

## 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

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### 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