

General Class Information

Welcome! My name is Paul Ortmann, and I am your instructor. I am a Principal Electrical Engineer with Idaho Power Company, and my specialty is Power Quality. I earned a Master of Engineering degree in Electrical Engineering from the University of Idaho through the Engineering Outreach program in 1999. I have been an Electrical Engineer since 1991 and I am a licensed Professional Electrical Engineer in Idaho.

Instructor contact information:

Email: portmann@uidaho.edu (The most reliable way to contact me during the course.)

Phone: (208)316-1520 (during office hours, or at other times by prior arrangement)

Office Hours: Monday and Thursday, 7:30 p.m. to 9:00 p.m., Mountain Time.

Course overview and goals:

My primary goal for this class is that you get a well-rounded introduction to power quality engineering, with enough depth and breadth to prepare you to be a reliable source of power quality information and solutions in your engineering career.

My specific goals are that you will:

1. Learn to identify and classify power quality disturbances and their causes and describe their impact on electrical equipment.
2. Become familiar with the applicable US and international codes and standards as well as the terminology used in power quality engineering.
3. Become familiar with the hardware and software tools available for use in power quality investigations.
4. Learn to plan a power quality investigation, investigate electrical systems, examine recorded data, and diagnose specific power quality problems.
5. Be able to recommend appropriate mitigation for power quality problems in proposed or existing designs.
6. Gain experience discussing power quality problems and presenting your written findings and recommendations to non-electrical audiences.

The UI catalog does not list any mandatory prerequisites for this course; however, students are expected to be familiar with basic power system calculations including balanced and unbalanced three-phase systems. Depending on a student's academic and work experience, some independent study may be required.

Course Logistics:**Lectures:**

This class is taught from Twin Falls, Idaho. The class is delivered by videoconference to Moscow, Idaho for on-campus students and is recorded there for Engineering Outreach students. "Live" classes will be Tuesday and Thursday, 3:30 p.m. to 4:45 p.m. Pacific Time. Note – classes may occasionally be pre-recorded to accommodate your instructor's schedule.

Email:

Some free email services and some employer email systems have caused mail delivery problems in the past. Please use your uidaho.edu email address provided by the University for all email correspondence and use descriptive subject lines.

The course website:

<https://webpages.uidaho.edu/ece/ee/power/ECE528/> (this URL may change)

I will post class handouts, homework and exam FAQs, supplementary material, and links to other Power Quality information on this site. Most documents will be available in adobe acrobat format (.pdf). Some spreadsheets and Mathcad-Prime files may also be available in their native formats to make it easier for students to experiment with these files.

Submitting your work and getting solutions:

Homework and exams completed outside the classroom should be prepared using a word processor, Mathcad-Prime, or other applicable software. You may consult additional technical resources, including other people, to increase your understanding of the material when completing assignments outside the classroom. However, you must cite these information sources in the work you turn in. See the Grading Summary for more information on this. All assignments and exams must be submitted through the course Canvas site which will automatically timestamp your assignment. Electronic homework submissions should be in Adobe Acrobat (.pdf), Mathcad-Prime (.mcdx), or Excel (.xlsx) format or some combination of these depending on the assignment.

Please use the following filename structure on your assignments:

Lastname_First initial_assignment description.ext Example: Tesla_N_ECE528-HW1.pdf

Your filenames should allow me to determine 1) who the file is from, 2) what it contains, and 3) the file format, all without opening the file. When converting files to .pdf, please test your files after creating them. Files that cannot be opened in the software associated with their file extension will be counted as missing assignments until a functional version is submitted. To the extent practicable, please only submit one file per assignment, or name your files so they'll appear together when sorted by name.

Example: Tesla_N_ECE528-HW1a.xmcd
 Tesla_N_ECE528-HW1b.xlsx

You will be able to download complete solutions for the homework and exams from the course Canvas site after the due date and after I verify that you have submitted the assignment.

For Engineering Outreach students:

This is not a self-paced course. Your due dates on all assignments are the same as those for on-campus students. Lectures should be available for streaming and download within a few hours of the live session.

This is not a safety class:

Power quality engineering often involves the use of electrical measurement and monitoring instruments on energized electrical power systems. This work is inherently dangerous. Specific safety training and supervised practice with the proper personal protective equipment is necessary before an individual can be considered qualified to safely use electrical instruments on energized systems. This class is not intended to provide this training and will not prepare you to use electrical instruments on energized electrical systems.

Software:

I use Mathcad-Prime and Excel extensively as well as some specialized software packages for viewing and analyzing recorded power quality data. Students are strongly encouraged to use Mathcad-Prime for their engineering calculations. I post solutions in PDF and Mathcad-Prime format. A student license for Mathcad-Prime including e-learning is available online at: <https://www.ptc.com/en/store/mathcad/ptc-mathcad-prime-8-student> The price as of January 2023 was \$63 USD for a 1-year student license.

I hope you enjoy this class.
Paul Ortmann, P.E.