



HITT's Venti Program

Oct 2017 – Feb 2019

20-Month Intensive Electricity Metering
Related Supplemental Instructional
Training E-Program

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Our Company

Mission Statement

- ❖ MENTOR ELECTRICITY CRAFT PROFESSIONALS WITH STRATEGIC KNOWLEDGE AND TACTICAL SKILLS AWARENESS.
- ❖ LET OUR PASSION FOR ELECTRICITY METERING AND SAFETY DRIVE OUR DESIRE TO CREATE HIGH QUALITY TRAINING AND RESOURCE MATERIALS.
- ❖ IGNITE A RENAISSANCE OF PRIDE AND QUALITY AMONG ELECTRICITY METERING CRAFT PROFESSIONALS.

Welcome to Harris Institute of Technical Training (HITT)

Electricity Metering! It's our passion!

Brad Harris, Journeyman Meterman and Relay Tech by trade is the President and Founder of HITT. It was out of his growing concern for the need to have quality training for electrical metering apprentices and other electrical craft personnel that he was motivated to seek a better way to provide consistency and continuity in the field of electricity meter training.

Frustrated by the apparent shift in meter apprentice training attitudes, Brad designed and developed a premier training program to address the push button training mentality, which is rather like giving a 1st grader a calculator. The problem can be entered into a resource or 'tool' (calculator), but is the formula understood? Is the answer shown correct? How do you know? What was (were) your "expectation(s)"?

HITT's programs are based upon the values of a true electricity craftsman with the capacity for understanding all portions and functions of electricity metering. Values of which are necessary to build the skills for trouble-shooting electricity metering issues and/or concerns, while developing a conscientious safety focused metering professional who has a well-rounded and fully developed set of expectations for resourcing resolutions to resolve metering errors and maintain metering installation integrity.

It is our heartfelt desire to see each apprentice achieve journeyman status along with the life skills needed to become successful, both personally and professionally, and is what fuels our commitment to providing quality training.



Venti Program Training Plan

Objective

We provide comprehensive electricity metering training for electrical craft professionals who have already served and completed a full apprenticeship. The course is built on the instructional training requirements of the IBEW / JATC and Electricity Metering Apprenticeship Programs for Washington, Utah, Oregon, and Colorado. This intensive 20-month training program provides the participant with an opportunity to gain a full understanding of electricity metering knowledge and its related field skills. The goal is to have fully trained Journeymen with a “know what to expect” mentality who are ready to perform.

Course Overview

Built on the foundation of 432 required instructional hours, the Venti Program is delivered in a face to face training environment, consisting of 4 week-long sessions, 70 weekly webinars and 2 Meter School sessions.

1. Four (4) Week-long (in person) sessions located at the training facility in Wilsonville, OR. –
 - a. Week One: FirstWeek™ – crucial to the success of a webinar focused program, this establishes the tone for the group. Course materials and supplies are provided. Conducting mini-webinars to ensure software/hardware compatibility and participant familiarity with online training process. Expectations of the program, including how assessments are proctored and graded.
 - b. Week Two and Three: Booster Sessions which are scheduled into the program and timed for balance in amping-up the training intensity to achieve the 432 hours within 20 months:
 - Booster session 1 (week 2) is at 6 months
 - Booster session 2 (week 3) is at 12 months
 - c. Week Four is a 3-Day Review and Exit Exam for HITT certification of course completion.
2. 70 Weekly Live Webinars: These 4-hour interactive sessions (with hourly breaks) keep the focus of metering instruction in the forefront of the participants’ training. A key benefit of online webinar training is the ability to share field experiences with the group by texting or emailing the field images, which provide a valuable learning opportunity. These shared discussions provide a stronger forum for building strategic knowledge through their tactical experiences and awareness. HITT’s classroom approach includes these situational discussions in which all participants are encouraged to share their learning experiences both from the field and the shop.
3. Two (2) Week-long sessions at WEI’s NW Meter School in Seattle, WA. – Provides the Hands-on Lab instruction, which brings to life, the instructional value of correlating and applying the electrical theories taught. Valuable metering industry related information can be discovered or experienced as the participant rounds out their hands-on training with other instructors. It is also an essential factor in providing an opportunity to network with metering professionals and peers.

