University of Portland (UP)
School of Engineering

EE 261 – Electrical Circuits – 3 cr. hrs.
Fall 2018
Tentative Course Outline Sheet

Course description: Circuit elements and concepts. Ohm's and Kirchhoff's laws. Simple resistive circuits. Review of matrix algebra. Node voltage method using matrix equations. Superposition. Thevenin and Norton equivalent circuits. Maximum power transfer theorem. Capacitance and inductance. Natural and step response of first- and second-order circuits. Sinusoidal steady-state circuits. PSPICE is incorporated as a simulation software.

Student outcomes: At the successful completion of this course, the student is expected to gain the following skills:

- Become familiar with basic elements of circuits (such as resistors, capacitors, inductors, voltage and current sources, etc.) and their mathematical models;
- Learn and apply the basic laws (such as Ohm's law, Kirchhoff's laws, node voltage method, superposition, the concept of source transformation, Thévenin and Norton equivalent circuits, maximum power transfer theorem, etc.);
- Analyze an electric circuit and be able to calculate voltage values, current values, power dissipation, etc.;
- Analyze and design basic op-amp circuits;
- Find the response of 1st and 2nd –order switching circuits;
- Find the unit-step response of 1st and 2nd –order circuits; and
- Find the steady-state response of ac circuits.

Instructor: Aziz S. Inan, Ph.D.
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Personal website: http://faculty.up.edu/ainan/

Office hours: M 14:30-16:30; W 14:30-16:30; F 14:30-15:30

Lecture hours: MWF 13:35-14:30 (Location: SH 101)

Textbook: *Introduction to Electric Circuits* by Dorf & Svoboda
(9th ed., John Wiley & Sons, ISBN 978-1-118-47750-2, 2014)

Co-requisites: EE 271, MTH 202, and PHY 205

Course content: Overview of circuit analysis (Chapter 1)
Circuit elements, concepts, Ohm's law (Chapter 2)
Kirchhoff's laws and resistive circuits (Chapter 3)
Node voltage and mesh current analyses (Chapter 4)
Circuit theorems (Chapter 5)
Capacitors and inductors (Chapter 7)
Response of first-order switching dc circuits (Chapter 8)
Response of second-order switching dc circuits (Chapter 9)
Sinusoidal steady-state (ac) circuits (Chapter 10)

Grading policy: The total numerical grade is computed based on the following percentages:

- 20% for homework
- 50% for the two midterm exams (25% each) and
- 30% for the final exam

The final letter grade in the course is assigned based on the following total numerical grade intervals out of a total of 100 points:

90–100	A^--A	(Excellent Performance)
80–89	B^--B^+	(Good Performance)
70–79	C^--C^+	(Average Performance)
60–69	D^--D^+	(Poor Performance)
<60	F	(Inadequate Performance)

Typically, the average of the total numerical grades is B^-.

Exam Dates: The exam dates are tentatively set as follows:

Midterm #1–Friday, October 5, 2018
Midterm #2–Friday, November 16, 2018
Final Exam*–Monday, December 10, 2018, 8:00-10:00
*Comprehensive and mandatory for all the students.

N☺-class Dates: Monday-Friday, October 15 through 19, 2018 (Fall Break)
Thursday & Friday, November 22 & 23, 2018 (Thanksgiving Break)

Homework: Weekly homework will be assigned. Solutions for each homework assignment will be provided on the due date. Homework assignments are mandatory, that is, every student is expected to do the homework assignments on time to qualify for consideration to receive a passing grade in the course.
Sorry, but, no late homeworks will be accepted!!☹
Therefore, no late homeworks will be expected!!☺

Laboratory: EE 271–Electrical Circuits Laboratory is a co-requisite for EE 261. In this laboratory, the students will learn to build, test, and take measurements on real simple electric circuits. The EE 271 laboratory compliments the theory of circuits taught in EE 261 with hands-on practical experience.

University of Portland's Code of Academic Integrity:
Academic integrity is openness and honesty in all scholarly endeavors. The University of Portland is a scholarly community dedicated to the discovery, investigation, and dissemination of truth, and to the development of the whole person. Membership in this community is a privilege, requiring each person to practice academic integrity at its highest level, while expecting and promoting the same in others. Breaches of academic integrity will not be tolerated and will be addressed by the community with all due gravity.

University of Portland's Assessment Disclosure Statement:
Student work products for this course may be used by the University for educational quality assurance purposes.

University of Portland's Accessibilty Statement:
The University of Portland endeavors to make its courses and services fully accessible to all students. Students are encouraged to discuss with their instructors what might be most helpful in enabling them to meet the learning goals of the course. Students who experience a disability are also encouraged to use the services of the Office for Accessible Education Services (AES), located in the Shepard Academic Resource Center (503-943-8985). If you have an AES Accommodation Plan, you should make an appointment to meet with your faculty member to discuss how to implement your plan in this class. Requests for alternate location for exams and/or extended exam time should, where possible, be made two weeks in advance of an exam, and must be made at least one week in advance of an exam. Also, you should meet with your faculty member to discuss emergency medical information or how best to ensure your safe evacuation from the building in case of fire or other emergency.

University of Portland's Mental Health Statement:
As a college student, you may sometimes experience problems with your mental health that interfere with academic experiences and negatively impact daily life. If you or someone you know experiences mental health challenges at UP, please contact the University of Portland Health and Counseling Center in Orrico Hall (down the hill from Franz Hall and Mehling Hall) at https://www.up.edu/healthcenter/ or at 503-943-7134. Their services are free and confidential, and if necessary they can provide same day appointments. Also know that the University of Portland Public Safety Department (503-943-4444) has personnel trained to respond sensitively to mental health emergencies at all

hours. Remember that getting help is a smart and courageous thing to do – for yourself, for those you care about, and for those who care about you.

