Objective

The primary objective of this course is to continue the study of basic electronic circuits employing semiconductor devices that was begun in ELEC 350. The topics covered include basic analog amplifiers, discrete differential amplifiers, frequency response, feedback and stability, and power amplifiers (Outcome a). The course also exposes students to analysis and design issues often encountered by electrical engineers in professional practice.

The outcome specified above refers to ABET Criterion 3, Student Outcomes, for accrediting college/university engineering programs:
(a) an ability to apply knowledge of mathematics, science, and engineering.

Textbook


Web Site

http://www.facstaff.bucknell.edu/dkelley/elec351/

Prerequisite

ELEC 350 or permission of the instructor

Instructor

Prof. David F. Kelley, Breakiron 368, 577-1313, dkelley@bucknell.edu; office hours TBA

Communication

Check your e-mail and the course web site at least once per day. Most announcements, assignments, study aids, and other course materials will be distributed only via the web site or Moodle. E-mail will be used occasionally to distribute time-sensitive announcements. You are responsible for knowing and adhering to any policies posted at the web site.

Academic Responsibility

You are expected to comply fully with the university's academic responsibility policies. Copying solutions, looking over a classmate’s completed solutions, and other forms of plagiarism are not acceptable. I expect all submitted problem solutions to be your own work. Lab or team exercises, if applicable, should be your group’s own work. General discussion of solution techniques is okay, but sharing step-by-step instructions for solving a problem, sharing computer files, and direct copying are not. Please refer to the “Academic Responsibility at Bucknell” web site (www.bucknell.edu/x1324.xml) or see the instructor if this is not clear.

Bucknell University Honor Code

As a student and citizen of the Bucknell University community:
1. I will not lie, cheat, or steal in my academic endeavors.
2. I will forthrightly oppose each and every instance of academic dishonesty.
3. I will let my conscience guide my decision to communicate directly with any person or persons I believe to have been dishonest in academic work.
4. I will let my conscience guide my decision on reporting breaches of academic integrity to the appropriate faculty or deans.

Grading Policy

Your final course grade will be computed as shown below, although your weighted exam average must be greater than 50 out of 100 points in order for you to pass the course. Significant extra credit opportunities are not likely to be provided. Exam dates will be posted at the course web site.

Special Lecture(s) 1% Incorporated into Professional Conduct if not needed
Professional Conduct 4%
Laboratory 15%
Homework 15% Lowest score will be dropped
Two Exams 20% + 20% Lowest of three scores weighted less than the other two
One Exam 5%
Final Exam 20%

Exam scores will not be discussed until a 24-hour “cooling off” period has passed, unless points have been added incorrectly to obtain an overall score. An absolute scale with the following distribution will be used to determine your final course grade.
Conflicts and Special Accommodations

If you know that you will not be able to complete an assignment by its deadline or take an exam at its scheduled time, you must notify the instructor at least 48 hours in advance in order to avoid an automatic 5% grade penalty on the assignment, except in extraordinary cases. Official university commitments such as recitals and athletic events will normally be accommodated, as will interviews and extraordinary personal opportunities. However, in accordance with university policy, personal travel plans under your control will not be accommodated.

If you unexpectedly miss an exam or a major deadline or in-class activity due to illness, you must contact the instructor immediately, preferably before class time, and then go to Student Health Services for an evaluation. If a physician confirms the seriousness of your illness, your absence will be excused. In the case of an exam, a make-up opportunity will be arranged.

Unexcused absences or missed deadlines (e.g., due to oversleeping) will be handled on a case-by-case basis, usually in consultation with the Associate Dean. If you miss all or part of an exam, you must notify the instructor or Judy Harris as soon as possible. The mostly likely outcome is that the missed exam will be the one that is given the least weight. Students arriving late to an exam must complete it in the time remaining. Any additional unexcused absences or missed deadlines beyond the first one will most likely result in a grade of zero for the assignment. Additional policies might be posted at the course web site. You are responsible for knowing and adhering to any posted policies.

