

# Introduction to Power Electronics

EE 4387/5390

CRN: 23596/26346

The University of Texas at El Paso

Spring 2023

Syllabus



**Instructor:** David G. Guzman

**E-mail:** [dgguzman@utep.edu](mailto:dgguzman@utep.edu)

**Office Location:** E328

**Office Hours:** T & TH 5:00 p.m. to 6:20 p.m. & by appointment.

For a more productive experience, students are highly encouraged to obtain an appointment for office hours. Instructor and student will coordinate the best medium for interacting during office hours in a case-by-case basis.

In addition, instructor will allocate 5 - 30 minutes after each class to interact with students if necessary.

**Delivery Method for Lectures:** All class sessions will be held face-to-face unless otherwise notified during the semester.

**Technology requirements:** Students will be expected to acquire access to blackboard and have access to e-mail for this class. This may be achieved by the use of a computer or smart device. Students can find further details by following the link below.

<https://www.utep.edu/extendeduniversity/cid/student-resources/blackboard-orientation.html>

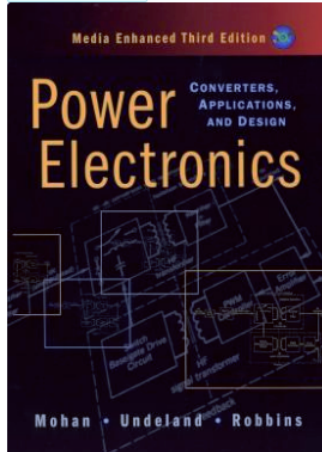
1. Class Location & Time: Tuesday & Thursday: 6:00 p.m. – 7:20 p.m. | Room CCSB 1.0202

2. Course Description:

This course will introduce the architecture and operating principles of electronic power converters; including the modeling, simulation, and design of power converters. Applications in areas such as power engineering, renewable energy, aerospace engineering, and transportation will be discussed.

3. Required Textbook:

Power Electronics, Converters, Applications, and Design. Third Edition. Mohan, Undeland, Robbins.



Students that choose to use a different edition or version of the book will be responsible to verify material covered, problems, etc. on their own.

4. Grading & Exam Calendar:

Attendance	10%	Will be taken every class.
Exam 1 <sup>^+</sup>	20%	TBD
(Extra Credit 1 Assignment) <sup>**^</sup>		Will be worth 20 points towards grade for Exam 1.
Exam 2 <sup>^+</sup>	20%	TBD
(Extra Credit 2 Assignment) <sup>**^</sup>		Will be worth 20 points towards grade for Exam 2.
Assignments/Quizzes <sup>^+</sup>	20%	At random during semester.
Final Exam <sup>*^+</sup>	30%	May 8-11 (Exact date/time per “UTEP’s Finals Schedule”)
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Total	100%	

**\*Final Exam will be comprehensive**

**\*\*Extra credit assignments are not mandatory but students are highly encouraged to submit them as they are assigned during the semester as no last-minute additional points or “rounding-up” requests for final grades will be granted at the end of the semester.**

**^Students are solely responsible to verify that all submissions for exams, quizzes, and assignments are complete, accurate, and submitted correctly as instructed; this includes using the correct e-mail address: [dgguzman@utep.edu](mailto:dgguzman@utep.edu).**

**+Graduate students registered for the class may be required to complete an additional problem found on each Exam, Assignment & Quiz to get full credit, completing this additional work is optional and will not be graded for students fulfilling an undergraduate requirement.**

Final Grade Scale:

A = 90.000% - 100.000%

B = 80.000% - 89.999%

C = 70.000% - 79.999%

D = 60.000% - 69.999%

F = < 60.000%

5. Homework

5.1. Homework will be assigned as material readings and practice problems during class. Homework assignments will not be graded but students are highly encouraged to read the assigned reading material and perform the assigned practice problems in preparation for the exams. All official solutions will be provided and posted in Blackboard for students to verify their work.

