



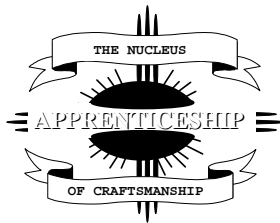
STANDARDS OF APPRENTICESHIP
Adopted by

PACIFICORP/UWUA OUTSIDE ELECTRICAL WORKER JAC

(sponsor)

<u>Skilled Occupational Objective(s):</u>	<u>SIC #</u>	<u>SOC #</u>	<u>SYMBOL</u>	<u>SUFFIX</u>	<u>Term</u>
Meterman	4911	49-9012	0151	000	6,000 hours

MA#	4002	SOC Title	Control & Valve Installers and Repairers, Except Mechanical Door	License	N/A
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APPROVED BY THE
Oregon State Apprenticeship and Training Council
REGISTERED WITH THE
Apprenticeship and Training Division
Oregon State Bureau Labor and Industries
800 NE Oregon Street
Portland, Oregon 97232

APPROVAL:

March 20, 2003

Initial Approval Date

By:

DAN GARDNER

Chairman of Council

September 15, 2005

Last Date Revised

By:

STEPHEN SIMMS

Secretary of Council

June 16, 2005

Committee Amended Date

APPRENTICESHIP STANDARDS

The Oregon State Apprenticeship and Training Council (OSATC) has the authority to develop, administer, and enforce apprenticeship program standards (Standards) for the operation and success of an apprenticeship or on-the-job-training program in the State of Oregon. Apprenticeship programs and committees function to administer, exercise or relinquish authority only with the consent of the OSATC and only apprentices registered with or recognized by the Oregon State Bureau of Labor and Industries (BOLI), Apprenticeship and Training Division (ATD) will be recognized by the OSATC. Parties signatory to these apprenticeship standards declare that their purpose and policy is to establish and sponsor an organized system of registered apprenticeship and training education.

These Standards are in conformity with and are to be used in conjunction with the Apprenticeship Rules, Chapter 839-011 OAR (Oregon Administrative Rules); Apprenticeship and Training Statutes, Chapter 660 ORS (Oregon Revised Statute); The National Apprenticeship Act, 29 U.S.C. (United States Code) 50; Apprenticeship Programs, Title 29 Part 29 CFR (Code of Federal Regulations); and Equal Employment Opportunity in Apprenticeship and Training, Title 29 Part 30 CFR which collectively govern the employment and training in apprenticeable occupations. They are part of the apprenticeship agreement and bind all signers to compliance with all provisions of registered apprenticeship.

If approved by the council, such amendment(s) and such changes as adopted by the council shall be binding to all parties on the first day of the month following such approval. Sponsors shall notify apprentices and training agents of changes as they are adopted by the council. If and when any part of these Standards becomes illegal, as it pertains to federal and/or state law, that part and that part alone will become inoperative and null and void, and the Bureau of Labor and Industries (BOLI) may recommend language that will conform to applicable law for adoption by the OSATC. The remainder of the Standards will remain in full force and effect.

See ORS Chapter 660 & OAR 839-011 for the definitions necessary for use with these Standards.

Sections of the standard inside of a border are specific to the individual standard and may be modified by the sponsor by submitting a revised standard for approval by the Oregon State Apprenticeship and Training Council. All other sections of the standard are boilerplate and may only be modified by the Council.

I. GEOGRAPHIC AREA COVERED:

The sponsor only has authority to recognize training agents (employers) that maintain their principal place of business inside of the geographical area covered by these standards. Training agents that maintain their principal place of business outside of the geographical area covered by this standard may only be recognized as traveling training agents when working in geographic area covered by this standard. The Sponsor will ensure compliance with the provisions for traveling training agents and of any Reciprocity Agreement recognized by the OSATC. (See ORS 660.137 / OAR 839-011-0260 / OSATC Policy # 16)

The geographic area covered by these standards shall be Coos County in the State of Oregon.

II. MINIMUM QUALIFICATIONS:

Minimum qualifications must be clearly stated and applied in a nondiscriminatory manner (See ORS 660.126 (1b)). Documentation must be provided for all minimum qualifications:

Age: Minimum Age for Applicants – 18 years
Education: High School Diploma or GED
Physical: None
Testing: None
Other: Provide non-refundable documentation of the above.

III. CONDUCT OF PROGRAM UNDER OREGON EQUAL EMPLOYMENT OPPORTUNITY IN APPRENTICESHIP PLAN (OAR 839-011-0200):

Standards must include the Oregon Equal Employment Opportunity in Apprenticeship and Training Pledge (See OEEOA Section 4)

THE SPONSOR HEREBY ADOPTS:

"The recruitment, selection, employment and training of apprentices during their apprenticeship shall be without discrimination because of race, sex, color, religion, national origin, age, disability or as otherwise specified by law. The sponsor shall take positive action to provide equal opportunity in apprenticeship and will operate the apprenticeship program as required by the rules of the Oregon State Apprenticeship and Training Council and Title 29, Part 30 of the Code of Federal Regulations."

Sponsors with five (5) or more apprentices in an apprenticeable occupation must adopt an Equal Employment Opportunity Plan and Selection Procedures and submit the plans for Council approval. (See OAR 839-011-0200 / Sections 5 & 6 of the Oregon Equal Employment Opportunity in Apprenticeship (OEEOA) / Council policy # 23).

