Instructor:	Anna Swan (office: PHO 828, email: swan@bu.edu)
Lecture:	Tue/Th 1:30-3:15 PHO 211
Office hours:	Tue 3:30-4:30 pm, Office or West side 8th floor
	Sun 5-6 pm Zoom
	Additional office hours will be arranged either by appointment or based on needs as the semester continues.
Lab instructor:	Vladimir Kleptsyn, vklep@bu.edu
Teaching assistants:	Anthony Manni, admanni@bu.edu Maliheh Azimi Roueini, mazimi@bu.edu
	Yi Shen, yishen@bu.edu; See BB for recitation and lab schedule

Course Websites:
For EK 307 Lecture and Lab course material, use Blackboard sites https://learn.bu.edu
For discussion and questions, use Piazza. Sign-up link and Piazza class link

Textbook:
Alexander and Sadiku, *Fundamentals of Electric Circuits, 7th Edition,* McGraw Hill, 2021. **This text is available in electronic form on Blackboard** under "Course mtrl (B&N First Day)". You can opt out of using the electronic material on or before 2/10. If you use the BB link, your student account will be charged $48.75 in early March.
FAQs: https://tinyurl.com/firstdayfaq
Open a ticket Online for the Customer Care team: https://tinyurl.com/customercarerequest
Email the Customer Care team: bookstorecustomercare@bncollege.com
Call the Customer Care team: 1-844-9-EBOOKS (1-844-932-6657)

There is also a free textbook available, with material organized in a similar fashion:
https://services.publishing.umich.edu/publications/ee/#circuit-analysis

Course Description:
EK307 includes a coordinated set of lectures, labs, homework, and exams that introduces electric circuit analysis and design; voltage, current, and power, circuit laws and theorems; element I-V curves, linear and nonlinear circuit concepts; operational amplifier circuits; transient response of capacitor and inductor circuits, sinusoidal-steady-state response, frequency response, transfer functions. Lab sessions meet in PHO105 where students will perform circuit experiments using components and a breadboard. Students will have weekly discussion times with TAs to discuss course material and get help with homework and exam preparation in addition to office hours. Prerequisite: CAS PY 211 or PY 251, Corequisite: CAS MA 226.

STUDENT CENTERED POLICY AND SUPPORT

Accommodations for Students with Documented Disabilities:
> If you are a student with a disability or believe you might have a disability that requires accommodations, requests for accommodations must be made in a timely fashion to Disability & Access Services, 25 Buick St, Suite 300, Boston, MA 02215; 617-353-3658 (Voice/TTY). Students seeking academic accommodations must submit appropriate medical documentation and comply with the established policies and procedures http://www.bu.edu/disability/accommodations/

Behavioral and Mental Health:
> Nearly two thirds of BU students say that their mental health struggles have impacted their academic performance. I would strongly encourage to reach out to me if you find

yourself struggling with the topics. In addition, there are other campus resources available to navigate issues around behavioral and mental health including:
- Behavioral Medicine (617) 353-3569
- Center for Psychiatric Rehabilitation (617) 353-3549
- The Danielsen Institute (617) 353 – 3047
- SARP (617) 353 – 7277
- 24/7 on-call service for mental health emergencies (617) 353-3569

Inclusion: I consider this classroom to be a place where you will be treated with respect, and I welcome individuals of all ages, backgrounds, beliefs, ethnicities, genders, gender identities, gender expressions, national origins, religious affiliations, sexual orientations – and other visible and nonvisible differences. All members of this class are expected to contribute to a respectful, welcoming and inclusive environment for every other member of the class.

LEARNING

Lecture: Attendance at lecture is expected but not required. Lectures will focus on connecting concepts to problem solving. The lectures will include material not covered in the textbook, but important for exams and homework.
Your active participation (problem solving, asking questions, discussions) are strongly encouraged. All members of this class are expected to contribute to a respectful, welcoming and inclusive environment for every other member of the class. Let's try to get to know each other.

Discussion Sections:
Discussion sessions are offered throughout the week (see Blackboard for full schedule). You are welcome to attend any session that fits your schedule. The discussions sections are problem solving sessions, where you will have the opportunity to work with the TAs and your classmates on homework and lecture problems, and discuss course concepts.

Labs: Lab information will be posted on a separate dedicated Blackboard site (learn.bu.edu). Everyone should have ordered their individual lab kits online. You are expected to bring those to each lab session. The labs are a **required** part of EK307. You are required to **complete all labs by the assigned deadlines to receive a passing grade in this course, regardless of performance on exams and homework.** The lab grade is based on demonstrating your circuits to the lab TA staff and completing lab worksheets. More information will be given at your first lab session.

Homework: Homework sets will be distributed approximately weekly, and you will submit via scan and upload to Blackboard. Please see the Homework Link on Blackboard for details. Late homework will not be accepted. Lowest 2 HW grades will be dropped.

