



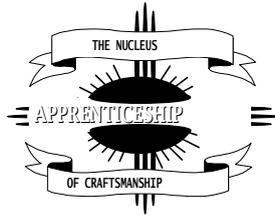
MINIMUM GUIDELINE STANDARDS OF APPRENTICESHIP  
Adopted by

**OREGON STATE INDUSTRIAL ELECTRICAL JATC**

(sponsor)

<u>Skilled Occupational Objective(s):</u>	<u>SOC#</u>	<u>SYMBOL</u>	<u>SUFFIX</u>	<u>Term</u>
Limited Journeyman Manufacturing Plant Electrician	49-9042	0643	000	8,000 hours

MA#	8001	SOC Title	Maintenance & Repair Workers, General	License	Limited Journeyman Manufacturing Plant Electrician
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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:

December 1, 1989  
Initial Approval Date

By: **BRAD AVAKIAN**  
Chair of Council

September 17, 2015  
Last Date Revised

By: **STEPHEN SIMMS**  
Secretary of Council

## 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.*

## STATE COMMITTEES AND MINIMUM GUIDELINE STANDARDS

State joint apprenticeship committees are formed for the purpose of promoting and coordinating the apprenticeship goals of the occupation and for developing statewide standards and related instructional materials. At its discretion, or upon petition by two or more local committees directly affected by minimum guideline standards, OSATC will direct ATD staff to convene a state joint committee composed of members of local committees training in the occupation. The state committee will develop for Council approval proposed or revised Minimum Guideline Standards as may be dictated by the needs of the industry and occupation.

Minimum guidelines are established only in the following standards areas (OAR 839-011-0360):

Minimum qualifications (Section II below)

Hours of employment (Section IV)

Maximum probationary period (Section V)

Maximum ratio of apprentices to journey persons (Section VI)

Work processes and approximate hours (Section VIII)

Minimum related training hours and subjects (Section IX)

**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:	Be at least 18 years old
Education:	1. High school graduate or equivalent GED Certificate. 2. Successfully complete one year of high school mathematics or an equivalent post high school placement test or course.
Physical:	None
Testing:	None
Other:	None

**IV. TERM of APPRENTICESHIP:**

The term of apprenticeship shall be 8,000 hours of employment.

NOTE: Total hours in local committee standards may not fluctuate below requirements dictated by minimum guideline standards (OAR 839-011-0370).

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

**V. INITIAL PROBATIONARY PERIOD:**

The maximum probationary period shall be the first period, or one year after the current registration to the local committee standard, whichever is shorter. (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 660.126 (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))

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

**VIII. WORK PROCESSES:**

Work processes	Approximate hours
a. Installation of electrical circuits (minimum 1,000 hours)	2,000
b. Motors and Generators (minimum 500 hours)	1,000
1. Dismantling and checking physical conditions;	
2. Assembly and testing;	
3. Repair and maintenance;	
4. Internal and external connections to change direction of rotation and speed and for change of supply of voltage;	
5. Motor setting, drives, pulley, gears, coupling devices;	
6. Related mechanical equipment: Traction units, cranes, winches and hoists.	
c. Manual and automatic controls including magnetic and solid state (minimum 1,000 hours)	2,000
d. Trouble Shooting (minimum 500 hours)	1,000
1. Circuit analysis;	
2. Use of test equipment;	
3. Emergency repairs for temporary maintenance of service.	
e. Power Distribution (minimum 1,000 hours)	2,000
1. Inside and outside voltage distribution systems, maintenance and replacement;	
2. Transformer connecting, testing and repairing;	
3. Switch gear and load centers, maintenance and repair;	
4. Wiring, maintenance, repair and adjustment of control panels, instruments and relays.	
<b>TOTAL</b>	<b>8,000</b>
<p>Note: An apprentice may substitute up to 1,000 hours of experience of any two or more of the following, provided the hours in any one subject are at least the minimum specified. Substituted experience shall be only for work experience beyond the 4,000 hour minimum category hours:</p>	
a. Welders, welding	100
1. Soldering, brazing, welding (acetylene);	
2. Welding (electric);	
3. Maintenance and repair of welding equipment.	
b. Electric furnaces	200
1. Forming electrodes;	
2. Mounting and connecting electrodes;	

