging Management Program
Instructor: Christine Cole, *Itron*
Why should you consider launching a residential EV charging program? Learn how utilities can evaluate and launch successful residential EV charging management programs with a focus on the technology options, rollout steps and ways to measure program effectiveness. Benefits to consumers and the grid will be covered.

Module 500
Meter Programming

Creating and editing of manufacturers metering software.
Laptop computers are provided but students can bring their own.

Honeywell - Meter Programming
Instructor: Russell Johnson, *Honeywell*

Sensus - Meter Programming
Instructor: Sean McCarty, *Sensus*
Sensus FlexNet Spotlight offers streamlined communication with meters and devices. Use FMT or optical probes to confidently add, configure, and manage meters securely with FlexNet messaging. The FlexNet Automated Shop Tool (FAST) enables easy configurability and verification of settings for optimized workflows. Customize Config/Verify creates tailored configuration files. Update firmware, create scripts, and edit easily using the Batch Menu. Prioritize security through dedicated settings. Manage file systems, logging, and app settings seamlessly in the user-friendly Settings Menu. Additionally, the class will use the iConfig software to develop custom programs and perform maintenance and cleanup on the RNI.

Aclara - Meter Programming
Instructor: Dale Prashad, *Aclara*
Learn to create a simple demand meter program with Aclara MeterMate software. Review the KWH and KW Demand information required from the meter and instantaneous measurements desired in the alternate display. Additional meter settings will be covered in building the meter program.

Itron - Meter Programming
Instructor: Mark Bruss, *Itron*
Learn about Itron's software meter programming suite PC-PRO+ Advanced! This class will provide a broad overview of all of the software capabilities, system management, and how to create meter configuration files to meet your specifications. From setting up the software, creating your user interface, to managing all of the security and management settings in creating a program file, will make you proficient with this software. Will also include an overview of Field-Pro, which will allow user to optically communicate with the meter, whether you are troubleshooting or creating a meter data file for later review.

Landis+Gyr - Meter Programming
Instructor: Diego Barquero, *Landis+Gyr*