Course Topics

- 1) Vocabulary and Definitions Sections – 1-5
- 2) Electric Meter Safety – Sections 1-5
- 3) Electricity Training – Sections 2-6
- 4) Self-Contained Single Phase Metering Principles – Sections 1 and 2
- 5) Mathematics for Electricity Metering – Sections 1-5
- 6) Vector Training for Electricity Metering – Sections 1-8
- 7) Self-Contained Single Phase Metering Proofs
- 8) Customer Relations – Sections 1-3
- 9) Application of Single Phase AMI Metering Principles
- 10) Single Phase Distribution Transformer Theory and Connections – Sections 1 and 2
- 11) Revenue Protection – Sections 1 and 2
- 12) Rates, Tariffs and Policies – Sections 1-4
- 13) Demand Metering – Sections 1-4
- 14) Field Test Instruments and Equipment – Sections 1-4
- 15) Instrument Rated Single Phase Metering Principles – Sections 1 and 2
- 16) Instrument Transformers – Sections 1 and 2
- 17) Instrument Rated Single Phase Metering Proofs
- 18) Self-Contained Three Phase Metering Principles – Sections 1 and 2
- 19) Self-Contained and Instrument Rated Metering Commonalities
- 20) Self-Contained Three Phase Metering Proofs
- 21) Application of Three Phase AMI Metering Principles
- 22) Three Phase Distribution Transformer Theory and Connections – Sections 1-3
- 23) Pulse Metering – Sections 1-3
- 24) Instrument Rated Three Phase Metering Principles – Sections 1 and 2
- 25) Instrument Rated Three Phase Metering Proofs
- 26) Reactive Metering – Sections 1 and 2
- 27) High Voltage Metering – Parts 1 and 2
- 28) High Voltage Metering Proofs
- 29) Telemetry Metering
- 30) Totalizing Metering

Venti Program Syllabus

Section One:

Self-Contained Single Phase Metering 1 and 2; Electricity Meter Safety 1; Definitions and Vocabulary 1; Electricity 2; Electricity Metering Principles 1; Mathematics for Electricity Metering 1; Single Phase Distribution Transformers 1; Demand Metering 1; Customer Relations 1; Field Test Instruments and Equipment 1; Revenue Protection 1; Rates, Tariffs and Policies 1; Safe Procedures for Installing and Removing Meters; **First Check Point** (6 Month Equivalent)

Section Two:

Instrument Rated Single Phase Metering 1 and 2; Electricity Meter Safety 2; Definitions and Vocabulary 2; Electricity 3; Electricity Meter Principles 2; Instrument Transformers 1; Mathematics for Electricity Metering 2; Single Phase Distribution Transformers 2; Demand Metering 2; Rates, Tariffs and Policies 2; Field Test Instruments and Equipment 2; **Second Check Point** (12 Month Equivalent)

Section Three:

Self-Contained Three Phase Metering 1 and 2; Electricity Meter Safety 3; Electricity 4; Meter Vocabulary and Definitions 3; Application of Single Phase AMI Metering Principles; Electricity Meter Principles 3; Self-Contained and Instrument Rated Metering Commonalities; Three Phase Distribution Transformer Connections 1; Mathematics for Electricity Metering 3; Pulse Metering 1; Customer Relations 2; Demand Metering 3; Revenue Protection 2; Field Test Instrument & Equipment 3; Rates, Tariffs and Policies 3; **Third Check Point** (18 Month Equivalent)

Section Four:

