

Approved Minutes of the
Electrical Utility
State Apprenticeship Advisory Committee

May 24, 2022
Mauston, WI & Virtual

Members Present	Employer / Organization
Burke, Lance	Dairyland Power Co-operative
Chartier, Chris (Co-Chair)	WPPI Enegery
DeGraves, Jeff	Wisconsin Public Service
Kumm, Nicholas	Marshfield Utilities
Mignon, Matt	Madison Gas & Electric
Muench, Mark	Alliant Energy
Nitek, Jeremy	Dairyland Power
Tremaine, Todd	City of Oconomowoc Utilities
Members Absent	Employer / Organization
Reinceck, Scott	IBEW Local 2150
Consultants & Guests	Employer / Organization
Badger, Richard	Bureau of Apprenticeship Standards
Czarnecki, Annette	Worldwide Instructional Design System
DeWall, Julie	WE Energies
Ferguson, William	
Herrild, Howard	Northeast Wisconsin Technical College
Johnston, Stephanie	Boys & Girls Club
Jungwirth, Christina	Northeast Wisconsin Technical College
Nakkoul, Nancy	Wisconsin Technical College System
Nowak, Raquel	Bureau of Apprenticeship Standards
Polk, David	Bureau of Apprenticeship Standards
Smith, Owen	Bureau of Apprenticeship Standards
Vang, Long	Bureau of Apprenticeship Standards

1. The meeting was called to order at 10:03 a.m. by Mr. Owen Smith in conformance with the Wisconsin Open Meeting Law.
2. Attendees introduced themselves. Mr. Smith recorded attendance. A quorum was present.
3. The committee reviewed the current roster. Mr. Matt Mignon, a new Employer Member, introduced himself.

4. Action

a. The state committee approved the minutes as revised: Mr. Chartier is not a Co-Chair.

b. Review proposed changes to related instruction for Substation Electrician.

Ms. Czarnecki reviewed that technical college instructors proposed adding competencies for substation drawings and deleting the competencies for fluid power mechanics. The proposed revisions do not change the hours of related instruction.

Action: the state committee approved the changes.

c. Review proposed changes to related instruction for Metering Technician.

Ms. Czarnecki and Ms. Nakkoul proposed maintaining the same content and decreasing the hours of related instruction to 432 to align the hours with current WTCS policies for calculating and structuring credit hours. They reiterated that the content is the same; only the hours are different.

Action: the state committee approved the changes.

Ms. Nakkoul and Ms. Jungwirth reported that the Metering Technician related instruction will move to Northeast Wisconsin Technical College, effective this fall.

d. Review proposed alignment of Electrical Power Distribution and Electric Line Worker.

Mr. Smith reviewed that the Bureau has been researching registered apprenticeships that may align with or embed a technical college diploma. The Bureau and the state committee discussed the relationship between the EPD program and ELW registered apprenticeship at the 2021 fall meeting; the state committee advised not to require the EPD program as a pre-requisite to the ELW apprenticeship because it may conflict with labor-management contracts.

Ms. Nakkoul asked Mr. Smith to clarify whether the minutes of the 2021 fall meeting required or recommended action by the WTCS. Mr. Smith clarified that no action was requested of the WTCS.

The state committee reiterated that completing the EPD program prior to entering the ELW registered apprenticeship is neither an industry-wide practice nor a feasible requirement. Some utilities require the EPD program; some unions require a similar internal training; and some facilities require neither.

Mr. Smith and the state committee considered the matter closed; no further action is needed.

e. Review proposed reallocation of work process hours to Underground from Overhead (50/50)

Mr. Smith reported that he received a request to review specific work processes and minimum hours in the Electric Line Worker registered apprenticeship.

Mr. Muench explained that his company is shifting to more underground work and finds the current distribution of minimum hours for underground and overhead to be limiting. The current Exhibit A

requires at least 1200 hours of underground work and 3900 hours of overhead work. He proposed reallocating the hours equally between the two work processes.

The state committee agreed with the following: both work processes are unique; most utilities perform one more than the other; and satisfying both can be challenging.

The state committee recommended modifying both work processes and/or hours, on the condition that no content is lost, and doing so soon because sponsors may be challenged to satisfy them as written.

The following attendees volunteered to serve on a focus group: Mark Muench; Matt Mignon; Jeff Degrave; Bill Ferguson; and Chris Chartier.

