

Course Outline of Record

1. Course Code: ESYS-311D
2.
  - a. Long Course Title: Solar Site Planning Project
  - b. Short Course Title: SOLAR SITE PROJECT
3.
  - a. Catalog Course Description:
 

This course provides training in applying the principles and techniques of solar surveying and planning to residential building projects. This project-based workshop supports lectures from ESYS-311 A, B, C by providing students a hands-on approach surveying multiple buildings and making energy recommendations based on current California's energy code.
  - b. Class Schedule Course Description:
 

This course provides training in applying the principles and techniques of solar surveying and planning to residential building projects. This project-based workshop supports lectures from ESYS-311 A, B, C by providing students a hands-on approach surveying multiple buildings and making energy recommendations base on current California's energy code.
  - c. Semester Cycle (if applicable): N/A
  - d. Name of Approved Program(s):
    - ENERGY SYSTEMS TECHNOLOGY Certificate of Achievement
4. Total Units: 0      Total Semester Hrs: 18.00  
 Lecture Units: 0      Semester Lecture Hrs: 18.00  
 Lab Units: 0      Semester Lab Hrs: 0  
 Class Size Maximum: 18      Allow Audit: No  
 Repeatability Noncredit - Unlimited  
 Justification 0
5. Prerequisite or Corequisite Courses or Advisories:
 

*Course with requisite(s) and/or advisory is required to complete Content Review Matrix (CCForm1-A)*

Advisory: ESYS 311C

Advisory: ESYS 311E
6. Textbooks, Required Reading or Software: (List in APA or MLA format.) N/A
7. Entrance Skills: *Before entering the course students must be able:*
  - a.  
Describe efficiency of solar modules.
    - ESYS 311C - Describe efficiency of solar modules. satisfy SLO 1.
  - b.  
Identify system components (inverter, charge controller, combiner, batteries, etc.)
    - ESYS 311C - Identify system components (inverter, charge controller, combiner, batteries, etc.)
  - c.  
Explain string inverters versus micro-inverters\*SLO3.
    - ESYS 311C - Explain string inverters versus micro-inverters\*SLO3.
  - d.  
Identify and explain the types of electric energy storage technologies, performance & operation
    - ESYS 311E - Identify and explain the types of electric energy storage technologies, performance & operation SLO(2)

8. Course Content and Scope:

Lecture:

1. Project type and scope will be determined by the instructor and must be applicable to the student's major course of study.
2. Small group discussions on the lecture items, above, related to energy modeling. This will exercise each students' vocabulary and concepts related to buildings and their energy systems so that they grow in their abilities to explain what they have learned.
3. Interactive demonstrations of real project cases of building solar energy modeling to give students the feeling for how they actually should work in the field.

Lab: (if the "Lab Hours" is greater than zero this is required)

9. Course Student Learning Outcomes:

1.  
Model and document buildings from construction plans using the latest energy compliance software.
2.  
Explain the two common solar building design methods, prescriptive and performance to comply with California energy code.
3.  
Explain the dangers of not backchecking and scaling final energy calculation results.

10. Course Objectives: *Upon completion of this course, students will be able to:*

- a. Model and document buildings from construction plans using the latest energy compliance software.
- b. Be better prepared to take industry recognize credentials e.g. Certified Energy Analyst North American Board of Certified Energy Practitioners (NABCEP).
- c. Use energy terminology appropriately when discussing energy trades offs
- d. Understand the dangers of not back checking and scaling final energy calculation results.