A. SELECTION PROCEDURES:

The committee shall select apprentices from a pool of eligible applicants according to the following procedure: (ORS 660.137 (3) / OEEOA section 6)

1. All out of work apprentices in good standing will be offered the opportunity for re-employment prior to new applicants being registered in conformance with the committee's approved initial employment policy.
2. N/A fewer than five apprentices in this occupation

B. EQUAL EMPLOYMENT OPPORTUNITY PLAN:

1. A sponsor's commitment to equal opportunity in recruitment, selection, employment and training of apprentices shall include the adoption of a written affirmative action plan. (See OAR 839-011-0200 / OEEOA sections 5 a, b and c)
2. In addition the sponsor will set forth the specific steps that it will take under this plan, review and update the specific steps that it will take to implement the plan at least yearly and submit the updated steps to the Apprenticeship and Training Division (ATD) for review and approval. (OEEOA section 5 & 8)

3. Numerical goals and timetables for the selection of minority and female apprentices shall be included with the sponsor's annual updated steps. (OEEOA section 5 & 8)
4. The sponsor hereby adopts the following activities in order to enable it to meet its affirmative action obligations.
5. N/A fewer than five apprentices in this occupation

C. DISCRIMINATION COMPLAINTS:

1. Any apprentice or applicant for apprenticeship who believes they have been discriminated against with regards to apprenticeship by the committee may file a complaint. (See OAR 839-011-0200 / OEEOA Section 11)
2. The basis of the complaint may be:
 - a. Discrimination on the basis of race, sex, color, religion, national origin, age, disability or as otherwise specified by law by a sponsor or a sponsor's program
 - b. The equal employment opportunity plan has not been followed; or
 - c. The sponsor's equal employment opportunity plan does not comply with the requirements of the Oregon Equal Employment Opportunity in Apprenticeship Plan.
3. Any such complaint must be filed with the Director of the Apprenticeship and Training Division (Secretary of the OSATC) in writing within 180 days of the alleged illegal discrimination or specified failure to follow the equal opportunity requirements.
4. The written complaint must include the name, address and telephone number of the person allegedly discriminated against, the sponsor involved and a description of the circumstances of the complaint.
5. For complaints dealing with program operations see section X of this document.

IV. TERM of APPRENTICESHIP:

1. The term of apprenticeship will not be less than 2,000 hours of work experience in the apprenticeable occupation identified in this Standard. (See ORS 660.126 (d))
2. The term of apprenticeship must be stated in hours unless otherwise required by a collective bargaining agreement, civil service or other governing regulation. (See ORS 660.126)
3. The sponsor may accelerate, by an evaluation process, the advancement of apprentices who demonstrate abilities and mastery of the occupation to the level for which they are qualified. (See ORS 660.137 (4))
4. When the apprentice is granted advanced standing, the employer must pay the apprentice at the appropriate wage per the wage progression schedule specified in these standards. (See ORS 660.142)

NOTE: In licensed occupations the apprentice must complete the minimum hours of documented legal experience.

The term of apprenticeship shall be 6,000 hours of employment.

V. INITIAL PROBATIONARY PERIOD:

1. All apprentices are subject to an initial probationary period, stated in hours of employment during this time; an apprenticeship agreement may be terminated without cause. It is the period following the effective date of the apprentice's current registration into the program and during which the apprentice's appeal rights are restricted. (See ORS 660.126 (1g))
2. The initial probationary period must be reasonable in relationship to the full term of the apprenticeship unless otherwise required by Civil Service, CBA or law. (The registration agency recommends that this not exceed twenty percent (20%) (See ORS 660.126 (1g))
3. During the initial probationary period either party to the agreement may terminate the apprenticeship agreement upon written notice to the Apprenticeship and Training Division of the Oregon Bureau of Labor and Industries. (See ORS 660.126 (1g) & ORS 660.060 (6))
4. An appeal process is available to apprentices who have completed the initial probationary period. (See ORS 660.060 (6) & (7) and section X of this standard)

The probationary period shall be the first 1,000 OJT hours of employment and 80 hours of Related Instruction after the current registration to this standard. (See ORS 660.126 (g))

VI. RATIO OF APPRENTICES TO JOURNEY LEVEL WORKERS:

1. There shall be a maximum numeric ratio of apprentices to journey-level workers consistent with proper supervision, training, safety and continuity of employment. (See ORS 126 (1f))
2. The ratio shall be specifically and clearly stated as to its application to the job site, workforce, department, shift, plant or combination therein. (See ORS 660.126 (1f))
3. The Sponsor will assure that apprentices are under the supervision of competent and qualified journey-level workers on the job who are responsible for the work being performed, to ensure safety and training in all phases of the work. (See ORS 660.126 (1f), OAR 839-011-0140 (2g), OAR 839-011-0360)

The ratio of apprentices to journey-level worker shall not be more than one (1) apprentice to the first one (1) journey-level worker on the jobsite and work shift. Additional apprentices are authorized at a ratio of one (1) apprentice for each additional two (2) journey-level worker(s). (See ORS 660.126 (f))

VII. APPRENTICE WAGES and WAGE PROGRESSION:

1. The apprentice shall be paid according to a progressively increasing schedule of wage based on specified percentages of the average journey-level wage consistent with skills acquired. (See ORS 660.126 (1h))
2. Wage progressions shall be indicated in hourly or monthly periods (the registration agency recommends the use of hour periods) set by the Sponsor. (See ORS 660.126 (h))
3. The entry wage will not be less than the federal or state minimum wage rate, whichever is higher. (See ORS 660.142 (4))
4. The wage listed in this standard at all periods establishes a minimum and a higher wage may be required by other applicable federal law, state law, respective regulations, or by a collective bargaining agreement. (See ORS 660.126 (1h), ORS 660.137 (6), ORS 660.142 & OAR 839-011-140 (2f))
5. The sponsor must re-determine the average journey-level wage at least annually and submit the new average journey wage to the Director of the Apprenticeship and Training Division with a statement explaining how such determination was made and the effective date of the new average journey wage. (See ORS 660.137 (6))
6. Upon approval by the Director, the Division will notify all training agents and apprentices of the new wage. (See ORS 660.142 (2))

The average wage for those journey-level workers employed by the participating employers in this occupation on **January 29, 2009** is \$ **37.22** per **hour** .

Period	Number of required hours	% of the journey level rate
1	1,000	70
2	1,000	73
3	1,000	76
4	1,000	80
5	1,000	84
6	1,000	90

VIII. WORK PROCESSES:

1. The apprentice shall receive the necessary instruction and experience to become a journey-level worker versed in the theory and practice of the occupation. (See ORS 660.155 / ORS 660.157 / OAR 839-011-0360)
2. The following is a condensed schedule of work experience that every apprentice shall follow as closely as conditions will permit. (See ORS 660.126 (1c) OAR 839-011-0360; OAR 839-011-0140)

NOTE: In licensed occupations apprentices must complete the minimum required total hours prior to being referred to the license examination.