Action: *Mr. Smith will convene the focus group in late June or early July and then schedule a special, virtual meeting of the state committee to vote on the recommendations.*

5. **Discussions**

a. BAS Directors Call with State Committees

Director Polk reviewed that the Bureau convened the first BAS Director's Call with State Committee. The virtual meeting, approved by the WI Apprenticeship Advisory Council, presents in a single forum all BAS updates that pertain to most or all state committees. As a result, state committees' agendas will focus only on their unique registered apprenticeships. However, Director Polk emphasized that state committees are encouraged to raise questions or comments on BAS updates during their meetings.

Director Polk asked the state committee for feedback, which he will share with the Advisory Council.

The state committee voiced support for the Director's Call and for using its meetings to focus only on its registered apprenticeships.

b. Modified format of state committee meetings.

Director Polk and Mr. Smith reviewed that all state committee meetings will be held in person and include a virtual option. The streamlined agenda may result in shorter meetings. They emphasized that these modifications are not intended to lessen the role or voice of state committees; rather, the modifications focus the state committees' meetings on their unique needs.

The state committee voiced support for all the changes.

c. Pending review of the *Wisconsin Apprenticeship Manual*

Director Polk reported that the *Manual* was reviewed by the Wisconsin Apprenticeship Advisory Council's Policy and Standards Subcommittee and is currently under review by the full Council. The Council will meet on June 6 to approve the working draft, which will begin a 90-day public comment period. The Bureau will make the "old" manual, the revised manual, and a table of revisions available to the public via its website. Input can be emailed to apprenticeship@dwd.wisconsin.gov.

Attendees did not have questions or comments.

d. Pending review of the state standards

Mr. Smith reviewed that the *Manual* provides the boilerplate language for all state standards. The boilerplate language comprises 90% of any committee's standards. The remaining content is specific to the state committee, e.g. committee size, contractor organizations, applicant assessment procedures, etc.

Once the *Manual* is approved by the Council, the Bureau will revise the boiler plate language and format of all state standards accordingly and present them at the fall meetings. Mr. Smith reiterated that the changes do not include new policies; rather, they include necessary updates and a more logical order.

Attendees did not have questions or comments.

e. Other

Attendees did not have additional topics or comments.

6. The state committee reviewed the participant statistics and did not have questions or comments.
7. The meeting adjourned at 11:20 a.m. The Bureau will determine the next meeting via electronic survey.

Submitted by Owen Smith, Senior Analyst, Wisconsin Apprenticeship

May 16, 2022

TO: State Electric Utility Trades Apprenticeship Advisory Committee Members & Consultants

FROM: Owen Smith, Bureau of Apprenticeship Standards, Owen.Smith@dwd.wisconsin.gov

SUBJECT: State Electric Utility Apprenticeship Advisory Committee meeting

DATE: Tuesday, May 24, 2022

TIME: 10:00 a.m.

OPTIONS: **Attend in person.**
Western Technical College, Community Room
1000 College Ave
Mauston, WI 53948

Attend via phone only.
608-571-2209; 825 885 840#

[Attend virtually.](#)

TENTATIVE AGENDA

1. Call the meeting to order.
2. Record attendees.
3. Review the roster.
4. **Action**
 - a. Approve the minutes of the previous meeting.
 - b. Review proposed increase in related instruction hours for Metering Technician.
 - c. Review other proposed changes to related instruction.
 - d. Review proposed alignment of Electrical Power Distribution and Electric Line Worker.
 - e. Review proposed reallocation of work process hours to Underground from Overhead (50/50)
5. **Discussions**
 - a. BAS Directors Call with State Committees
 - b. Modified format of state committee meetings
 - c. Pending review of the *Wisconsin Apprenticeship Manual*.
 - d. Pending review of the state standards
 - e. Other

6. WTCS Update
7. Review the program participants.
8. Schedule the next meeting.
9. Adjourn.



Electric Utility WTCS Related Instruction

Review of Recommended Curriculum
Changes

50-468-1 SUBSTATION ELECTRICIAN

50-413-7 METERING TECHNICIAN



Systematic Planned Reviews



All apprenticeships

Over 5 years

Flexible to meet employer
and WTCS needs

Goals

- ▶ Update course documentation to ensure curriculum is accurate
 - ▶ Course Competencies
 - ▶ Performance Standards
 - ▶ Credits/Hours

Review process

Share plan with BAS and Trade Committees initially and at spring meetings

- Survey employers to determine new needs and revisions

Create instructor team

- All colleges approved (with active enrollments past three years?) to offer the apprenticeship are invited to identify 1-2 instructors to participate.

