

COURSE SYLLABUS

DIVISION: Workforce Services

Revised: January 2015

CURRICULUM IN WHICH COURSE IS TAUGHT: Non-Curricula

COURSE NUMBER: ENE 105 – Solar Thermal Active and Passive Technology

CREDITS: 4

HOURS WEEK LECTURE: 3

HOURS WEEK LAB: 3

LECTURE/LAB COMBINATION: 6

I. CATALOG DESCRIPTION

Provides a comprehensive study of thermal technology as it applies to collector types and ratings, open-loop versus closed-loop and system sizing. Introduces hydronics, hot water, and pool heating applications. Provides an introduction to fluid dynamics and chemistry as it applies to system installation and maintenance. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week. 4 credits

II. RELATIONSHIP OF THE CORSE TO CURRICULUM OBJECTIVES IN WHICH IT IS TAUGHT:

To provide an introduction and instruction in solar thermal active and passive technology.

III. REQUIRED BACKGROUND: None required

IV. COURSE OUTLINE:

- Introduction and certification requirements
- Safety in the workplace
- History of solar water heating
- Solar Thermal Applications
- Solar Fundamentals and Site Assessment
- Water Heating Systems
- Swimming Pool and Spa Heating
- System Components
- Collector Mounting and Roof Penetrations
- Policy Presentation
- Creating a Solar Business
- System Startup
- Licensing, permits and Code
- Troubleshooting

v. LEARNER OUTCOMES:

VI. EVALUATION:

<p>Upon completion of the course, students will</p> <p>Be familiar with the certification requirements, licensing, permits, and codes</p> <p>Demonstrate safety in the workplace</p>	<p>Tests, quizzes, and class participation will be considered in determination of the grade as well as Lab Exercises in</p> <ul style="list-style-type: none"> • Examine various mounting systems • Flat Plate Collectors • Drain back System Variations • Glycol Systems
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Be familiar with solar fundamentals, applications and assessments System components and setup	<ul style="list-style-type: none">• Pool Systems
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The course supports the following objectives:

DCC Educational Objectives

1. Communication
2. Critical Thinking
3. Interpersonal Skills and Human Relations
4. Computational and Computer Skills
5. Understanding Culture and Society