Work processes Approximate hours

0 — 6 Months 1000

- a. Safety rules and the use of personal protective equipment.
- b. Personal and group tail-boarding skills.
- c. Correct use and application of voltmeters, ammeters, and ohmmeters.
- d. Identify type, form, class, and voltage of all single-phase, self-contained and network meters.
- e. Installing of single-phase, self-contained and network meters. Including checking for voltage backfeed or incorrect wiring.
- f. Internal voltage, and current coil connections for all single-phase, self-contained and network meters. (internal wiring diagrams)
- g. Disassemble, clean, repair, and reassemble single-phase, self-contained 2 and 3 wire and network meters prior to testing.
- h. Bench and field test single phase, self-contained 2 and 3 wire and network meters and make required adjustments to bring within company accuracy range.
- i. Computer program the electronic registers on single-phase, self-contained demand meters.
- j. Meter socket connections, including grounding connection on all single-phase, self-contained and network meter installations. Identify the correct voltage measurements for these socket connections.
- k. Standard metering practices. Identify acceptable single-phase, self-contained and network meter sockets using the Electric Service Requirements book.
- l. Identifying standard company metering practices.
- m. Application of demand metering.
- n. Meter socket bypasses. Identify acceptable socket bypasses using the Electric Service Requirements book.
- o. Ratio for register ratio, (Rr) shaft reduction or gear ratio, (Rs or Rgi and watt-hour constants(Kh) for single-phase, self-contained meters. Explain their relationship in calculating correct meter multipliers. (1(r)
- p. Basic metering vocabulary. Use and understand correct metering terms and definitions.
- q. Plan and prepare daily work. Including routing of work, checking and stocking of truck, and making customer contact.
- r. Identify areas for current diversion within single-phase, self-contained and network meter installations.
- s. PSC regulations and company residential rate schedules.
- t. Basic meter related CSS computer skills.
- u. Use DC and AC theory relationship and difference between energy and power.
- v. Calculating voltage and current values from customer calculated load using DC and AC theory.
- w. Conductor current carrying capacity.

- x. Load breaking devices such as breakers and fuses. Locate and identify breaker ampacity on single-phase, self-contained installations. Compare estimated load to breaker size. Calculate breaker load capability.
- y. WECCO test board including test setups both in the shop and in the field.
- z. Develop basic DOS computer skills.

7 — 12 Months

1,000

- a. Know the internal voltage and current coil connections for single-phase current rated 3S and 48 meters. (Internal wiring connections)
- b. Know the voltage and current transformer connections for application with single-phase 38 and 4S meters. Including connections at the bottom of the test switch. (External wiring connections)
- c. Know the correct installation process when installing single-phase instrument rated 38 and 4S meters.
- d. Disassemble, clean, repair, and reassemble 3S and 48 instrument rated meters prior to testing.
- e. Bench and field-test instrument rated 38 and 48 meters. Make the required adjustments to bring within company accuracy range.
- f. Program single-phase instrument rated demand meter registers for installation.
- g. Know and understand Time of Use metering, programs, rates and application of correct meters and programs for all single-phase installations
- h. Program single-phase self-contained and instrument rated meters with correct Time of Use programs while installing.
- i. Know the correct meter socket and upper test switch connections for 38 and 48-meter installations, including grounding. Know the correct voltage and current measurement points for each.
- j. Follow company single-phase transformer rated metering standards identified in the Revenue Metering Procedures Manual. Know the correct standard wire color code for transformer rated 48 installations.
- k. Identify acceptable single-phase (48) meter installation sockets and related equipment using the Electric Services Requirements book.
- l. Understand the need and purpose for the meter test switch.
- m. Calculate and explain the correct billing multipliers for single-phase instrument rated installations. Also, during testing verify all billing multipliers.
- n. Expand metering vocabulary to include single-phase instrument rated terms. Use terms correctly.
- o. Make customer contact on high bill tests. Explain bill, show and explain test results to the customer, ask questions of customer and explain usage of the customer's different connected loads as needed.
- p. Identify and explain the possible areas for current diversion in

- single-phase instrument rated meter installations.
- q. Know and explain the safety concerns when working with current transformers. (open circuit)
- r. Understand PSC regulations and rates for all single-phase installations. Demand and Time of Use.
- s. Make customer contact prior to installation of single-phase meters. Verify the main breaker open. Answer customer questions regarding the installation as needed. Select the meter, the program, and the correct instrument transformers to fit the installation. Take the lead in the installation process.
- t. Explain the theory and application of instrument transformers in single-phase instrument rated installations.
- u. Understand Blondel's Theorem.
- v. Draw and understand simple vector diagrams.
- w. Understand and explain single-phase transformer theory. Identify the primary and secondary connection terminals on an overhead transformer. Draw and explain single-phase transformer winding connections.
- x. Verify conductors and connections in a multi-conductor, de-energized, single-phase instrument rated installation. Use an ohmmeter for the verification.
- y. Increase DOS computer skills. Open a directory, list contents of the directory; view contents of files and change directories.

13 — 18 Months

1,000

- a. Know the internal voltage and current coil connections for all self-contained meters including 128, 148, 158 and 168. (internal wiring diagrams)
- b. Identify the type, form, class, and voltage of all polyphase self-contained meters.
- c. Follow the correct installation process when installing polyphase self-contained meters. Including checking for voltage backfeed and incorrect wiring.
- d. Disassemble, clean, repair and reassemble all polyphase self-contained meters prior to testing. (128, 148, 158 and 16)
- e. Bench and field-test all polyphase self-contained meters. (128, 148, 158 and 168) Make adjustments as required to bring within company accuracy range.
- f. Know how to properly bypass all self-contained meters prior to testing. Explain safety concerns when bypassing self-contained meters.
- g. Know and understand time of use programs and rates for application with polyphase meters.
- h. Program polyphase meter registers with demand and time of use programs.
- i. Understand the operation of mechanical demand registers. Test these registers for correct upscale deflection.
- j. Know the meter socket connections, including grounding on all self-contained polyphase meter installations. (128, 148, 158, 168) Identify the correct voltage measurements for each of these socket