Share course review packet

- WIDS will share the program configuration and COS packets for review

Conduct 1-4 web meeting reviews

- Faculty determine if changes are needed (1 web meeting)
- Faculty revise course outcome summaries (2-3 web meetings. Changes may include updates to course credits, competencies or performance standards and or new courses.
- Discuss potential for RA to TD alignment

Obtain approval

- Determine approvals needed
- WIDS provides a revision summary including major changes and justification for changes for discussion

Publish revisions

- Publish revisions from the Repository for college use

50-468-1 Substation Electrician Curriculum Review Participating Colleges



NWTC

- Apprenticeship Coordinator, Christina Jungwirth
- Instructor, Tim Murphy

Instructor recommended content changes for **two courses**:

- Fluid power and mechanical system – remove, not relevant
- Understanding Substation Drawings - add

50-468-1 Substation Electrician Specific Curriculum Recommendations

Course	Review Notes
50-468-505 <u>Substation</u> <u>Motor</u> <u>Controls,</u> <u>Fluid Power</u> <u>&</u> <u>Mechanical</u> <u>Systems</u>	<ul style="list-style-type: none">- Remove content on fluid power and mechanical systems- Add content on Testing and Test Equipment. (This content would be removed from course 50-468-507 and put into this course.)- Change title of the course and course description to reflect changes to content (Substation Motor Controls)

50-468-1 Substation Electrician

Specific Curriculum Recommendations

Course	Review Notes
50-468-507 <u>Substation</u> <u>Equipment</u> <u>Maintenance &</u> <u>Testing</u>	<ul style="list-style-type: none">- Remove content on Testing and Test Equipment (moved to 50-468-505)- Add content on Understanding Substation Drawings- Change title and description of the course to reflect changes to content (Substation Diagrams and Equipment Maintenance)

50-413-7 Metering Technician Curriculum Review Participating Colleges



MSTC

- Apprenticeship Coordinator, Mandy Mayek
- Instructor, Ed Crownhart

[Curriculum document](#)

Your Turn

- ▶ Questions?
- ▶ Concerns?

A large, orange, rectangular stamp with a distressed, grunge texture. The words "YOUR TURN" are written in bold, black, sans-serif capital letters across the center of the stamp. The stamp is tilted slightly upwards to the right. In the top right corner of the slide, there is a small, solid green rectangle.

YOUR TURN



50-413-7 METERING TECHNICIAN APPRENTICE

Program Information

Instructional Level Technical Diploma
Career Cluster Architecture and Construction
CIP Code 46.0399

Description

Electric Metering Technicians repair, rebuild and wire all styles of electricity meters and metering equipment, including transformer rated meters, pulse relays and recorders. They perform routine field checks of complex industrial meters to insure proper operation. They maintain electricity meter and departmental instrument histories and maintain accurate inventory records. They operate computers as required for shop work and field testing and interrogation of metering installations.

Electric Metering Technicians is an Industrial Apprenticeship, therefore, admission into this apprenticeship can only be found through an employer. If you are interested in becoming an Electric Metering Technician, talk to someone in a company's personnel office to find out their procedure for choosing apprenticeship candidates. Often, in large utility companies, apprenticeships are open only to workers already employed in the plant. In these situations, you must first be employed by the firm and then seek an apprenticeship.

Mission

Provides related instruction for apprentices participating in an employer-sponsored Wisconsin approved apprenticeship training program.

Target Population

Registered apprentices

Career/Job Titles

Metering Technician

Accreditation Information

DWD-BAS coordinates and approves state apprenticeship programs in Wisconsin.

Apprenticeship Training Standards

Title	Metering Technician
Minimum Length	<ul style="list-style-type: none">• Total: three years = 36 months of not less than 6,432 hours• On-the-job learning (OJL): at least 6,000 hours• Related instruction (RI): 432 hours
Approach	<ul style="list-style-type: none">• Time-based
Special Provisions	The apprentice must take Transition to Trainer in the final year of his or her apprenticeship in order to complete the program.
Mandatory Duties	Ensure a safe work environment

	Maintain test equipment Perform meter testing Install electrical metering equipment Verify metering systems Identify and resolve field problems Perform administrative functions
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Entry Requirements

Registered Wisconsin apprentice

Program Outcomes

- 1 Ensure a safe work environment
- 2 Maintain test equipment
- 3 Perform meter testing
- 4 Install electrical metering equipment
- 5 Verify metering systems
- 6 Identify and resolve field problems
- 7 Perform administrative functions

50-413-7 WTCS Metering Technician Apprenticeship Related Instruction (2021-22)

Description

This program configuration represents a statewide model for class cohorts in the related instruction portion of the Metering Technician apprenticeship. The model outlines related instruction for the three-year apprenticeship. It reflects a total of 432 hours of combined related instruction lecture, demonstration, and hands-on learning aligned with DWD-BAS apprenticeship training standards.

