

Bulletin Course Description:

Introduction to the measurement of electrical quantities; instrumentation; basic circuits, their operation and applications; electronic devices; amplifiers, oscillators, power supplies, wave-shaping circuits, and basic switching circuits.

Course Title: Electronics Laboratory A (2 credits)

Fall 2020

Stony Brook University

Department of Electrical & Computer

Engineering College of Engineering and

Applied Sciences Course Instructor: Prof.

Vera Gorfinkel

Prerequisites: ESE 271

Co-requisites: ESE 372

Required textbooks

- D. Johnson et al., “Electric Circuit Analysis”
- D. Neamen, “Microelectronics Circuit Analysis and Design”

ONLINE COURSE FORMAT

1. All the lab sections will be held online using ZOOM meeting platform. The link to the meeting will be posted on the blackboard.
2. All the students should join the ZOOM meeting before 5:55 pm for both Tuesday and Thursday lab sections.
3. Students should finish the prelab before the lab section ZOOM meeting. (*For example, the prelab of lab 3 should be done before the section when we conduct lab 3*).
4. The TA will start playing Lab videos 20 minutes after the beginning of the ZOOM meeting on both Tuesday and Thursday to demonstrate how to conduct each lab in the real lab setting.
5. After playing the video, there will be a Q & A section.
6. The lab section ends after the Q & A sections are completed.
7. The TA will share the data of the lab and post an assignment on the blackboard for students to prepare and submit the lab reports.
8. Every student should submit a report. The report should include the prelab, data processing, calculation and analysis of the lab. Students should not miss the deadline of every assignment.

Course Grading

ITEM	PERCENT
Attendance	10
Midterm	10
Final	20
Lab work (pre-labs + lab reports)	60

Attendance Policy

Late work will not be accepted. Attendance at all exams is mandatory. In the case of:

- Verifiable illness,
- Verifiable family emergency,
- University-sanctioned religious holiday,
- Participation in official University-sponsored events (for documented student athletes)

LECTURES

- Lecture 01 PSPICE introduction
- Lecture 02 Passive circuit elements.
- Lecture 03 Kirchhoff voltage and current laws.
- Lecture 04 Integrating and differentiating circuits.
- Lecture 05 Transfer function.
- Lecture 06 High order circuits Transformer.
- Lecture 07 PN junction.
- Lecture 08 PN Diodes.
- Lecture 09 BJT 1.
- Lecture 10 BJT 2.
- Lecture 11 MIS capacitor and MOSFET.
- Lecture 12 Differential amplifier.
- Lecture 13 Operational amplifier.

LABS

The core of ESE211 is set of laboratory experiments designed for systematic introduction into electronic circuit analysis and design. The weekly lectures cover background for the laboratory experiments. The textbook readings listed in syllabus are to guide you to the relevant sections for each week.

Students will select a laboratory partner at the first meeting of laboratory section. Groups of more than two students are not permitted. Labs will be posted on blackboard one week prior to the lab itself. Each lab posting consists of a prelab assignment that each student must individually complete prior to the lab, and the lab report that is to be submitted at the following week's lab. Lab 1 does not have a prelab.

Lab Section Requirements

- 1) Read the lab manual carefully and finish the prelab before your section.
- 2) Submit your **last lab report** at the beginning of each lab.
- 3) Do not Be Late: TA will not accept last week's lab after 15 mins from the beginning of one lab section. No exceptions.

Lab Report Guidelines

Every laboratory report is written with a particular purpose, and for a particular audience. The content of the report is chosen to fit with its purpose and audience. In ESE 211 the audience is your Professor and T.A., and the purpose is education.

Lab report contents:

- 1) A title page with the number and name of the lab assignment, your name, partner's name, the date the lab was performed, the text "ESE 211" and your section number.
- 2) A brief introduction. Each lab has one or more important ideas that we are trying to present. In the introduction, you should briefly mention what the important ideas from that lab are.
- 3) A discussion of experiment data and results.
 - *This section should contain all of the graphs and calculations, as well as the answers to the questions posed in the lab assignment.*
 - *Organize and summarize your data and results clearly and neatly in the order of experiment tasks. Messy organization may lose points.*
 - *Correct units must be used in your discussion, calculations, and graphs.*
 - *Graphs must be drawn with instruments or on a computer, and explained.*
 - *Data points must be marked.*
- 4) A brief conclusion. Explain how the data supports (or does't support) the main idea of the lab.
- 5) A copy of your data sheets with TA's signature. (Data sheet cannot serve as the summary of your experimental results.)
- 6) Any required PSPICE results.

GRADING

- Lab reports are graded on a 10-point scale including 2-3 points for pre-lab assignment.
- For simulation labs, each student should submit one lab report individually. For experimental lab, each group should submit one lab report with individual pre-labs for each student.

CLASS RESOURCES

Blackboard (<http://blackboard.stonybrook.edu>) will be used as the primary means of

distribution for readings from the primary literature and submission of assignments.

If you have a physical, psychological, medical or learning disability that may impact your course work, please contact Disability Support Services, ECC (Educational Communications Center) Building, room 128, (631) 632-6748. They will determine with you what accommodations, if any, are necessary and appropriate. All information and documentation is confidential.

Students who require assistance during emergency evacuation are encouraged to discuss their needs with their professors and Disability Support Services. For procedures and information go to the following website: <http://www.stonybrook.edu/ehs/fire/disabilities>]

Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Faculty are required to report any suspected instances of academic dishonesty to the Academic Judiciary. Faculty in the Health Sciences Center (School of Health Technology & Management, Nursing, Social Welfare, Dental Medicine) and School of Medicine are required to follow their school-specific procedures. For more comprehensive information on academic integrity, including categories of academic dishonesty, please refer to the academic judiciary website at <http://www.stonybrook.edu/uaa/academicjudiciary/>

Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of Judicial Affairs any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn. Faculty in the HSC Schools and the School of Medicine are required to follow their school-specific procedures.