- connections.
- k. Identify acceptable polyphase self-contained meter sockets and related equipment using the Electric Service Requirements book.
 - l. Follow company polyphase, self-contained metering standards identified in the Revenue Metering Procedures Manual.
 - m. Verify meter-billing multipliers on mechanical register, self-contained meters. (Kr)
 - n. Expand metering vocabulary to include polyphase terms.
 - o. Continue to make customer contact. Refine your communication skills. Develop the ability to converse with customers at all levels (i.e. Electricians, Engineers or a homeowner) and in all situations. Learn to listen and to offer information to help resolve all complaints.
 - p. Identify and explain the possible areas for current diversion within self-contained polyphase meter installations; including the meter bypass facility.
 - q. Understand PSC rates and regulations for self-contained polyphase installations. Demand and Time of Use.
 - r. Make voltage and current measurements on site during the testing of types all self-contained and single-phase transformer rated meters. Use these measurements along with A.C. theory to compare the calculated load to actual stopwatch load check.
 - s. Make customer contact prior to installation of polyphase self-contained meters. Verify the breaker or fuses open. Answer customer questions as needed. Select the meter, the meter program and install the meter.
 - t. Identify examples of Blondel's Theorem in the application of polyphase self-contained meters. Also, explain the theory behind the 148 "Z" coil.
 - u. Draw and understand basic phasor diagrams.
 - v. Understand and explain basic polyphase distribution transformer bank connections. Identify the primary and secondary connections on overhead and underground transformer banks.
 - w. Verify conductors and connections in a multi-conductor, de-energized, polyphase self-contained meter installation. Use an ohmmeter for the verification.
 - x. Increase DOS computer skills. Make a directory, copy a file to the new directory, delete files, and delete a directory.
- 19 — 24 Months
- a. Know the internal voltage and current coil connections for all polyphase transformer rated meters. (5S, 68, 88, 9S) Internal wiring diagram.
 - b. Know the correct instrument transformer connections for application with the different polyphase transformer rated meters. Including the connections to the bottom of the meter test switch. External wiring diagrams. (58, 68, 88, 98)
 - c. Identify the type, form, class, and voltage of all polyphase transformer rated meters. (58, 68, 88 and 98)

1,000

- d. Follow the correct installation process when installing polyphase transformer rated meters.
- e. Disassemble, clean, and repair, and reassemble all polyphase transformer rated meters prior to testing.
- f. Bench and field-test all polyphase transformer rated meters. Make the required adjustments to bring within company accuracy range.
- g. Know and understand demand and time of use programs associated with polyphase transformer rated meters.
- h. Program polyphase transformer rated meters with the correct demand and time of use programs prior to installation.
- i. Test and verify the correct demand upscale deflection on all types of electronic demand registers.
- j. Understand the relationship and commonality between self-contained meters and their transformer rated counterparts. IS to 38, 25 to 48, 128 to 55, 148 to 68, 158 to 88, and 168 to 95.
- k. Know the meter socket connections, and the upper test switch connections, for all polyphase transformer rated meter installations, including grounding. Know the correct voltage and current measurement point for each application.
- l. Identify acceptable polyphase transformer rated meter sockets and related metering equipment using the Electric Service Requirements book.
- m. Follow company polyphase transformer rated metering standards identified in the Revenue Metering Procedures Manual. Know the standard wire color code for 58 and 98 transformer rated installations.
- n. Make load checks and installation verification checks at the meter test switch. Compare measured load calculations to the actual load; by use of AC theory and other developed metering skills.
- o. Verify all billing multipliers on new installations or during meter tests.
- p. Expand vocabulary to include polyphase transformer rated terms.
- q. Take the lead when dealing with customers. Listen carefully; share your expertise with the customer. Converse in a way that those who you are in contact with will be able to understand and find answers. Have a positive attitude and always stay in control of your emotions during difficult situations.
- r. Identify possible areas for current diversion within polyphase transformer rated installations.
- s. Understand PSC regulations and rates that apply to polyphase transformer rated installations. Demand and time of use.
- t. Make customer contact prior to the installation of polyphase transformer rated meter. Verify the main breaker, or fuses open. Answer any customer questions
- u. Explain Blondel's Theorem as it applies to polyphase transformer

- rated metering. Explain the theory behind the “Z” coil in a 68 meter.
- v. Draw and understand phasor diagrams.
 - w. Identify Delta and Wye overhead distribution transformer banks. Explain the connection differences between the two types. (Delta and Wye) Explain nameplate information from three phase pad-mount transformers. Identify primary and secondary compartments. Draw and explain polyphase transformer winding connections.
 - x. Understand transformer or line loss compensation.
 - y. Understand the connections to the substation transformer. Verify the nameplate information. Identify the current transformers mounted internally. Identify the current transformer ratios from the included documentation. Identify the secondary connection points for the current transformers. Make connections as required.
 - z. Take the lead in a polyphase transformer rated installation. Calculate the correct current transformer size, select the correct style and identify the rating factor from the current transformer nameplate. Select the meter, the correct meter program. Do the installation and follow all standards.
 - aa. Install all of the pulse devices needed to deliver pulses to the customer for load indication. Program the meter pulse device. Calculate the KWC and KWI-IC value that the customer will use. Explain the difference between form A and C contacts. Verify that the value of the pulse times the number of the pulses the actual load.
 - bb. Install a pulse device in an electronic meter. Calculate the pulse value for use by load research. Know the difference between internal to the meter and external to the meter pulse metering.
 - cc. Verify pulse values during testing and verification of meter installations.
 - dd. Increase DOS computer skills. Make menu changes, add and subtract items from the menu, copy files from the hard drive to the floppy drive and in the reverse.

25 — 30 Months

1,000

- a. Know the correct primary instrument transformer connections, including grounding of the mounting frame or underground enclosure used with form 58 and 95 primary metering applications. Including the test switch and the meter socket connections.
- b. Know the correct installation process to follow when installing primary metering. Including working with the line crew, supporting the line crew in the placement of the metering, and answering the crews questions concerning the metering package.
- c. Know and understand the commonality between primary and secondary metering applications.
- d. Use the Electric Service Requirements book along with the Revenue Metering Procedures Manual to identify correct primary metering equipment and installation standards.