If you need to request a special accommodation due to a medical condition or a documented learning disability, please contact the Associate Dean as soon as possible.

Homework Policy

The primary purpose of homework is to help you master the concepts presented in the course. It is acceptable to work on homework in groups and to help each other understand the material within the scope of the “Academic Responsibility” section above. However, the less you rely on a study group to complete your assignments, the more effectively you are likely to learn the material.

Homework must be submitted by the indicated deadline. Place your name, the course number (ELEC 351), the homework number, and the page number at the top of each page, and staple all pages together. Where appropriate, clearly mark your answers by enclosing them in boxes. Use only one side of the paper, and trim the fringe pieces if you use paper torn from a spiral notebook. Lack of compliance with one or more of these requirements could result in a grade penalty. You are not required to submit your homework on green “engineering paper.” Sloppy or unreadable homework is unacceptable and could result in a grade of zero. A subset of the problems might be selected for grading if the homework grader has limited time. Assignments will be posted at the course web site, and solutions will be posted at the course Moodle site. It is your responsibility to obtain each homework assignment.

A 20% grade penalty will be imposed for homework submitted up to 24 hours after the deadline, a 50% penalty 24-48 hours after the deadline, and no credit will be given thereafter. No homework will be accepted, regardless of when it is submitted, after the solutions have been posted; this supersedes the 24 and 48-hour partial credit allowances. Forgotten homework will be accepted without penalty if it is submitted as soon as possible without missing other classes or labs. Other exceptions will be made only in the most extreme circumstances.

Laboratory Policies

Policies and requirements for the laboratory portion of the course will be distributed during the first meeting of the laboratory section.
Professional Conduct
Everyone in the classroom must act in a professional manner. Distractions that prevent your classmates from concentrating on instructional activities will not be tolerated. These include reading newspapers or other noisy print media, browsing the web, texting messages, disruptive eating, excessive talking, chronic tardiness, and other inappropriate behavior. Smart/cell phones, laptops, and other electronic devices other than non-wireless calculators may not be used in class without prior permission. You should not leave the classroom except for emergency illness. Since part of the educational mission of Bucknell is to prepare you for professional practice, conduct in the classroom comprises a portion of your course grade. You should act in the classroom as you would in an engineering staff meeting. If you have a valid reason for being late every day, please notify the instructor as soon as possible.

Recipe for Success
Many students find electronics to be a challenging subject; hence, you will most likely have to devote considerable time and energy to this course. Homework assignments will sometimes cover material discussed in class as little as 2-3 days before the due date, since it will be assumed that you have completed the assigned reading before coming to class. Start work on individual homework problems as soon as you understand how to solve them.

Time spent on coursework outside of class will be guided by the Bucknell University expectations for academic engagement: “Courses at Bucknell that receive one unit of academic credit [like ELEC 351] have a minimum expectation of 12 hours per week of student academic engagement. Student academic engagement includes both the hours of direct faculty instruction (or its equivalent) and the hours spent outside of class on student work.” Some weeks the work load could be greater than average, some weeks less, but it should average at least 7 hours per week beyond class and lab time.

Homework and lab work is for your benefit. Your learning and retention will most likely suffer if you do not take advantage of the opportunity to practice solving problems on your own. Choose active studying over passive studying. Instead of simply reading the examples and derivations given in the textbook or in class, work out at least some of them yourself. Your primary concern should be to understand the concepts and solution techniques presented in the course. Valid thought processes leading to problem solutions are more important than arrival at correct numerical answers. If you obtain an answer that does not make sense physically (e.g., an answer that is orders of magnitude too large or too small), you should notice it.

Please see the instructor if you are struggling with any aspect of the course. There might be alternative ways of approaching the course material that will make it more accessible to you. If you think that you might be dealing with test anxiety, you should review the resources available on the Exams page at the course web site. These resources have been prepared by professional counselors and educators and comprise a rich collection of advice for managing test anxiety.