

PHOTOVOLTAICS/1 (90 Hours)

Course No.: 72-65-50

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. ORIENTATION AND SAFETY (8 hrs)

- _____ 1. Scope and purpose of course
- _____ 2. Overall course content
- _____ 3. Classroom policies and procedures
- _____ 4. Different occupations in Energy & Utilities
- _____ 5. Gender equity
- _____ 6. Impact of EPA legislation
- _____ 7. Procedures: Contacting proper authorities
- _____ 8. NEC role: Photovoltaic installers/craftsmen
- _____ 9. MSDS as it applies to the photovoltaic field
- _____ 10. LEED Green Building Rating System
- _____ 11. LA/Safety Codes/Applications for industry
- _____ 12. CA Title 24 Energy Efficiency Standards
- _____ 13. First aid/emergency procedures: ARC
- _____ 14. OSHA governing PV installers/craftsmen
- _____ 15. Responsibilities to insure a safe workplace
- _____ 16. Safety test

B. RESOURCE MANAGEMENT (1 hr)

- _____ 1. Resources, Management, Sustainability
- _____ 2. Management: time, materials, personnel
- _____ 3. Examples of effective management
- _____ 4. Profitability/sustainability
- _____ 5. Economic/environmental benefits/liabilities

C. TRADE MATHEMATICS (12 hrs)

- _____ 1. Practical applications
- _____ 2. Problem-solving: Whole # problems
- _____ 3. Problem-solving: Fraction problems
- _____ 4. Problem-solving: Decimal problems
- _____ 5. Fractions to decimals
- _____ 6. Decimals to fractions
- _____ 7. English & metric systems: Measuring length
- _____ 8. English & metric systems: Measuring weight
- _____ 9. English & metric systems: Volume or capacity

- _____ 10. Problem-solving: Measuring problems
- _____ 11. Using tools common to the trade
- _____ 12. Ascending and descending powers of 10
- _____ 13. English numbering system to metric system
- _____ 14. Metric system to English numbering system
- _____ 15. Square roots of English numbers
- _____ 16. Geometric problems
- _____ 17. Algebraic problems
- _____ 18. Percentages
- _____ 19. Interpreting graphs
- _____ 20. Using a calculator

D. SOLAR ENERGY (8 hrs)

- _____ 1. Definition of solar energy terms
- _____ 2. Effects: Seasonal sunlight exposure
- _____ 3. Discuss listed fundamentals of solar energy

E. PHOTOVOLTAIC ENERGY: ALTERNATIVE ENERGY (4 hrs)

- _____ 1. Define/discuss: Sources of energy
- _____ 2. Need in today's economy
- _____ 3. History of PV
- _____ 4. Basic operational aspects of PV

F. PV FUNDAMENTALS (18 hrs)

- _____ 1. Define/discuss: Features & functions
- _____ 2. Structure & characteristics of PV devices
- _____ 3. Characteristics of solar cell materials

G. BASIC ELECTRICAL THEORIES (10 hrs)

- _____ 1. Definitions of related terms
- _____ 2. Discuss current/circuits
- _____ 3. Operation of a simple battery or cell
- _____ 4. Calculate w/ Ohm's Law/use multimeter

H. BASIC ELECTRICAL WIRING (25 hrs)

- _____ 1. Terms: Electrical service installations
- _____ 2. Identify tools, wire sizes, components
- _____ 3. Differences between related items
- _____ 4. Operation: Main electrical components
- _____ 5. Demonstrate wiring techniques

I. EMPLOYABILITY SKILLS (4 hrs)

- _____ 1. Employer requirements
- _____ 2. Identifying potential employers
- _____ 3. Role of social networking in job search
- _____ 4. Sample résumé/cover letters
- _____ 5. Accurate, legible, and complete job app
- _____ 6. Sample job applications forms
- _____ 7. Enthusiasm on the job
- _____ 8. Appropriate appearance on a job
- _____ 9. Upgrading of skills on a job
- _____ 10. Customer service to build relationships
- _____ 11. Appropriate interviewing techniques
- _____ 12. Materials/resources for successful interview
- _____ 13. Sample follow-up letters
- _____ 14. Appropriate follow-up procedures