

Master Syllabus

EGV 2151 - Solar Thermal Systems

Division: Science, Mathematics and Engineering

Department: Engineering Technology Design

Credit Hour Total: 3.0

Lecture Hrs: 2.0 **Lab Hrs:** 2.0

Date Revised: June 2014

Course Description:

This course covers some of the basic cognitive materials needed to install and maintain solar thermal systems. Designed to help individuals better prepare for the North American Board of Certified Energy Practitioner (NABCEP) Solar Thermal Installer examination but does not provide all of the materials needed to complete the certification examination. Two classroom, two lab hours per week.

General Education Outcomes:

- ▣ Written Communication Competency
- ▣ Critical Thinking/Problem Solving Competency

Course Outcomes:

Solar energy fundamentals

Define and describe solar energy fundamentals.

Assessment Method: Locally developed exams
Performance Criteria: 70% or better on exams

Mechanical/electrical installation

Describe the installation and operation requirements for mechanical/plumbing equipment and electrical control systems.

Assessment Method: Locally developed exams
Performance Criteria: 70% or better on exams

System components

Identify and describe the components of a solar thermal energy systems.

Assessment Method: Locally developed exams
Performance Criteria: 70% or better on exams

Site assessment

Conduct a site assessment for installation of a solar thermal energy system.

Assessment Method: Portfolios
Performance Criteria: 70% or more of available points.

System installation

Describe the installation techniques for solar collectors, water heaters and storage tanks.

Assessment Method: Locally developed exams
Performance Criteria: 70% or better on exams

Maintenance and troubleshooting

Describe maintenance and troubleshooting requirements for solar thermal systems.

Assessment Method: Locally developed exams
Performance Criteria: 70% or better on exams

Outline:

Working safely with solar thermal systems
Identifying systems and their components
Adapting a system design
Conducting a site assessment
Installing solar collectors
Installing water heaters and storage tanks
Installing piping
Installing mechanical/plumbing equipment
Installing electrical controls
Installing operational and identification tags and labels
Performing a system checkout
Maintaining and troubleshooting a solar thermal system