

MELTEC 321
PHOTOVOLTAIC SYSTEMS
COURSE SYLLABUS

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Course scope

MELTEC 321 is a one-semester course in the Study of OFF-Grid, Interconnected (Grid-tied), and Hybrid photovoltaic systems, including the study of locations and positioning for PV arrays, electrical and mechanical design and integration (including hands-on experiences), Safety rules and regulations related to this industry, financial topics (systems estimates and rebates), and an overview of NABCEP certification requirements.

Student Learning Outcomes

At the end of this course the student should be able to

1. Perform a site assessment to verify viability of a PV system and perform basic calculations to size a residential, or small commercial, interconnected (grid-tie) or stand alone (off-grid) PV system.
2. Install, interconnect, and setup all the parts that make up a PV system – grid-tie or off-grid – following safety and technical standards, and perform basic troubleshooting routines to detect problems.

Bibliography

Required

- **Photovoltaic Systems.** James P. Dunlop
- **The Electrical Trade Know How – MELTEC 321 – Photovoltaic Systems,** Technical articles compiled by Adrian DeAngelis.

Class Requirements

A broad scope of issues is going to be covered along these classes. Lectures, presentations, videos, and reading will be the gears of a larger object. Five hours a week on the classroom will demand several hours of reading afterward. Reading the material ahead is not a bad idea but it is not required. Reading the class' material after the class is a must-do.

Labs:

A safe laboratory environment is essential. Safety procedures are most often given during the lecture period. If, in the opinion of the instructor, you are unaware of the proper safety procedures for a particular laboratory exercise because of excessive absences, you may not be allowed to participate in that exercise.

After completing your laboratory assignments make sure that you leave the apparatus and the workstation in proper order. Eating and drinking is not allowed in the lab.

Field trips and solar installations are a possibility, but students have the alternative of doing a research paper instead of participating in these out-of-campus activities.

Attendance prior and after Census Day

Lecture and laboratory attendance will be taken daily. Regular attendance is essential to insure your success in this course and that laboratory safety procedures are clearly understood.

You must give notice to your instructor if you are planning to miss a class before the second week to avoid being dropped from the course.

After the second week it is your responsibility to drop this course. If, after the second week, you decide to quit this course and you do not drop it, the instructor might not drop you and, in such case, your grade would be an "F"

Exams and Grading Criteria

Class participation

Being on-time, being on-task, and keeping self engaged in the subject, although left a lot of margin for subjectivities from the student part and the instructor part, is going to be considered and awarded.

5% of the final grade can be achieved by being an active and constructive part of the class.

Homework

Homework assignment comes always after the lecture and lab that address a subject. One week or more will be given to complete assignments (refer to schedule - Reviews, Problems, Complementary Questions), so the due day to turn HW in must be kept. These assignments are not only important elements to make the grade, but also important elements to prepare the exams. DO NOT let HW due days pass by. Homework not turned in on time will not be accepted unless extraordinary circumstances. HW accounts for 30% of the final grade.

Labs

Labs will be graded according to their completeness. Labs account for 30% of the final grade. These points related to lab activities are given from the beginning and discounted if lab's goals are not met

Exams

Midterm

The midterm will cover the first seven weeks of instruction; it will be mostly numeric problems and basic laws. It will include a hands-on exercise. The midterm accounts for 10% of the final grade

Final

The final exam will cover the totality of the course and will represent 25% of the final grade

In summary

Participation	=	5%
Homework	=	30%
Labs	=	30%
Midterm	=	10%
Final	=	25%

Grades

To complete successfully this course a C is required, which is the equivalent of the 70% of the total points gathered between participation, homework, and exams; having at least 50% of the final exam correct.

The grading scale is as follows:

A = 90 to 100%

B = 80 to 89.99%

C = 70 to 79.99%

D = 50 to 69.99%

F = up to 49.99%

Keys for Success

- Be on time
- During lectures try to take notes (do your best)
- During labs focus in the task at hand reading carefully the lab guidelines.
- HOMEWORK IS VERY IMPORTANT. Complete your homework thoroughly, and as neat as you can. Always show your calculations.
- Do not let days go by. Take care of the homework and start reading the class material as soon as the lecture was delivered, whether or not the lab was completed. Give a general read to the review questions; that will make your reading more effective.
- Keep the review questions next to you and answer the questions as soon as you found the key paragraphs that are related to the point. Summarize the main points. Good summaries will help you to prepare the exams. Mark the text or keep notes with subjects that are not clear in order to ask for clarification the following class.
- Keep all the class material in order. Always keep with you a calculator, color pencils, and your meter.
- Keep track of what HW you turned in and the grades you are obtaining. These elements will give you a good idea of your progress and will show the areas that you need to work out.
- It is not bad idea to organize some group sessions to review concepts and get ready for the exams.