|  |  |  |
| --- | --- | --- |
|  | **Course:** | **ENY 131** |
|  |  |  |
|  | **Title:** | **Solar Stand-Alone Systems** |
|  |  |  |
|  | **Long Title:** |  |
|  |  |  |
|  | **Course Description:** | **Teaches the advanced principles of a residential solar photovoltaic systems. Additional information will be provided on site evaluation, system design, panel installation, wiring, grounding, bonding and commissioning. Off-grid living and systems with battery back-up will be studied.** |
|  |  |  |
|  | **Min Credit:** | **2** |
|  |  |  |
|  |  |  |

 STANDARD COMPETENCIES:

1. Describe proper safety techniques.
2. Demonstrate a solar site analysis.
3. Compare photovoltaic components.
4. Describe battery back-up systems.
5. Construct a complete solar energy system.

 TOPICAL OUTLINE:

1. Safety techniques
   1. Harnesses
   2. OSHA
   3. Tie-offs
   4. NEC and UL
   5. Ladders
   6. Electrical safety
2. Solar site analysis
   1. Shading
   2. Location
   3. Balance of system
   4. Orientation
3. Photovoltaic components
   1. Modules
      1. Modules for battery systems
   2. Inverters
      1. Inverters for battery systems
   3. Wiring
   4. Disconnects
4. Battery Back-up
   1. Batteries
      1. Gel
      2. Flooded
      3. Maintenance
   2. Sizing Calculations
5. Construct a complete solar system
   1. Roof mounting systems
   2. Wiring
      * 1. Sizing
        2. Grounding and bonding
        3. Conduit
        4. Trays
        5. Batteries