

# POWERLINE SYSTEMS/3 (180 Hours)

Course No.: 72-75-90

## COMPETENCY CHECKLIST

Student Name \_\_\_\_\_

Teacher Name \_\_\_\_\_ School Site \_\_\_\_\_

Start Date \_\_\_\_\_ Completion Date \_\_\_\_\_ Certificate Date \_\_\_\_\_

Teacher Signature \_\_\_\_\_ Student Signature \_\_\_\_\_

(Signatures verify completion of course competencies)

### A. INTRODUCTION AND SAFETY (3 hrs)

- \_\_\_\_\_ 1. Scope and purpose of course
- \_\_\_\_\_ 2. Course content as part of Linked Learning
- \_\_\_\_\_ 3. Classroom policies and procedures
- \_\_\_\_\_ 4. First aid & emergency procedures
- \_\_\_\_\_ 5. Role of powerline mechanics in industry
- \_\_\_\_\_ 6. Gender equity/non-trad employment
- \_\_\_\_\_ 7. Cal/OSHA laws governing powerline techs
- \_\_\_\_\_ 8. Impact of EPA legislation
- \_\_\_\_\_ 9. Proper disposing of hazardous materials
- \_\_\_\_\_ 10. NEC and its role in safeguarding workplace
- \_\_\_\_\_ 11. MSDS as it applies to the powerline systems
- \_\_\_\_\_ 12. LEED Green Building Rating System
- \_\_\_\_\_ 13. Applicable LA City Building & Safety Codes
- \_\_\_\_\_ 14. CA Title 24 Energy Efficiency Standards
- \_\_\_\_\_ 15. Pass safety test with 100% accuracy

### B. RESOURCE MANAGEMENT REVIEW (1 hr)

- \_\_\_\_\_ 1. Review terms related to topic
- \_\_\_\_\_ 2. Proper management of resources
- \_\_\_\_\_ 3. Examples of effective management
- \_\_\_\_\_ 4. Benefits of effective resource management
- \_\_\_\_\_ 5. Economic/environment benefits & liabilities

### C. TRADE MATHEMATICS REVIEW (10 hrs)

- \_\_\_\_\_ 1. Practical application of math to industry
- \_\_\_\_\_ 2. Problem-solving for whole numbers
- \_\_\_\_\_ 3. Problem-solving for fraction problems
- \_\_\_\_\_ 4. Problem-solving for decimal problems
- \_\_\_\_\_ 5. Changing fractions to decimals
- \_\_\_\_\_ 6. Changing decimals to fractions
- \_\_\_\_\_ 7. English/metric systems of measuring length
- \_\_\_\_\_ 8. English/metric systems of measuring weight

- \_\_\_\_\_ 9. English/metric measuring of volume /capacity
- \_\_\_\_\_ 10. Problem-solving for measuring problems
- \_\_\_\_\_ 11. Measure using tools common to the trade
- \_\_\_\_\_ 12. Ascending and descending powers of 10
- \_\_\_\_\_ 13. Convert English numbering system to metric
- \_\_\_\_\_ 14. Convert metric system to English numbering
- \_\_\_\_\_ 15. Calculate square roots of numbers
- \_\_\_\_\_ 16. Problem-solving for geometric problems
- \_\_\_\_\_ 17. Problem-solving for algebraic problems
- \_\_\_\_\_ 18. Problem-solving for percentages
- \_\_\_\_\_ 19. Reading and interpreting graphs
- \_\_\_\_\_ 20. Demonstrate using a calculator
- \_\_\_\_\_ 21. Pass utility entry level exam

### D. DIRECT CURRENT (DC) THEORY II (15 hrs)

- \_\_\_\_\_ 1. Review definitions related to DC theory
- \_\_\_\_\_ 2. Review components used in DC theory
- \_\_\_\_\_ 3. Review relationship of electricity to magnetism
- \_\_\_\_\_ 4. Apply/demonstrate use of DC Theory