Collaboration on Homework:
Learning takes place in many ways and is different for all students. You are encouraged to collaborate on homework, however each of you needs to submit your own original work. You are not allowed to copy someone else's answers. All students must comply with the University's Universal Academic Conduct Code: http://www.bu.edu/academics/resources/academic-conduct-code/.

Generative AI tools:

You may use AI to help test you on concepts, seek more explanations etc. You can also use AI to help you find topics for Piazza. In such case, acknowledge AI as a source (as all sources you use).   You are not allowed to use such tools for evaluation, such as for homework or exams.

EVALUATION AND GRADING

Exams: The exams will be closed book, closed notes. There will be two midterm exams and a Final. **The midterm exams will be given during lecture on February 20 and April 3.** *Do not make any plans to be away from BU on these dates!*

Missed Exam Policy:

Absence from an exam can be excused only for reasons as stipulated by BU's academic policies, such as illness, or family emergency. Permission of the instructor in advance is required. Please be aware that special or makeup examinations will not be scheduled to accommodate a student's travel plans.
https://www.bu.edu/academics/eng/policies/undergraduate-policies/examinations/

Labs: Lab information will be posted on a separate dedicated Blackboard site (learn.bu.edu). Everyone should have ordered their individual lab kits online. You are expected to bring those to each lab session.   The labs are a **required** part of EK307. You are required to **complete all labs by the assigned deadlines to receive a passing grade in this course, regardless of performance on exams and homework.** The lab grade is based on demonstrating your circuits to the lab TA staff and completing lab worksheets. More information will be given at your first lab session.

Grading:

Homework	10%
Labs	20%
Mid-term Exam I	20%
Mid-term Exam II	20%
Final Exam	30%

BU Policy on Grade grievance

Lecture Schedule, EK 307 (A1), Spring 2025 (tentative)

L #	Month	Date	Topic	Alexander & Sadiku	HW
1	Jan	T -21	Intro, System of Units Charge, Current and Voltage; Power and Energy Basic Circuit Elements	Ch 1	
2		Th-23	Ohm's law; KVL, KCL, Dependent sources	1.6, 2.1-2.4	
3		T-28	Resistors in Series-voltage division. Resistors in parallel-current division	2.5-2.6, 2.8-2.9	HW 1
4		Th-30	Node-Voltage Method Solving circuits with linear algebra	3.1-3.3, 3.6	
5	Feb	T-4	Transistor model and dependent sources, Linearity, superposition	3.9-3.10	HW 2
6		Th-6	Linearity, superposition, source transformation Thevenin & Norton circuits, Part I	4.1-4.5	
		M-10	Opt-out deadline for textbook on BB		
7		T-11	Thevenin & Norton circuits, Part II Maximum Power Transfer	4.6 - 4.8, 4.10, 4.11	HW 3
8		Th-13	Intro op-amps: Inverting and non-inverting amplifiers, MT 1 Review	5.1-5.5	
		T-18	Monday schedule		HW 4
9		**Th-20**	**MT 1 (Lecture 1-7)**	**Ch 1-4**	**HW1- 4**
		T 25	**LAST DAY TO DROP CLASSES (**_without_ **a"W" Grade)**		
10		T-25	Op-amp circuits: Follower, Summing and Difference Amplifiers.	5.6 -5.8	
11		Th-27	Introduction to binary numbers D/A conversion, Instrumentation amplifier	5.10, 5.11	HW 5
12	March	T-4	Introduction to Capacitors, Inductors; Op-amp examples	Ch 6	
13		Th-6	Intro to first order circuits: source free RL and RC circuits	7.1-7.3	HW 6
		T-11	Spring break, 3/8-3/16		
14		T-18	Singularity Functions Step response of RL and RC circuits	7.4-7.6	
15		Th-20	First order op-amp circuits	7.7, 7.9-7.10	HW 7
16		T-25	Intro to second order circuits Series/parallel RLC circuits	8.1-8.4	
17		Th-27	RLC circuits, step response, Initial and Final conditions for RLC circuits	8.5-8.8, 8.11, 8.12	HW 8
18	April	T-1	Sinusoidal steady state and phasors, Exam Review	9.1 – 9.4	
19		Th-3	**MT 2 (lecture 8-17)**	**Ch 5-8**	**HW 5-8**
		F-4	**LAST DAY TO DROP CLASSES (with a"W" Grade)**		
20		T-8	Impedance and admittance	9.5-9.9	
21		Th-10	Circuit analysis with phasors: KVL, KCL, Thevenin, Norton.	10.1-2, 10.4-7, 10.9-10,	HW 9
22		T-15	AC Power Analysis: instantaneous vs. average, RMS	11.1-11.4	
23		Th-17	Intro to frequency analysis. Transfer Functions, Decibel and Bode plots	14.1-14.4	HW 10
24		T-22	Passive filters (high pass, low pass, band pass), Resonance	14.5-14.7	
25		Th-23	Active Filters: Analysis	14.8	HW 11
26		T-29	Active Filters: Analysis, Design, Applications;	14.12	
27	May	Th-1	Exam review		
		TBD	**FINAL EXAM (Entire course, emphasis on lectures 18-27)**		