- e. Calculate the correct instrument transformers size, style and voltage rating on a primary metering installation. Select the meter and the meter program. Use developed expertise to support the journeymen in the construction of the metering package. Share the responsibility of the project with the journeyman.
- f. Test the meter, load check and verify the installation on a primary metering installation.
- g. Explain auto-transformer theory as used with phase-shifting metering transformers.
- h. Know basic pole construction and basic distribution practices used by the company.
- i. Install reactive meters at customer's sites. Select the meter, the correct program and program the meter for installation. Make a load check after the installation is completed. Calculate the watts, vars and volt amps from the load check measurements and compare the calculated load to the stopwatch measurements.
- j. Understand and explain the effects that poor power factor causes to the customer, the meter and the power system.
- k. Install portable recording equipment for customer voltage complaints. Understand the types of problems that may cause voltage problems, including open neutral problems.
- l. Maintain, verify, and install pulse-metering devices.
- m. Install an internal modem into a meter. Program the meter and the modem. Connect the phone line. Verify the installation to be correct and working. Calculate the constants and forward to load research.
- n. Know and explain the difference between internal and external modem applications.
- o. Read and follow schematic drawings.
- p. Install and verify bi-directional metering. Understand the application of the bi-directional metering. Understand the terms delivered and received. Make a load check and understand the information found in the load check. Compare the calculated load to the actual load, including direction.
- q. Develop basic Windows computer operating system skills.
- r. Install and verify a load Totalization metering package. Understand the application. Calculate and verify all constants. Program the programmable devices with the correct programs or constants.
- s. Perform any other training task as required by the foreman or journeymen.

The following tasks are for those areas of the company where the meter personnel do revenue metering in customer, or company owned substations.
- t. Support the journeymen in substation metering installations. Follow all standard practices. Use developed skills to select current transformer size, voltage transformers. Share in the responsibility of the project
- u. Program and install substation meters, including Jem meters. Perform load checks to verify the installation correct. Verify all

constants.	
v. Install and verify transducers for substation load indication. Verify the actual load to the indicating meters.	
31 — 36 Months	1,000
a. Review all aspects of Safety involved with each on-the-job training task.	
b. Know and understand all applications of single-phase, self-contained metering.	
c. Know and understand all applications of polyphase, self-contained metering.	
e. Know and understand all applications of single-phase, transformer rated metering.	
f. Know and understand all-applications of polyphase, transformer rated metering.	
g. Know and understand all applications of demand metering.	
h. Know and understand all applications of time-of-use metering.	
i. Know and use developed skills in identifying energy diversion.	
j. Know and understand all applications of pulse metering	
k. Know and understand the application of distribution transformer bank connections.	
k. Know and understand all applications of reactive metering. Including power factor theory and application.	
i. Know and understand application of high voltage/primary metering.	
m. Know and understand application of meter communications.	
n. Know and understand application of Totalizing metering.	
o. As required know and understand application of specialty metering. (Specialty metering is defined in the	
p. Know and understand all metering applications from the Electric Services Requirements book.	
q. Know and understand all applications from the Revenue Metering Procedures Manual.	
r. Know and understand the function and use of all meter test and related testing instruments.	
s. Work with customers outside of the company. Answer questions, and provide information as required, at the customer's level. (i.e. engineers, electricians, plant operators, or homeowners.)	
t. Work with customers within the company. (servicemen, linemen, estimators, engineers, meter readers, safety department etc.) Answer questions and provide information as required.	
u. Know basic DOS commands and functions.	
v. Know all CSS meter related skills.	
w. Use developed skills in troubleshooting all meter installations and metering equipment.	
x. Use all developed skills in solving customer voltage complaints.	
y. Take the lead in all aspects of on- the-job work. Make decisions, make recommendations, and offer information. Finalize development of all the basic skills necessary to become a true craftsman.	
TOTAL	6,000

NOTE: The committee realizes that the completion of 6,000 hours of on-the-job training is the ideal, but recognizes that most apprentices will not be able to fulfill the total amount of hours specified in every work process as set forth in this standard. When an apprentice is unable to fulfill the total work hours in each work process the committee will evaluate the apprentice's knowledge, skills and abilities and provide appropriate additional related instruction to assure that competency is acquired in each work process. The evaluation and summary of the additional instruction will be noted in the apprentice's file.

Each apprentice will be expected to develop competencies in each individual work process. When the apprentice has developed competency in a work process, is evaluated by the committee and found to be competent in the work process they will be allowed to practice this skill with limed supervision. Limited supervision is defined as the journeyman being on the physical work site or immediately available by radio, telephone or other device.

IX. RELATED/SUPPLEMENTAL INSTRUCTION:

1. The apprentice must attend related/supplemental instruction for at least 144 hours per year unless otherwise stated in this standard. Time spent in related/supplemental instruction will not be considered as hours of work, and the apprentice is not required to be paid for time so spent. (See ORS 660.126 (1e))
2. The Committee must provide for instruction of the apprentice during the related/supplemental instruction in safe and healthful work practices in compliance with the Oregon OSHA regulations and applicable federal and/or state regulations. (See ORS 660.137)
3. In case of failure on the part of any apprentice to fulfill the related instruction obligation, the sponsor has the authority to withhold the apprentice's periodic wage advancement; or with a reasonable opportunity to remedy deficiencies, suspend, or cancel the Apprenticeship Agreement. (See ORS 660.157 (4))
4. Clock hours of actual attendance by the apprentice in related/supplemental instruction classes at the community college, training trust or other approved training provider shall be documented and tracked by the Committee. (See ORS 660.157 (2a))
5. Related instruction activities must be at the direction of a qualified instructor. (See ORS 660.157 (3))

Methods of related/supplemental training must consist of one or more of the following: (See ORS 660.157)

d. (X) Community college;

f. (X) Other Facilities owned or provided by Pacificorp and related entities

A minimum of 160 hours of related training shall be required during each year the apprentice is registered in the program. (See ORS 660.126 (e))

The following is a summary of related instruction including required class hours in each element of instruction. A committee may establish and submit clear objectives and outcomes in lieu of hours for each class subject. (See ORS 660.157)

Course	Hours
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Approximately 160 hours of related training shall be required each year. In addition the apprentice will be required to complete elements of the ICS (Home Study) program during each period of apprenticeship. Related training shall cover the following subjects:

	1st period:	80
Introduction to Metering		
Basic Industrial Math		
General Math for Metering		
Safety and Meter Work		
AC Principles		
DC Principles		
AC Concepts		
Principles of Magnetism		
Math for Metering I		
Math for Metering II		
Electricity Metering Handbook		
	2nd Period:	80
NUS Meterman Subjects		
AC Principles Cont.		
Electricity Metering Cont.		
Service Requirements/Standards		
Revenue Metering Procedures		
	3rd Period:	80
NUS Meterman Subjects Cont.		
Transformers (ICS)		
Electricity Metering Handbook Cont.		
Distribution		
Service Requirements Cont.		
Conduit/Conductors		
Revenue Metering Procedures Cont.		
Grounding		
	4th Period:	80
NUS Meterman Subjects Cont.		
Reactive Electronic Circuit		
Service Requirements Cont.		
Basic Electronic Circuits		
Revenue Metering Procedures Cont.		
	5th Period:	80

NUS Meterman Subjects Cont.

Math.

Service Requirements Cont.

Generation

Revenue Metering Procedures Cont.

Connections

6th Period:

80

Single Phase, Self-Contained

Metering Vectors

Demand Metering

Generation/Alt Current

Time of Use Metering

Current and Voltage

Polyphase Metering

Connections

Transformer Rated/Metering

Watts and Volt Amps

Pulse Metering

Wire Connections

Distribution

Watts/Vars and Volt Amps

Power Factor

Test equipment

Reactive Metering

High Voltage/Primary Metering

Meter Communications

Specialty Metering

Totalizing Metering

TOTAL

480

X. ADMINISTRATIVE/DISCIPLINARY PROCEDURES:

See: ORS 660.120 OAR 839-011-0073

1. Local committee rules or policies and any employment requirement such as driver's license, drug test etc. will be located in this section.
2. The committee may include provisions for committee-imposed "disciplinary probation," which is a time assessed when the apprentice's progress is not satisfactory; a "disciplinary probation" may only be used to provide an opportunity for the apprentice to correct deficiencies and cannot affect the apprentice's appeal rights after the initial probation is completed. (See ORS 660.137 (4))
3. During disciplinary probation the committee may withhold periodic wage advancements, suspend or cancel the apprenticeship agreement, or take other disciplinary action. (See ORS 660.137 (4))
4. The apprentice has the right to file an appeal of the committee's disciplinary action with the Director of the Apprenticeship and Training Division. (See ORS 660.137 (4))

5. Complaint and Appeal Procedures:

- a. Each committee shall adopt and submit complaint review procedures for Division approval.
- b. All approved committees are expected to administer the program's approved complaint review process in a fair and consistent manner. (See ORS 660.120, ORS 660.060 & OEEOA Section 9)
- c. Complaints that involve matters covered by a collective bargaining agreement are not subject to the complaint review procedures in this section. (See ORS 660.126 (2))
- d. After the initial probationary period the apprenticeship agreement may be canceled by a written request from the apprentice. (See ORS 660.126 (1g) ORS 660.060 (7))
- e. After the initial probationary period the committee may only suspend, cancel or terminate the apprentice agreement for good cause, which includes but is not limited to: failure to report to work, nonattendance at related instruction, failure to submit work progress reports and lack of response to committee citations. (See ORS 660.060 (7))
 - i. Due notice and a reasonable opportunity for correction must be provided to the apprentice.
 - ii. Upon suspension a written notice must be provided to the apprentice and to the Apprenticeship and Training Division.
 - iii. Upon cancellation a written notice must be provided to the apprentice and to the Apprenticeship and Training Division.
- f. Each committee shall utilize the following procedures and time lines for disciplinary action (cancellation or termination). Committees may adopt and submit alternate complaint procedures for Division review and approval providing the procedures are reasonably expected to offer equal protection to the apprentice. (See ORS 660.060 (8))
 - i. At least 22 days prior to potential disciplinary action by a committee
 - o The committee must notify the apprentice in writing of alleged reason for the proposed disciplinary action and potential action to be taken if the allegation is substantiated
 - o The decisions are effective immediately upon committee action
 - o The committee will send written reason(s) for such action to the apprentice by registered or certified mail and will include the appeal rights of the apprentice
 - ii. Within 30 days of receipt of committee decision the apprentice may request reconsideration of the action taken by the committee
 - o The apprentice's request for the local committee to reconsider their disciplinary action must be submitted in writing and must include the reason(s) the apprentice believes the committee should reconsider the disciplinary action.
 - iii. Within 30 days of apprentice's request for reconsideration

- The local committee must provide written notification of their final decision including the appeal rights of the apprentice if the committee upholds its decision on the disciplinary action
- g. If the apprentice chooses to pursue the complaint further
 - i. Within 30 days of notification of the committee's final action
 - The apprentice must submit the complaint describing in writing the issues associated with the disciplinary action to the Director of the Apprenticeship and Training Division
 - The apprentice must describe the controversy and provide any backup information
 - The apprentice must also provide this information to the local committee/organization
 - ii. Within 60 working days the Director of the Apprenticeship and Training Division will complete a review of the record
 - If no settlement is agreed upon during review, the Director must issue a non-binding written decision resolving the controversy.
- h. If the apprentice or local committee disputes the Director's decision
 - i. Within 30 days of Director's decision the dissenting party must submit a request for the OSATC to hear its case
 - Request must be in writing
 - Must specify reasons supporting the request
 - Request and supporting documents must be given to all parties
 - OSATC Rules and Policy Sub-Committee conducts hearing within 45 days and reports its findings to the next regular quarterly meeting of the OSATC
 - The OSATC renders a decision based on the sub-committee's report.
 - ii. Within 30 days of the OSATC meeting
 - The Secretary of the OSATC issues the decision in writing

XI. COMMITTEE – RESPONSIBILITIES AND COMPOSITION:

The following is an overview of the requirements associated with administering an apprenticeship committee and/or program. These provisions are to be used in conjunction with the corresponding ORS and/or OAR.