6. General Policies

6.1. Punctuality & Attendance:

Attendance will be taken every class and students are expected to arrive on time.

6.2. Absences:

Students are highly encouraged not to miss any class sessions due to the complex class material to be presented. No make-up work, points, quizzes, or exams will be granted unless official written documentation is presented in a timely manner. No more than three “excused” absences will be allowed. Timely manner means at least one week (7 days) in advance for non-emergency related absences. Emergencies will require proper written documentation.

6.3. Submitting Tests, Quizzes, Class Assignments, and Extra Credit Assignments

All submissions are to be made in person during class or, when instructed, via e-mail to [dgguzman@utep.edu](mailto:dgguzman@utep.edu). For electronic submissions, students will be responsible to verify that the correct e-mail address is being used and that no submission stayed on the “outbox,” drafts, or “not sent” trays. All electronic submissions are to be made in PDF format.

Students are responsible to allocate the required time needed to complete each test, quiz, class assignment, and extra credit on time and before the due date/time, no late work will be accepted. Students are also responsible to check all submissions for completeness & accuracy prior submission.

For every online submission, students are to label all files as follows:

**StudentFirstName\_StudentLastName\_Assignmenttype.pdf**

Examples:

**David\_Guzman\_Exam1.pdf**

**David\_Guzman\_ExtraCredit1.pdf**

**David\_Guzman\_Assignment1.pdf**

**David\_Guzman\_Quiz1.pdf**

#### 6.4. Course Drop Deadline:

The deadline to drop this course with an automatic W is **March 30<sup>th</sup>, 2023.**

#### 6.5. Cellphone & Laptops:

Electronic devices will be allowed during class, however any student that is using this technology for activities other than those related to the class will be asked to leave the classroom. This includes social media and any other activity that goes against any official school policy.

#### 6.6. Food and Drinks:

Any non-alcoholic drink will be allowed in class. No food will be allowed during class.

#### 6.7. General Class Behavior:

I reserve the right to refuse service... this will be based in dishonest, disruptive, illegal, or unethical behavior. Any student in violation of the university's code of conduct or laws will be directed to the appropriate university authorities.

#### 6.8. Academic Dishonesty:

"Any student who commits an act of academic dishonesty is subject to discipline. Academic dishonesty includes, and is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, and any act designed to give unfair advantage to a student or the attempt to commit such acts. Proven violations of the detailed regulations, as printed in the *Handbook of Operating Procedures (HOP)*, and available in the Office of Student Life and on the homepage of the Office of Student Life at [www.utep.edu/dos](http://www.utep.edu/dos), can result in sanctions ranging from disciplinary probation, to a failing grade on the work in question, to a failing grade in the course, to suspension or dismissal, among others."

#### 6.9. Accommodations under ADA (as applicable for online class):

If you feel you may have a disability that requires special accommodations please contact the Disabled Student Services Office at (915) 747-5148, go to room 106E Union, or e-mail [dss@utep.edu](mailto:dss@utep.edu).

## COVID-19 Precautions:

Please stay home if you have been diagnosed with COVID-19 or are experiencing COVID-19 symptoms. If you are feeling unwell, please let me know as soon as possible, so that we can work on appropriate accommodations. If you have tested positive for COVID-19, you are encouraged to report your results to [covidaction@utep.edu](mailto:covidaction@utep.edu), so that the Dean of Students Office can provide you with support and help with communication with your professors. The Student Health Center is equipped to provide COVID 19 testing.

The Center for Disease Control and Prevention recommends that people in areas of substantial or high COVID-19 transmission wear face masks when indoors in groups of people. The best way that Miners can take care of Miners is to get the vaccine. If you still need the vaccine, it is widely available in the El Paso area, and will be available at no charge on campus during the first week of classes. For more information about the current rates, testing, and vaccinations, please visit [epstrong.org](http://epstrong.org)