Instrument Rated Three Phase Metering 1 and 2; Meter Safety 4; Electricity 5; Meter Vocabulary and Definitions 4; Mathematics for Electricity Metering 4; Electricity Meter Principles 4; Pulse Metering 2; Three Phase Distribution Transformer Connections 2; Demand Metering 4; Application of Three Phase AMI Metering Principles; Instrument Transformers 2; Rates, Tariffs and Policies 4; Field Test Instrument & Equipment 4; Meter Communications 1; **Fourth Check Point** (24 Month Equivalent)

Section Five – Building the Final Foundations

High Voltage Metering 1 and 2; Reactive Metering 1 and 2; Meter Safety 5; Electricity 6; Meter Vocabulary and Definitions 5; Mathematics for Electricity 5; Electricity Meter Principles 5; Three Phase Distribution Transformer Connections 3; Customer Relations 3; Meter Communications 2; Totalizing Metering; Pulse Metering 3; Telemetry Metering; **Fifth Check Point** (30 Month Equivalent)

Section Six – Review Focused for Retention

Electricity Meter Principles; Field Metering Safety; Electricity; Meter Vocabulary and Definitions; Customer Relations; Mathematics for Electricity; Demand Metering; Pulse Metering; Single and Three Phase Transformer Connections; High Voltage Metering; Field Test Equipment; Rates, Tariffs and Policies; Instrument Transformers; Reactive Metering; Meter Communications; Totalizing Metering.

Training Materials Provided by HITT

The high quality drawings and detailed diagrams in our books and workbooks, plus the use of full color, provide a stronger foundation for communicating and delivering the electricity theory, concepts, and principles. These training materials along with the trained tactical skills for becoming a thoroughly skilled meterman, are the tools for developing strategic knowledge, including “Having an Expectation”.

Books*, Workbooks, and Materials (for each participant) include:

- ❖ Meterman’s Bible – Set of three books: Single Phase, Three Phase and Three Phase Primary
- ❖ Workbooks and worksheets related to each topic/subject presented
- ❖ Meter Voltage Reference Guide
- ❖ Specialty Metering Diagrams Reference Manual
- ❖ Distribution Transformer Connections Training Manual and Field Guide
- ❖ Metering Diagrams - Proofs and Truths Explained: Single Phase & Three Phase Self-Contained
- ❖ Calculators, protractors, and other items that assist with instruction. We supply these items so that all apprentices are using the same “tools” and not taking away from class time to teach each one individually on how their “tool” is used, as it distracts from the learning moment.

[*The Edison Institute’s “[Handbook for Electricity Metering – 10th Edition](#)” is not included, but should be obtained for the apprentice, as it is a valued addition to the history and strength of metering knowledge.]

Check Point Exams

Check Point exams serve as Assessments and are to be proctored by the sponsoring utility's apprentice's manager (or designated mentor/program coordinator) and then sent back to HITT for review. HITT will then return the exams to each participant for group review. Scoring and status updates will be provided to the manager or designated apprentice program coordinator.

Check Point Exams measure the strengths and weaknesses of each participant and are scored as a pass/no pass. *The 1st assessment which is used to measure the skills and aptitude of the apprentices and provide expectations of program's format: such as being prepared to answer the questions with minimal or no True/False or Multiple-guess. We strongly feel that a competently trained professional should be able to stand in the field and know exactly what they are required or expected to do. There are no T/F or Multiple Choice in real world situations, that's why we limit these to the first two exams. Designed to help guide the course and identify areas where additional instructional support may be needed, the exams are key pieces of the training process. Each apprentice's mentor/journeyman or manager will be notified of any areas of concern, so that field support can be increased to accommodate the learning in these areas.

Scoring – There are Five (5) check point exams, one for each section of focused instruction:

Section	Focused Instruction:	Minimum Scores for:	
		Completed	Certified
One	Single Phase Self-Contained Metering	70%	75%
Two	Single Phase Instrument Rated Metering	75%	80%
Three	Three Phase Self-Contained Metering and Review	75%	80%
Four	Three Phase Instrument Rated Metering	80%	85%
Five	High Voltage Metering and Review	80%	85%
Six	Full Course Review – The Exit Exam	80%	85%

These exams are **not** designed to remove an apprentice from the training program specifically, as they are a valuable measurement of the apprentices' progress. These exams are significant in the development of an apprentice's skills and to their mentors and in-class instructor(s). They are not designed to be used as a disciplinary resource, but rather a reference to be combined with related factors to determining the overall progress in field and on-the-job performance of the participant, in preparing them to take their local Journeyman Exam.