1. The committee is the policymaking and administrative body responsible for the operation and success of this Apprenticeship program.
2. The committee is responsible for the day-to-day operation of the apprenticeship program and must be knowledgeable in the application of Chapter 660 ORS, OAR 839 division 011 and other law and rule as appropriate to the occupation(s).
3. Sponsors must develop policies and procedures for committee operations (ORS 660.060 (8), ORS 660.135, ORS 660.137, OAR 839-011-0170). The committee's specific policies pertaining to the operation of the program are included in this standard. The procedures for the implementation of the approved policies are maintained by the committee. After approval

by the division the approved procedures shall be distributed to all apprentices and training agents.

4. Committees must convene meetings at least semi-annually that are attended by a quorum of committee members as defined in the approved Standards. (See ORS 660.137 (4))
 - a. A quorum for a local joint or trade committee shall consist of at least two (2) members representing the employers and two (2) members representing the employees. (See ORS 660.135 (3), ORS 660.145)
 - b. Conference call meetings may be conducted in lieu of regular meetings but must not exceed the number of attended meetings during a calendar year and may not authorize disciplinary action of apprentices. (See ORS 660.060 (8))
 - c. Minutes of all meetings must be submitted to the Apprenticeship and Training Division within 10 working days of the meeting. (See OAR 839-011-0170)
5. Program Operations (ORS 660.135, ORS 660.137, OAR 839-011-0170, OAR 839-011-0200):
 - a. The Committee will record and maintain records pertaining to the local administration of its Apprenticeship Program and make them available to the OSATC or its representative on request.
 - i. These records include, but are not limited to
 - o Selection of applicants
 - o Administration of the apprenticeship program
 - o Affirmative action plans
 - o Documentation necessary to establish a sponsor's good faith effort in implementing its affirmative action plan
 - o Qualification standards
 - b. Records required by the Oregon Equal Employment Opportunity in Apprenticeship rules (OAR 839-011-0200) will be maintained for five (5) years; all other records will be maintained for five (5) years after the final action taken by the committee on the apprenticeship agreement.
 - c. The following must be submitted by all programs through the Apprenticeship Representative assigned to assist the committee:
 - i. Apprenticeship Registration Agreement – within the first 90 days of employment as an apprentice. (See ORS 660.020, OAR 839-011-0088) (In licensed occupations registration must occur prior to employment in the trade)
 - ii. Committee Minutes – within 10 working days of the meeting. (See OAR 839-011-0170)
 - iii. Authorized Training Agent Agreements – within 10 working days of committee action to approve the training agent. (ORS 660-020)

- o Interim recognition may be authorized by committee policy but may not exceed 90 calendar days.
 - o Any recognition of a training agent prior to formal action of the committee must be in conformance with the committee's council approved policy.
 - iv. Revision of Occupation Standards - as necessary, no later than 45 days prior to OSATC meeting. (See OAR 839-011-0030) (Programs should review their Standards at least annually)
 - o Forms are available from the Apprenticeship Representative. If approved by the OSATC, such amendment(s) and such changes as adopted by the OSATC will be binding to all parties on the first day of the month following OSATC approval.
 - v. Revision of Committee Member Composition as necessary (included in committee minutes). (See OAR 839-011-0074)
 - vi. Average Journey Level Wage – at least annually or whenever changed (included in minutes and by letter to the Director summarizing how the average wage was determined). (See ORS 660.137 (6), ORS 660.142)
 - vii. Authorization of Signature - as necessary (See ORS 660.135 (4))
 - viii. Authorization for issuance of initial license may be granted after the committee is found to be in compliance for operational purposes (See Council Policy #22)
 - d. Adopt, as necessary or as directed, local program policies and procedures for the administration of the apprenticeship program in compliance with this Standard. (See ORS 660.060 (8), ORS 660.120 (2), OAR 839-011-0073)
 - i. Policies must be submitted to the OSATC for review and approval.
 - ii. Procedures must be submitted for Division (ATD) approval and inclusion by reference in this Standard prior to implementation.
6. Apprentice Management:
- a. Applicants accepted by the committee, who have documented legal experience creditable to the apprenticeship in the skilled occupation or in some other related capacity, may be granted advanced standing as apprentices. (See OAR 839-011-0088 (3a) Apprentices admitted to advanced standing will be paid the wage rate for the period to which such credit advances them. (In licensed occupations previous credit must be documented legal experience)
 - b. Each apprentice (and, if under 18 years of age, the parent or guardian) will sign an Apprenticeship Agreement with the Sponsor, who will then register the Agreement, with the Apprenticeship and Training Division of the Bureau of Labor and Industries within the first 90 days of employment as an apprentice. (See ORS 660.020 (1), ORS 660.060, OAR 839-011-0088)

- c. The Apprenticeship and Training Division must be provided a copy of the committee minutes approving any change of disposition or modification of the Registration Agreement within 10 working days of the committee meeting. (See OAR 839-011-0170)
 - i. Requests for disposition or modification of Agreements include: (1) Certificate of completion, (2) Additional credit, (3) Suspension, military service, or other, (4) Reinstatement, (5) Cancellation, (6) Re-rates, (7) Holds, (8) Examination Referral, (9) Corrections, (10) Limited Supervision-electrical, (11) Phased Supervision-plumbing.
- d. Rotate apprentices in the various processes of the skilled occupation to ensure the apprentice is trained to be a competent journey-level worker. (See ORS 660.137 (2c), OAR 839-011-0265).
- e. At least once every six months the sponsor must review and evaluate each apprentice's progress and take action to advance based on the apprentice's progress or hold the apprentice at the same level for a reasonable period and opportunity for corrective action or terminate for continued inadequate progress. (See ORS 660.137 (4))
- f. The evidence of such action will be the record of the apprentice's progress on the job and during related/supplemental instruction.
 - i. If the apprentice's progress is not satisfactory, the committee has the obligation to withhold the apprentice's periodic wage advancements, suspend or cancel the Apprenticeship Agreement, or take other disciplinary action as established under the "Administrative/Disciplinary Procedures."
- g. The committee has the obligation and responsibility to provide insofar as possible, reasonably continuous employment for all apprentices in the program. (See ORS 660.126, ORS 660.020)
 - i. The committee may arrange to transfer an apprentice from one training agent to another or to another committee when the committee is unable to provide reasonably continuous employment, or they are unable to provide apprentices the diversity of experience necessary for training and experience in the various work processes as stated in this Standard.
 - ii. If, for any reason, a layoff of an apprentice occurs, the Apprenticeship Agreement will remain in effect unless canceled by the committee.
- h. An apprentice who is unable to perform the on-the-job portion of apprenticeship training may, if the apprentice so requests and the committee approves, participate in related/supplemental instruction classes, subject to the apprentice obtaining and providing written medical approval for such participation. However, time spent will not be applied toward the on-the-job portion of apprenticeship training. (See ORS 660.126 (i))
- i. The committee will hear and adjust all complaints of violations of apprenticeship agreements. (See ORS 660.137)