This model aligns WTCS learning outcomes with relevant industry standards as identified by an industry validated DACUM and Exhibit A work processes approved by the state trade committee. This curriculum model may be interpreted and implemented by the colleges as required to meet local needs and in support of local work processes by the steering committee and DWD-BAS.

Credits

1 - Occupation Specific 12

Total Credits 12

Term 1

Course #	Course Title	Credits
50-413-536	D.C. Circuits for Meter Technicians-Module One	1
50-413-537	A.C. Circuits for Meter Technicians-Module Two	1

Term 2

Course #	Course Title	Credits
50-413-538	The Power Triangle for Meter Technicians-Module Four	1

50-413-544	Applied Trigonometry for Meter Technicians-Module Three	1
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Term 3

Course #	Course Title	Credits
50-413-540	Three Phase Circuits for Meter Technicians-Module Five	1
50-413-541	Instrument Metering for Meter Technicians-Module Six	1

Term 4

Course #	Course Title	Credits
50-413-542	Regulations and the PSC for Meter Technicians-Module Seven	1
50-413-543	Specialty Metering for Meter Technicians-Module Eight	1

Term 5

Course #	Course Title	Credits
50-413-539	AMR/AMI Metering for Meter Technicians-Module Nine	1
50-413-545	Power Quality for Meter Technicians-Module Ten	1

Term 6

Course #	Course Title	Credits
50-413-546	Assessment Prep for Meter Technicians-Module Eleven	1
50-413-547	Final Assessment for Meter Technicians-Module Twelve	1
47-455-455	Transition to Trainer: Your Role as a Journey Worker	

Program Course List

Number	Title	Credits	Description	Pre/Corequisites
50-413-536	D.C. Circuits for Meter Technicians-Module One	1	This course includes the study of Ohm's Law and its application to D.C. circuits. Major topics include: Ohm's Law, series circuits, parallel circuits, combination circuits, Kirchhoff's Laws, and power relationships.	
50-413-537	A.C. Circuits for Meter Technicians-Module Two	1	This course builds on the knowledge of D.C. circuits, and includes the analysis and application of A.C. circuits. Topics include alternating current and voltage, capacitance, inductance, series, parallel and complex circuits as well as phasor concepts applied to A.C. circuits. Prerequisite: A.C. Circuits for Meter Technicians-Module one 50431536	A.C. Circuits for Meter Technicians-Module one 50431536
50-413-538	The Power Triangle for Meter Technicians-Module Four	1	The topic of this course will focus on single-phase ac circuits and develop the definitions for ac powers: apparent power, active (real) power, and reactive power. In addition, the graphical method for ac powers, the power triangles, impedance triangles and vectors will be	Applied Trigonometry for Meter Technicians-Module Three 50413544

			presented. Corequisite: Applied Trigonometry for Meter Technicians-Module Three 50413544	
50-413-539	AMR/AMI Metering for Meter Technicians-Module Nine	1	Automated metering systems where the apprentice will study terms related to AMR and AMI. Discuss different types of automated metering, explain some of the theories as to why automated meters can be more cost effective, and describe the different types of information that can be obtained from electric meters.	Specialty Metering for Meter Technicians-Module eight 50413543
50-413-540	Three Phase Circuits for Meter Technicians-Module Five	1	In this course the students will be presented with the principles of 3 phase electric power, including the characteristics of Wye and Delta connections. The fundamentals of two winding and autotransformers are discussed, including various combinations of 3 phase transformer connections. The voltage, amperage and power of various three phase systems will be discussed. Corequisite: The Power Triangle for MT-Module 4 50413538	The Power Triangle for MT-Module 4 50413538
50-413-541	Instrument Metering for Meter Technicians-Module Six	1	This module will focus on common three phase metering setups where the apprentice will match meters with services, calculate meter/billing multipliers, match meters with transformer connections, match meters with service voltage. Corequisite: ThreePhase Circuits for Meter Technicians-Module five 50413540	Three Phase Circuits for Meter Technicians-Module five 50413540
50-413-542	Regulations and the PSC for Meter Technicians-Module Seven	1	This course will interpret the PSC guidelines for voltage levels, watt-hour meters, testing procedures, record keeping and customer complaints. Corequisite: Instrument Metering for Meter Technicians-Module six 50413541	Instrument Metering for Meter Technicians-Module six 50413541
50-413-543	Specialty Metering for Meter Technicians-Module Eight	1	This module will focus on specialty metering the apprentice will learn how/why a rate type applies to a specific customer and learn how to meet customer requirements using pulses and modem. Corequisite: Regulations and the PSC for Meter Technicians-Module seven 50413542	Regulations and the PSC for Meter Technicians-Module seven 50413542

