

PHOTOVOLTAICS/3 (180 Hours)

Course No.: 72-65-70

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 (4 hrs)

- _____ 1. Review the scope and purpose of the course
- _____ 2. Course content as part of Linked Learning
- _____ 3. Review classroom policies and procedures
- _____ 4. Occupations in Energy & Utilities Industry
- _____ 5. Opportunities for promoting gender equity
- _____ 6. Review the purpose of Cal/OSHA and its laws
- _____ 7. Review the impact of EPA legislation
- _____ 8. Proper removal of hazardous materials
- _____ 9. NEC and its role in workplace safety
- _____ 10. Use of MSDS as it applies to PV field
- _____ 11. Role of LEED in clean/renewable technology
- _____ 12. City of LA Building & Safety Codes for PV
- _____ 13. Title 24 Energy Efficiency Standards
- _____ 14. First aid and emergency procedures
- _____ 15. Review what insures a safe work place
- _____ 16. Pass safety test with 100% accuracy

B. RESOURCE MANAGEMENT REVIEW (1 hr)

- _____ 1. Review principles and techniques
- _____ 2. Review importance of proper management
- _____ 3. Specific examples of effective management
- _____ 4. Benefits of effective resource management
- _____ 5. Economic benefits/ liabilities of management

C. TRADE MATHEMATICS REVIEW (5 hrs)

- _____ 1. Practical applications of math in the field
- _____ 2. Problem-solving with whole numbers
- _____ 3. Problem-solving with fractions
- _____ 4. Problem-solving with decimals
- _____ 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 systems of measuring volume

- _____ 10. English/metric problem-solving techniques
- _____ 11. English/metric measuring using tools of trade
- _____ 12. Metric units: ascending/descending powers of 10
- _____ 13. Conversion of English system to metric system
- _____ 14. Conversion of metric system to English system
- _____ 15. Calculation of square roots of English numbers
- _____ 16. Solving techniques for geometric problems
- _____ 17. Solving techniques for algebraic problems
- _____ 18. Problem-solving techniques using percentages
- _____ 19. Techniques for reading and interpreting graphs
- _____ 20. Techniques for using a calculator

D. ELECTRICAL DESIGN ADAPTATION (35 hrs)

- _____ 1. Define derated ampacity
- _____ 2. Discuss/demo various PV electrical designs
- _____ 3. Analyze/document variety of load demands
- _____ 4. Discuss/demo selecting proper components

E. SUBSYSTEM & COMPONENT INSTALLATION (40 hrs)

- _____ 1. Define terms related to PV subsystems
- _____ 2. Discuss & demonstrate installation techniques

F. SYSTEM CHECK-OUT AND INSPECTION (30 hrs)

- _____ 1. Check-out and inspection techniques

G. MAINTENANCE AND TROUBLESHOOTING (50 hrs)

- _____ 1. Define actual/expected power output
- _____ 2. Tools/equipment used in PV maintenance
- _____ 3. Discuss & demo troubleshooting techniques
- _____ 4. Research & document troubleshooting system

H. PV MARKETS AND APPLICATIONS (5 hrs)

- _____ 1. Research current economic conditions
- _____ 2. Research/analyze local/nat'l/global demand
- _____ 3. Design market strategy to increase demand

I. ENTREPRENEURIAL SKILLS (10 hrs)

- _____ 1. Define entrepreneurship
- _____ 2. Characteristics of successful entrepreneurs
- _____ 3. Contributions of entrepreneurs to PV field
- _____ 4. Purpose and components of a business plan
- _____ 5. Personal goals prior to starting a business
- _____ 6. Sources of monetary investment
- _____ 7. Licensing requirements to the PV field
- _____ 8. Student as owner scenario
- _____ 9. LEED vs. standard business practices