Syllabus for Electronics

PH 411/511

Course Name: Electronics
Course Number: PH 411/511
Course Credits: 3
Prerequisites: PH 213

Course Catalog Description

This course will cover how to build and analyze basic circuits. Topics include passive dc and ac circuits including filters, complex impedance, Fourier analysis, operational amplifiers, semiconductor diodes, and transistors.

Student Learning Outcomes

Students shall be able to:

- Use lab equipment such as multimeters, power supplies, and oscilloscopes.
- Build and test a circuit based on a description of that circuit.
- Analyze the behavior of a circuit involving linear elements, transistors, diodes, and op amps.
- Analyze circuit response to fixed-frequency input, including complex impedance, and qualitatively reason about the effect of high- and low-pass filters on other signals.

Graduate students shall in addition to the above be able to:

- Develop a new experiment that either measures additional properties of a circuit, or designs and tests a new circuit.

Course Content

- Introduction to lab equipment
- Circuit analysis
- RL and RC circuits
- Signals in time and frequency domains
- Transistors and op amps
Learning resources

Required textbooks:

- *Learning the Art of Electronics: A Hands-On Lab Course*
  by Hayes and Horowitz

Evaluation of Student Performance

Students will be graded on daily lab work and lab reports.

Statement Regarding Students with Disabilities

Accommodations for students with disabilities are determined and approved by Disability Access Services (DAS). If you, as a student, believe you are eligible for accommodations but have not obtained approval please contact DAS immediately at 541-737-4098 or at [http://ds.oregonstate.edu](http://ds.oregonstate.edu). DAS notifies students and faculty members of approved academic accommodations and coordinates implementation of those accommodations. While not required, students and faculty members are encouraged to discuss details of the implementation of individual accommodations.

Link to Statement of Expectations for Student Conduct

[http://oregonstate.edu/studentconduct/offenses-0](http://oregonstate.edu/studentconduct/offenses-0)