- j. Upon successful completion of apprenticeship, as provided in these Standards, and passing any examination that the committee may require, the committee will recommend that the Oregon Commissioner of Labor award a Certificate of Completion of Apprenticeship. (See ORS 660.137, ORS 660.205)

7. Training Agent Management:

- a. Offer training opportunities on an equal basis to all employers and apprentices. (See OAR 839-011-0084)
- b. Grant equal treatment and opportunity for all apprentices through reasonable working and training conditions and apply those conditions to all apprentices uniformly. (See OAR 839-011-0200, Council Policy # 13)
- c. Provide training at a cost equivalent to that incurred by currently participating employers and apprentices. (See OAR 839-011-0084)
- d. An employer shall not be required to sign a collective bargaining agreement or join an association as a condition of participation. (See OAR 839-011-0162)
- e. Determine the adequacy of an employer to furnish proper on-the-job training in accordance with the provisions of these Standards. (See ORS 660.137)
- f. Require all employers requesting approved training agent status to complete a training agent application and comply with all Oregon State apprenticeship laws and the appropriate apprenticeship Standards. (See ORS 660.137)
- g. Submit approved training agent agreements to the Apprenticeship and Training Division within 10 working days of committee approval with a copy of the agreement and/or the list of approved training agents and committee minutes where approval was granted. (See OAR 839-011-0170)
- h. Make periodic checks of approved training agents and withdraw approval when approval qualifications are no longer met or when it appears to the committee that the employer is in violation of the terms of the apprenticeship agreement, standards, rules, regulations and policies of the committee or OSATC. (See ORS 660.137)
- i. If a committee acts to withdraw training agent status from an employer the action must be recorded in the committee minutes and submitted to the Apprenticeship and Training Division within 10 working days of the committee action. (See OAR 839-011-0170)

8. COUNCIL REQUIRED POLICIES: (See ORS 660.120 - ORS 660.137)

- a. Credit for prior experience

The committee will grant credit for previous experience based on the knowledge, skills, and abilities of the apprentice.

- b. OJT requirements (hours, work processes, rotation/partial rotation, monthly progress reports, timelines, applicable penalties)

The apprentice shall work for the approved training agent as assigned by the committee and shall record work hours.

c. Related training requirements (attendance, grades)

The apprentice must attend and satisfactorily complete classroom instruction and self study education (a.k.a. related training) as directed by the committee.

d. Complaint procedures

The committee will promptly and fairly resolve any complaints brought to its attention.

e. Process for the review and evaluation of apprentice progress

The committee will regularly review and evaluate the progress of each apprentice as to job performance and related instruction.

f. Advancement requirements (re-rates, completions)

The committee will advance the apprentice to the next level in the wage progression when the apprentice demonstrates the required knowledge, skills, and abilities.

g. Disciplinary process (appearances, holds, cancellations)

The committee will take corrective action for any failure to satisfy program requirements.

h. Training agent requirements (approval, discipline, removal)

The committee will recognize the employer as an approved training agent when (and so long as) the employer demonstrates that it meets all qualifications established by the committee.

i. Traveling training agent policy

Not applicable-Single Employer Program.

j. Initial employment policy

An applicant who has been placed in the ranked pool shall be afforded a reasonable opportunity for employment and shall only be removed from the pool in accordance with the committee's published procedures.

k. Placement procedures for out-of-work apprentices

All unemployed apprentices in good standing with the committee will be given the opportunity to be re-employed as soon as possible and prior to indenturing new apprentices.

- I. License requirements, including exam referral and completion requirements (for licensed trades only)

N/A – This trade does not require a license.

9. Optional Policies

10. Composition of Committee:

- a. Joint apprenticeship and training committees must be composed of an equal number of employee and employer representatives composed of at least four principal members but no more than eight principal members. An alternate member may be appointed for each principal member. A quorum shall consist of at least two employer members and two employee members. (See ORS 660.135; OAR 839-011-0074)
- b. Trades apprenticeship and training committees must be composed of an equal number of employee and employer representatives composed of one principal employee and one principal employer member for each occupation covered by the trades committee. An alternate member may be appointed for each principal member. A quorum shall consist of at least two employer members and two employee members. (See ORS 660.145; OAR 839-011-0074)
- c. Employee representatives shall not be supervisors as defined by the National Labor Relations Act (as amended). (See OAR 839-011-0074)
- d. Employee representatives shall be skilled practitioners of the trade, except;
- e. A labor organization which is the recognized bargaining representative may designate elected representatives as employee members. (See ORS 660.135 & OAR 839-011-0074)
- f. The committee shall elect a chairperson and a secretary from the committee members. One of the offices must be held by an employer member and one office must be held by an employee member.
- g. Committee members or officers may be removed for failure to abide by ORS 660 or the rules and policies of the council or committee. (See OAR 839-011-0078)

The program administered by this committee is a: JAC
(See ORS 660.135) or (ORS660.145)

The employer representatives shall be:
(See attached committee list)

The employee representatives shall be:
(See attached committee list)

XII. SUBCOMMITTEE:

Subcommittee(s) may be approved by the sponsor but may only recommend actions to the parent Committee.

XIII. TRAINING DIRECTOR/COORDINATOR/ADMINISTRATOR/CONTACT PERSON:

The Sponsor may employ a person(s) as a full or part-time Training Coordinator(s)/Training Director(s)/Administrator(s). This person(s) will assume responsibilities and authority for the operation of the program as are specifically delegated by the Sponsor.

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