### E. ALTERNATING CURRENT (AC) THEORY II (15 hrs)

- \_\_\_\_\_ 1. Review definitions related to AC theory
- \_\_\_\_\_ 2. Review components used in AC theory
- \_\_\_\_\_ 3. Review features/functions of transformers
- \_\_\_\_\_ 4. Discuss/demonstrate application of AC theory

### F. CAPACITANCE II (15 hrs)

- \_\_\_\_\_ 1. Review definitions related to capacitance
- \_\_\_\_\_ 2. Review components used in capacitance
- \_\_\_\_\_ 3. Demonstrate/apply use of capacitance

### G. INDUCTANCE II (15 hrs)

- \_\_\_\_\_ 1. Review definitions related to inductance
- \_\_\_\_\_ 2. Review effects of inductance in DC/AC circuits

\_\_\_\_\_ 3. Demonstrate/apply inductance to circuits

**H. BASIC ELECTRICAL WIRING (20 hrs)**

- \_\_\_\_\_ 1. Define electrical service installation terms
- \_\_\_\_\_ 2. Describe tools/wire sizes/components
- \_\_\_\_\_ 3. Differences/comparison of electrical items
- \_\_\_\_\_ 4. Operation of main electrical components
- \_\_\_\_\_ 5. Demonstrate wiring principles/procedures

**I. RIGGING II (40 hrs)**

- \_\_\_\_\_ 1. Features & functions of types of rope
- \_\_\_\_\_ 2. Strength & safety factor rigging ropes
- \_\_\_\_\_ 3. Use/care of synthetic ropes & steel slings
- \_\_\_\_\_ 4. Demonstrate tying knots used in rigging
- \_\_\_\_\_ 5. Types of sheaves used in rigging process
- \_\_\_\_\_ 6. Proper “block size-to-rope size” ratio
- \_\_\_\_\_ 7. Demonstrate listed rigging techniques

**J. POLE CLIMBING AND WORKING II (40 hrs)**

- \_\_\_\_\_ 1. Various classes & brands of power poles
- \_\_\_\_\_ 2. Practice pole task techniques until mastered

**K. EMPLOYABILITY SKILLS REVIEW (3 hrs)**

- \_\_\_\_\_ 1. Employer requirements from employee
- \_\_\_\_\_ 2. Potential employers through job search
- \_\_\_\_\_ 3. Electronic social networking in the job search
- \_\_\_\_\_ 4. Finalize sample resumes & cover sheets
- \_\_\_\_\_ 5. Accurate/legible/complete job application
- \_\_\_\_\_ 6. Complete sample job application
- \_\_\_\_\_ 7. Review importance of enthusiasm on job
- \_\_\_\_\_ 8. Review appropriate appearance on job
- \_\_\_\_\_ 9. Need for continuous upgrading of job skills
- \_\_\_\_\_ 10. Customer service to establish relationships
- \_\_\_\_\_ 11. Appropriate interview techniques
- \_\_\_\_\_ 12. Resources to use for successful interview
- \_\_\_\_\_ 13. Finalize sample follow-up letters
- \_\_\_\_\_ 14. Review appropriate follow-up procedures

**L. ENTREPRENEURIAL SKILLS (3 hrs)**

- \_\_\_\_\_ 1. Define entrepreneurship
- \_\_\_\_\_ 2. Characteristics of successful entrepreneurs
- \_\_\_\_\_ 3. Contributions of entrepreneurs to field
- \_\_\_\_\_ 4. Purpose & components of a business plan
- \_\_\_\_\_ 5. Personal goals prior to starting a business
- \_\_\_\_\_ 6. Source of business monetary investment
- \_\_\_\_\_ 7. Licensing needs in utility distribution field
- \_\_\_\_\_ 8. Student as owner of photovoltaic business
- \_\_\_\_\_ 9. LEED vs. standard business practices