

ELECTRICAL CIRCUIT ANALYSIS – ESE271
SPRING 2024

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LECTURE:

Tuesday and Thursday 11:30 am to 12:50 pm, in Frey Hall 313

OFFICE HOURS:

Tuesday and Thursday 9:00 am – 11:00 am

COURSE WEBSITE:

The course is registered with the [Blackboard](#)

TEXTBOOK:

Fundamentals of Electric Circuits, 6th edition. Charles K. Alexander and Matthew N.O. Sadiku, McGraw Hill (2017) 10: 0078028221

GRADING POLICY:

The course grade will be calculated using the following weights:

Test 1	20%
Test 2	20%
Comprehensive Final	60%

HOMEWORK:

Homework will be assigned on a regular basis but NOT graded for credit. However, it will be collected and evaluated for common misunderstandings. You are strongly advised to do the homework assignments by the specified time.

TEST POLICY:

- All tests will be **Closed book**.
- Student photo ID must be available for inspection.
- NO make-up tests.
- Zero tolerance for academic dishonesty.

TEST SCHEDULE: Test dates are subject to change.

Test 1	Feb 15: 11:30 am 12:50 pm
Test 2	April 2: 11:30 am to 12:50 pm
Final - cumulative	May 14: 11:15 am to 1:45 pm

The University Senate Undergraduate and Graduate Councils have authorized that the following required statements appear in all teaching syllabi (graduate and undergraduate courses) on the Stony Brook Campus:

Student Accessibility Support Center Statement

If you have a physical, psychological, medical, or learning disability that may impact your course work, please contact the Student Accessibility Support Center, Stony Brook Union Suite 107, (631) 632-6748, or at sasc@stonybrook.edu. They will determine with you what accommodations are necessary and appropriate. All information and documentation is confidential.

Academic Integrity Statement

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 is 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/commcms/academic_integrity/index.html

Critical Incident Management

Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of University Community Standards 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. Further information about most academic matters can be found in the Undergraduate Bulletin, the Undergraduate Class Schedule, and the Faculty-Employee Handbook.

Weekly lecture topics:

Week 1	Lec #1	Basic concepts: current, voltage, power
	Lec #2	Resistor, Ohm's law, Kirchhoff's laws
Week 2	Lec #3	Nodal and Mesh analysis
	Lec #4	Circuit theorems
Week 3	Lec #5	Dependent sources and operational amplifiers
	Lec #6	Circuits with operational amplifiers
Week 4	Lec #7	Material review
	Test 1	Chapters 1 to 5
Week 5	Lec #8	Capacitors
	Lec #9	Inductors
Week 6	Lec #10	First order RC and RL circuits
	Lec #11	Second order RLC circuits
Week 7	Lec #12	Second order RLC circuits
	Lec #13	AC circuits, sinusoids and phasors, impedance, RLC circuits
Week 8		Spring recess
Week 9	Lec #14	AC steady state, nodal and mesh analysis
	Lec #15	AC steady state, nodal and mesh analysis
Week 10	Lec #16	AC power analysis, complex power
	Lec #17	Material review for Test 2
Week 11	Test 2	Chapters 6 - 11
	Lec #18	Introduction to three phase circuits
Week 12	Lec #19	Magnetically coupled circuits, transformers
	Lec #20	Frequency response function, Bode plots
Week 13	Lec #21	Resonant filters
	Lec #22	Laplace Transform - definition
Week 14	Lec #23	Laplace Transform - properties
	Lec #24	Laplace Transform - application for circuit analysis
Week 15	Lec #25	Circuits in s-domain, transfer functions
	Lec #26	Step and impulse response. Poles. Stable circuits.
Week 16	May 14	Cumulative final, location TBA
	11:15 am to 1:45 pm	