50-413-544	Applied Trigonometry for Meter Technicians-Module Three	1	In this course students will study relations, functions, graphs, trigonometry, polar coordinates and complex numbers. The student will analyze and graph mathematical and electrical functions. Prerequisite: AD Circuits Meter Technician-Module 2	AD Circuits Meter Technician-Module 2
50-413-545	Power Quality for Meter Technicians-Module Ten	1	This course will focus on various power quality topics including harmonics, non-linear loads, stray voltage and how they affect metering accuracy, transformer sizing, and customer equipment. Corequisite: AMR/AMI metering for Meter Technicians-Module nine 50413539	AMR/AMI metering for Meter Technicians-Module nine 50413539
50-413-546	Assessment Prep for Meter Technicians-Module Eleven	1	This module is a course review where the apprentice will be presented with test taking techniques and study skills that are directly related to the final metering assessment, includes a one day seminar on energy diversion. Corequisite: Power Quality for Meter Technicians-Module ten 50413545	Power Quality for Meter Technicians-Module ten 50413545
50-413-547	Final Assessment for Meter Technicians-Module Twelve	1	This module is a final comprehensive assessment of the entire meter technician course; this assessment will cover both written and hands on aspects. Corequisite: Assessment Prep for Meter Technicians-Module eleven 50413546	Assessment Prep for Meter Technicians-Module eleven 50413546
47-455-455	Transition to Trainer: Your Role as a Skilled Worker Trainer		<p>Registered Apprenticeship training is a collaborative partnership: employer and employee associations, government, and educational institutions each play a part. In reality, most learning takes place through the daily interaction between an apprentice and his/her co-workers. Surveys have shown that the apprentices are least satisfied with the on-the-job portion of their training--particularly the ability of skilled level workers and supervisors to pass on their knowledge of the sector.</p> <p>You have already learned to use the tools of your chosen sector. You will be introduced to a new set of basic tools--the tools of a skilled worker trainer. You will explore the skills are necessary to be an effective trainer, discover how to deliver hands-on training, and examine the process for giving useful feedback.</p>	

Report Name COM-01 State Committee
Report

Refresh Date 5/16/22 2:08 PM

Wisconsin Bureau of Apprenticeship Standards

State Committee Report



This summary counts employers and apprentices, between 5/15/2022 and 5/15/2022 with contract status as Active & Unassigned in occupation(s) associated with this committee.

Report is based on apprentice contracts where:

- Contract sector is 'Utilities'.
- Contract occupation code matches a occupation code assigned to committee.
- Contract sponsor is the employer.

Note: Employers active in more than one occupation or committee can cause Column #3 totals at the Committee or State level to deviate from the summed total of the individual occupation or committee rows.

Occupation	Apprentices									Employers				
	Total	Minority		Females		Union		Non-Union		Total	Union		Non-Union	
		#	%	#	%	#	%	#	%		#	%	#	%
1	2	3	3a	4	4a	5	5a	6	6a	7	8	8a	9	9a
Report Total	270	2	.7	1	.4	164	60.7	106	39.3	86	32	37.2	57	66.3
Electric Line Worker (0682126101401)	244	2	.8	1	.4	152	62.3	92	37.7	81	30	37.0	54	66.7
Metering Technician (0671028103401)	14	0	0	0	0	5	35.7	9	64.3	12	5	41.7	7	58.3
Substation Electrician (0682026101803)	12	0	0	0	0	7	58.3	5	41.7	5	2	40.0	3	60.0