Keys to a Successful Program

Mentoring

“They just don’t know, what they don’t know” which is why a Mentor is necessary to the success of an apprentice. The application of learned tactical awareness, through the experience of applying those tactics in the field, is the vital key needed for apprentice to develop strategic knowledge. A successful Mentor allows the apprentice to put their skills to the test under their watchful eye; Keen to safety awareness and potential hazards that only their own experiences and strategic knowledge have provided them with. A great Mentor leads the apprentice with enough freedom to experience the work and yet be aware of potential dangers and possibly unsafe conditions.

Mentoring among peers:

It has been our experience that by keeping the class size to a maximum of 10 attendees, it helps to develop and enrich each participant’s experience. We’re all on the same team, honoring our individual strengths and helping each other to build up areas of weakness. That is why FirstWeek™ is so critical in the beginning of a Webinar based program. The group must develop a sense of bonding in order to trust and feel confident in each other’s presence (even online).

Safety, Communication, and the Shop Environment

First and foremost in our training, we emphasize that Safety begins with the individual. No one is more responsible for your safety than you are. We strive to impart the wisdom that “it’s your life and livelihood that are at risk” whether you are driving to the store or working on 480V hot-work, you are ultimately the one responsible for choosing to [Be Safe All Ways](#) and that includes being fully present.

Individuality, learning styles, personal experience, and diversity are factors to communicating effectively. Understanding that reality is based upon each person’s perspective, we know that the need for effective communication begins with having a “common ground” of understanding. Knowing what the processes are for the work to be done, having expectations for the various types of metering, and the ability to work as a team are keys to developing a strong MeterSmart™ crew.

We introduce and explain “Ground Truth and Official Truth”, both of which have their place, but if a meter shop is to be healthy and maintain a safe working environment, then the metering professionals must be afforded the safety for Ground Truth discussions amongst peers and with supervisors. This is not a place for those with a need to feed their Ego or to ‘show off’ their skills, but rather a place for being safe and having a sense of respect for their craft.

Having an Expectation

The one key feature that sets a metering professional apart is their ability to trouble-shoot all metering situations. In performing their work, it is necessary to have a skill set that allows the Journeyman (and Apprentice) to have an expectation. To understand the why’s and how’s of metering and electricity. How will you be able to identify a problem or even know what to look for if you don’t have an expectation for the situation? “Have an expectation” is a term used in our training and participants will hear this often throughout their training when it is applicable.

Class Schedule and Travel

Oct 2017 through Aug 2019 – [Calendar for Webinar Schedule available upon registration]

Travel Dates:

HITT Face to Face sessions in Wilsonville, OR**.

1. FirstWeek™
2. 6 mo. Check Point
3. 12 mo. Check Point
4. Exit Exam for Certification

NW Meter School in Seattle, WA**.

5. Track B – August 2018
6. Track C – August 2019

*Costs for travel & accommodations are not included.

**Meals:

- Week Long Sessions: Daily lunch, 2 breaks, and one hosted dinner.
- Meter School Week: Continental Breakfast, Breaks, Lunch and a BBQ Dinner on Tuesday night; HITT also provides one hosted dinner on Monday night.

Instructor Background and Qualifications

Brad has been teaching electrical concepts and theories for 30+ years. He started out reading meters in 1975 and then two years later became a Night Collector. In 1981 he began his metering apprenticeship and began teaching apprentices in 1984. From there he moved into relay training and became a technician. Brad's combined relay tech and metering experience enhance his skills and knowledge for teaching metering to Apprentices, Journeymen, Managers and Customer Service Reps, as well as instructing his own peers.