3. Operation of equipment;	
4. Controls.	
c. Rectifiers	100
1. Installing, replacing and testing rectifier units;	
2. Repairing related equipment.	
d. Meters	100
1. Testing meters;	
2. Rebuilding meters;	
3. Minor repairs;	
4. Installation;	
5. Calibration.	
e. Batteries,	100
1. Handling, testing, storing, maintenance;	
2. Minor repairs, terminals, case electrolyte;	
3. Rebuilding.	
f. Signal systems	100
1. Installations;	
2. Testing;	
3. Service (minor);	
4. Overhaul.	
g. Lighting	300
1. Maintenance of indoor and outdoor lighting, general and special;	
2. Set-up, operation, maintenance, dismantling, and storing of temporary and emergency lighting and portable power plants.	
<b>HAZARDOUS WORK</b>	
1. Safety training on the specific hazards shall precede work assignments in hazardous areas or on energized equipment. Work shall not be performed on or near energized equipment if such service or equipment can be disconnected.	
2. Temporary safety grounds shall be installed during such work and disconnecting devices shall be identified by safety tags. Work on signal systems, control systems, or other equipment energized at 50 volts or less shall not be considered hazardous under normal conditions.	
3. Where work must be done on energized lines or equipment, an apprentice may work with a journeyman as follows: After the first 1,000 hours on power supply voltage up to 125 volts; after 3,000 hours up to 250 volts; after 4,000 hours 600 volts; after 7,000 hours any work within the plant.	
4. Electronic maintenance may be done by apprentices after the first 1,000 hours on equipment with in-put of 100 watts or less; after 3,000 hours up to 2500 watts in-put power, and after 5,000 hours on any electronic work within the plant, under journeyman supervision.	

NOTE: The committee realizes that the completion of 8,000 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.

Local committees proposing new or revised standards affected by minimum guideline standards will be allowed to redistribute no more than 5% of on-the-job training hours within existing individual work processes. (OAR 839-011-0370)

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

This is a licensed occupation and requires that all required hours of instruction and supervised OJT be completed prior to the apprentice being referred to the electrical licensure examination.

**IX. RELATED/SUPPLEMENTAL INSTRUCTION:**

A minimum of 144 hours of related training shall be required during each year the apprentice is registered in the program (See ORS 660.157, OAR 839-011-0360(2d)).

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)

Related training must cover the following subjects and must be completed with a grade of 'C' or better for graded classes or 'Pass' for non-graded classes. (see OAR 918-282-0170 to -0365)

Course	Hours
a. Electrical mathematics	40
b. Safety and accident prevention	36
c. Care and use of hand and power tools	20
d. Blueprint reading and electrical symbols (40+10*) *10 hrs may be integrated with item l. Practical Circuit Sketching	50
e. Introduction to National Electrical Code	144
f. Electrical fundamentals and basic theory, including A/C and D/C	52
g. Electric measuring devices	10

h. Wiring methods	10
i. Low voltage and limited energy circuits	10
j. Industrial and commercial calculations	44
k. Motors, generators and transformers (44+10*) *10 hrs may be integrated with item l. Practical Circuit Sketching	54
l. Practical circuit sketching *10 hrs each may be integrated with items d. Blueprint reading and electrical symbols and k. Motors, generators and transformers	20
m. Lighting circuits	20
n. Fundamentals of electronics	30
o. Welding and cutting **The committee will determine the most appropriate class and content for each apprentice; credit may be awarded for equivalent experience legally obtained.	**
p. High voltage distribution and equipment	20
Subtotal	540
<p>The additional 36 hours, required to ensure license exam qualification, will be distributed as the local committee deems appropriate</p> <p>Optional: A certified CPR (cardiopulmonary resuscitation) course of the committee's choice.</p>	
TOTAL	576

**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. State joint apprenticeship committees are formed for the purpose of promoting and coordinating the apprenticeship goals of the occupation and for developing statewide standards and related instructional materials. At its discretion, or upon petition by two or more local committees directly affected by minimum guideline standards, OSATC will direct ATD staff to convene a state joint committee.
2. Each local committee training in the occupation shall designate no more than one employer and one employee representative (with alternates) to the state joint committee; notification of this action must be submitted to ATD in writing.
3. To determine a quorum, the total number of authorized representatives appointed by local committees will be counted; appointed representatives of local trade committees will be counted only if they are present at the state joint committee meeting. A quorum consists of 50% plus one of the total authorized local committee representatives.

4. The state joint committee will develop for OSATC approval proposed or revised Minimum Guideline Standards as dictated by the needs of the industry and occupation.
  - a. New or revised Minimum Guideline Standards presented to the OSATC for approval shall be first distributed to local committees training in the occupation for review and comment.
  - b. Each local committee shall have no more than 30 days to present any written objections they may have. After reviewing this information the state joint committee will prepare its final recommendations to OSATC.
  - c. If consensus is not reached by the state joint committee, a majority and minority report will be submitted to OSATC for consideration. The geographic area covered by each participating local committee as well as the number of apprentices served and the number of training agents affected will be taken into consideration in the OSATC's decision.
5. Each state joint committee may adopt rules consistent with ORS Chapter 660 as it deems necessary for the orderly conduct of its meetings. Unless the state committee determines otherwise, ATD staff will prepare and distribute state joint committee agendas and minutes as needed.