11. Methods of Instruction: (*Integration: Elements should validate parallel course outline elements*)

- a. Activity
- b. Collaborative/Team
- c. Demonstration, Repetition/Practice
- d. Discussion
- e. Laboratory
- f. Participation
- g. Technology-based instruction

12. Assignments: (*List samples of specific activities/assignments students are expected to complete both in and outside of class.*)

In Class Hours: 18.00

Outside Class Hours: 36.00

a. In-class Assignments

1. Reading assignments
2. Quizzes
3. Tests
4. Discussion of energy models

b. Out-of-class Assignments

1. Practice tutorial energy models.

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- 2. Read assigned text.
- 3. Assigned worksheets.
- 4. Evaluate an energy bill.
- 5. Evaluate energy rebates and incentives.
- 6. Prepare for in-class discussions on specific energy topics

13. Methods of Evaluating Student Progress: *The student will demonstrate proficiency by:*

- Group activity participation/observation
- True/false/multiple choice examinations
- Student participation/contribution
- Organizational/timelines assessment

14. Methods of Evaluating: Additional Assessment Information:

15. Need/Purpose/Rationale -- *All courses must meet one or more CCC missions.*

PO - Career and Technical Education

Fulfill the requirements for an entry- level position in their field.

Apply critical thinking skills to execute daily duties in their area of employment.

Apply critical thinking skills to research, evaluate, analyze, and synthesize information.

Display the skills and aptitude necessary to pass certification exams in their field.

IO - Scientific Inquiry

Recognize the utility of the scientific method and its application to real life situations and natural phenomena.

16. Comparable Transfer Course

University System	Campus	Course Number	Course Title	Catalog Year
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17. Special Materials and/or Equipment Required of Students:

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18. Materials Fees:  Required Material?

**Material or Item**

**Cost Per Unit**

**Total Cost**

19. Provide Reasons for the Substantial Modifications or New Course:

This course provides training in applying the principles and techniques of solar surveying and planning to residential building projects. This project-based workshop supports lectures from ESYS-311 A, B, C by providing students a hands-on approach surveying multiple buildings and making energy recommendations base on current California's energy code.

This course is developed to meet the goals of the California Energy Efficiency Strategic Plan (CEESP) which mandates that 100 percent of all new homes in California will be Zero Net Energy starting in 2020 and 50 percent of commercial buildings by 2030. Solar technology is the leading technology used to offset electrical demand from the power grid. California has acknowledged the shortage of qualified and available work force to meet these new mandates. The course is designed as employment preparation for all students wishing to enter the advanced energy industry.

20. a. Cross-Listed Course (*Enter Course Code*): *N/A*  
 b. Replacement Course (*Enter original Course Code*): *N/A*

21. Grading Method (*choose one*): Pass/No Pass Only

22. MIS Course Data Elements

- a. Course Control Number [CB00]: CCC000581663  
 b. T.O.P. Code [CB03]: 94610.00 - Energy Systems Technology  
 c. Credit Status [CB04]: N - Noncredit

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- d. Course Transfer Status [CB05]: C = Non-Transferable
- e. Basic Skills Status [CB08]: 2N = Not basic skills course
- f. Vocational Status [CB09]: Possibly Occupational
- g. Course Classification [CB11]: J - Workforce Preparation Enhanced Funding
- h. Special Class Status [CB13]: N - Not Special
- i. Course CAN Code [CB14]: N/A
- j. Course Prior to College Level [CB21]: Y = Not Applicable
- k. Course Noncredit Category [CB22]: J - Workforce Preparation
- l. Funding Agency Category [CB23]: Y = Not Applicable
- m. Program Status [CB24]: 1 = Program Applicable

Name of Approved Program (if program-applicable): ENERGY SYSTEMS TECHNOLOGY

Attach listings of Degree and/or Certificate Programs showing this course as a required or a restricted elective.)

## 23. Enrollment - Estimate Enrollment

First Year: 18

Third Year: 36

## 24. Resources - Faculty - Discipline and Other Qualifications:

a. Sufficient Faculty Resources: Yes

b. If No, list number of FTE needed to offer this course: N/A

## 25. Additional Equipment and/or Supplies Needed and Source of Funding.

N/A

## 26. Additional Construction or Modification of Existing Classroom Space Needed. (Explain:)

N/A

## 27. FOR NEW OR SUBSTANTIALLY MODIFIED COURSES

Library and/or Learning Resources Present in the Collection are Sufficient to Meet the Need of the Students Enrolled in the Course: Yes

28. Originator Ramiro Galicia Origination Date 11/11/16