University of Portland's Non-Violence Statement:
The University of Portland is committed to fostering a community free from all forms of violence in which all members feel safe and respected. Violence of any kind, and in particular acts of power-based personal violence, are inconsistent with our mission. Together, we take a stand against violence. Join us in learning more about campus and community resources and reporting options, along with our prevention strategy, Green Dot on our Community Against Violence website, www.up.edu/cav.

University of Portland's Ethics of Information Statement:
The University of Portland is a community dedicated to the investigation and discovery of processes for thinking ethically and encouraging the development of ethical reasoning in the formation of the whole person. Using information ethically, as an element in open and honest scholarly endeavors, involves moral reasoning to determine the right way to access, create, distribute, and employ information including: considerations of intellectual property rights, fair use, information bias, censorship, and privacy. More information can be found in the Clark Library's guide to the Ethical Use of Information at libguides.up.edu/ethicaluse

The Learning Commons:
The Learning Commons, located in Buckley Center 163, offers a variety of peer tutoring programs that facilitate your active learning and mastery of skills and knowledge. For questions about the Learning Commons, please send all correspondence to Jeffrey White, Administrator, at white@up.edu. The Learning Commons is a program of the Shepard Academic Resource Center.
Math Resource Center: Monday through Thursday, 6:00 p.m. through 9:00 p.m. during the first week of classes. Regular shifts begin the Sunday after the first week. For a course-specific schedule visit www.up.edu/learningcommons, or the reception desk in BC 163.
Writing Assistance: Start brainstorming ideas for your paper with a Writing Assistant. Visit www.up.edu/learningcommons to access our Writing Center schedule.
The Language Studio: Contact the language assistance hotlines to schedule a time to meet throughout the semester at chinesetutor@up.edu, frenchtutor@up.edu, germantutor@up.edu, or spanishtutor@up.edu.
Natural Sciences Center: Send your tutoring requests to biotutor@up.edu, chemtutor@up.edu, or physicstutor@up.edu.
Speech & Presentation Lab: Improve your presentations by requesting an appointment at speech@up.edu.
Group Work Lab: Make an appointment for your group project at groupwork@up.edu.

Nursing Tutoring: Our peer tutors for pathophysiology will begin providing peer support in BC 163 during the first week of classes to help you start the semester on the right path. Tutoring is available on a walk-in or appointment basis. Up-to date schedule information is at www.up.edu/learningcommons/nursing.
Economics and Business Tutoring: For support in economics, OTM, finance, accounting, and business law courses, send requests for appointments to your discipline's tutor email hotline: econtutor@up.edu, otmtutor@up.edu, financetutor@up.edu, accountingtutor@up.edu, or bizlaw@up.edu.
Learning Assistance Counselor: Learning assistance counseling is also available in BC 163. The counselor teaches learning strategies and skills that enable students to become more successful in their studies and future professions. The counselor provides strategies to assist students with reading and comprehension, note-taking and study, time management, test-taking, and learning and remembering.
Appointments can be made in the on-line scheduler available to all students in Moodle or during posted drop-in hours.

University of Portland's Lab Access Statement:
Shop access is only allowed with appropriate training from shop technicians and with instructor permission. If students require card access to a laboratory, they must receive training from a technician.
No food or beverages (including water bottles) are allowed in the computer classrooms, shop, or labs.

Matching Game (Optional): On the next page, you see the pictures of 16 extraordinary men who lived in the past and made significant contributions in the areas of electricity and magnetism. The names of these men are Andre Marie **Ampere**, Thomas Alva **Edison**, Michael **Faraday**, Benjamin **Franklin**, Luigi Aloisius **Galvani**, Oliver **Heaviside**, Hermann Ludwig Ferdinand von **Helmholtz**, Joseph **Henry**, Heinrich Rudolf **Hertz**, Gustav Robert **Kirchhoff**, James Clerk **Maxwell**, Edward Lawry **Norton**, Georg Simon **Ohm**, Nikola **Tesla**, Leon Charles **Thevenin**, and Alessandro Giuseppe Antonio Anastasio **Volta**. These names are provided in an alphabetical order and don't match the order in which the pictures are provided. Can you match the names and the pictures?


A

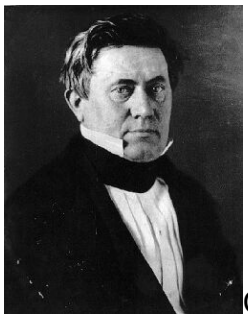
B

C

D


E


F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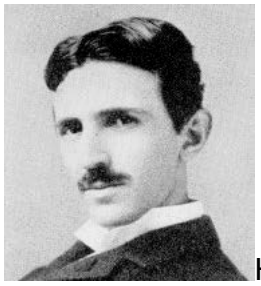
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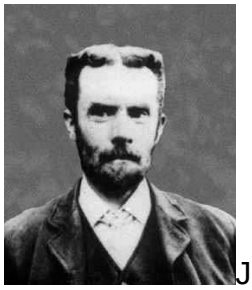
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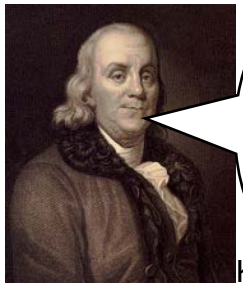
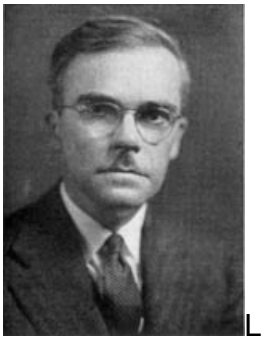

K

What is special about my 312th birthday?

How about my next, 313th birthday?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