



# Wayne County Community College District

## COURSE SYLLABUS

### RET 144 SOLAR POWER

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**CREDIT HOURS:** 3.00

**CONTACT HOURS:** 45.00

**COURSE DESCRIPTION:**

This course encompasses several different aspects of solar power. Students will explore the basics of solar energy which includes radiation, heat transfer, flat-plate collectors, thermal energy storage, and solar thermal applications. In this course, students will also become knowledgeable of passive solar building and photovoltaic systems. Topics to be explored include: solar radiation, building heating and cooling loads, energy efficient design and construction, passive solar heating, proper implementation of thermal mass, passive cooling, cell physics, types of PV cells, PV system components, and PV energy storage.

**PREREQUISITE:** *RET 101*

**EXPECTED COMPETENCIES:**

Upon successful completion of this course, the student will be able to:

- Understanding photovoltaics, development and principals.
- Calculate load requirements to determine system sizing for photovoltaics array.
- Be familiar with photovoltaic system wiring.
- Illustrate the components of photovoltaic system.
- Know types of photovoltaic systems.
- Calculate how photovoltaics can be applied for world applications.
- Work with solar data and charts to determine optimum site selection.
- Photovoltaic project.

**ASSESSMENT METHODS:**

Student performance may be assessed by examination, quizzes, case studies, oral conversation, group discussion, oral presentations. The instructor reserves the option to employ one or more of these assessment methods during the course.

**GRADING SCALE:**

90%-100% = A  
80%-89.9%= B  
70%-79.9%= C  
60%-69.9%= D  
<60% = E