A) Employment history:

- 1) PacifiCorp – Trainer, Meterman, Relay Tech., Warehouse, Collector, and Meter Reading (32 years)
- 2) HITT – Owner, Founder, and President (since 2007)
- 3) Seattle City Light – Metering, Apprenticeship Office and AMI Core Team Metering Lead
- 4) South Seattle Comm. Coll. – Night School Instructor – Metering Apprenticeship Program

B) Brad has provided various trainings for the following REA's, Coop's, and Investor Owned Utilities:

- 1) PacifiCorp (Portland, OR)
- 2) Tillamook PUD (Tillamook, OR)
- 3) Idaho Falls Power (Idaho Falls, ID)
- 4) APEX (Burlington, VT)
- 5) Consumers Power (Albany, OR)
- 6) Eugene Water & Electric Board (Eugene, OR)
- 7) Portland General Electric (Portland, OR)
- 8) Seattle City Light (Seattle, WA)
- 9) City Utilities (Springfield, MO)
- 10) Maui Electric Company (Maui, HI)
- 11) Yakama Power (Yakama Nation, WA)
- 12) Oregon Trail Electric Coop (Baker City, OR)
- 13) Empire Electric Association, REC (Cortez, CO)
- 14) NextEra Nuclear Power Plant (Two Rivers, WI)
- 15) Iowa REC (Des Moines, IA)

C) Brad has trained or presented at the following:

- 1) Mid-South Electric Meter School (MSEMA) Tennessee (2010 & 2015*)
- 2) North Carolina Meter School (NCMS) Myrtle Beach, NC (2014*)
- 3) Southwest Electric Meter Association (TEEX-SWEMA) Bryan, TX
- 4) Northwest Meter School (NWMS) Seattle, WA (20+ yrs) (2011 & 2016*)
- 5) Arkansas Electric Meter School – Fayetteville, AR (2010*)
- 6) EUSERC – Sacramento, CA
- 7) International Lineman's Rodeo (2010*)

Year Keynote speaker and opening presenter.*

D) Brad assisted with the design, development and building of training centers at two PacifiCorp locations: Wilsonville, OR and Salt Lake City, UT. Brad was the lead coordinator on a similar project with Seattle City Light, Centralia Community College and the Pacific NW Center of Excellence to develop a hands on AMI lab and training facility open to all metering personnel.

Contact Information

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Testimonials

From our FIRST Venti Program (June 2014 – Feb 2016) Here's what the Managers and Participants have to say:

Empire Electric Association (EEA):

Operations Manager: Ken Tarr – “We have really appreciated the training that you have been able to provide for the two guys!! You have a great program and I am sure that this is not the last time you will be hearing from EEA regarding training.”

Oregon Trail Electric Coop Co. (OTECC):

Director of Engineering and Operations: Ned Ratterman – “Your training is absolutely impressive and effective and our apprentice raves about your organization, professionalism and talent as an educator.”

Systems Engineer: Charlie Tracy – “Thank you both for the effort you have put into our apprentice program. You have made a tremendous contribution to our Co-op and to metering in general.”

Program Participants:

From OTECC

- **Myles** “I took the Journeyman exam in Portland. I passed and couldn't have done it without your help. Thank you!”
- **Mark** (added to the last 6 months of the program after having just finished a previous program) said: “Brad, I really appreciate all the meter knowledge I have gained from you and your class. Your presentation and approach seems to work for me and I know my meter skills have improved because of it. So, THANK YOU very much for all the time you have spent with me and I look forward to using my skills throughout my meter career.”

From EEA:

- **Stan** “I'd take all my vacation time to spend a month in the Field with Brad” and “Give my cell number out to anyone who is interested in hearing about my experiences first hand, I'd be happy to have the opportunity to brag on Brad's class”.
- **Steve** says “He took this old line guy and made me a meterman! That's saying something AND I never fell asleep in any of the classes!” Steve has also offered his personal cell phone number to contact him about any questions you have about taking our Venti program.