ENGR 201 Electrical Fundamentals: DC Circuits Winter 2020

COURSE TITLE: ENGR 201 Electrical Fundamentals: DC Circuits CREDITS: 4

ROOM: IA-212/IA-215 CRN: 32920

LECTURE/RECITATION: Monday/Tuesday/Wednesday/Friday 12:00-12:50

PM LABS: Thursday 9:00-10:50 AM in IA-215

INSTRUCTOR: Craig Munsee

EMAIL: munseec@linnbenton.edu
OFFICE: IA-206

OFFICE HOURS:

Monday, Tuesday, Wednesday, & Friday 1:00 pm – 2:00 pm Others by Appointment

Course Description: Covers fundamentals of circuit analysis, including node and mesh analysis, superposition, and Thevenin and Norton's Theorem. Introduces op-amps, capacitors and inductors.

Prerequisite(s): Prerequisite: MTH 251 Differential Calculus with a grade of C or better.

Course Outcomes: Upon successful completion of this course, students will be able to:

1. State and apply Ohm's Law and Kirchhoff's Laws to both series and parallel circuits and the relationships between voltage and current, power and energy as applied to delta-wye

2. Apply Ohm's Law and Kirchhoff's Laws using mesh and nodal analysis techniques to analyze

DC
circuits.

3. State Thevenin's theorem and Norton's theorem and apply them to DC circuit analysis including

the use of both voltage and current dependent equivalent voltage sources and the use of both voltage and current dependent equivalent current sources. 4. Apply nodal analysis to analyze circuits involving operational amplifiers in DC circuits. State

and apply the relationships between voltage and current involving inductive and capacitive components for steady state DC circuits.

5. Apply basic software tools to analyze DC circuits.

Text Book: Alexander, Charles. K., **Fundamentals of Electric Circuits**, (3rd, 4th, 5th, or 6th Edition), McGraw-Hill. **This same text will be used for ENGR 202 and ENGR 203.** Copies of the text are on reserve in the library and can be checked out for two hours at a time.

Course Topics:

Chapter 1: Basic Concepts
Chapter 2: Basic Laws

Chapter 3: Methods of Analysis
Chapter 4: Circuit Theorems

Chapter 5: Operational Amplifiers
Chapter 6: Capacitors and Inductors

Grading:

Assignment: Number: Percentage: Homework (best 8 of 9) 8 20% Labs 6 20% Midterms 2 40% Final Exam 1 20% **Total 100%**

90-100% A, 80-89.9% B, 70-79.9% C, 60-69.9% D, < 59.9% F

Homework: Homework problem sets are linked in Moodle and will be turned in by 11:55 PM on the day they are due. Homework is to be scanned to a PDF and turned in to Moodle. Late homework will not be accepted unless prior arrangements have been made with the instructor. Each problem will be checked for a reasonable attempt at solving. The lowest weekly homework score will be dropped. Solutions to the homework problems will be posted in Moodle after the homework is due. **The Student is responsible for turning the homework in on time and in the recommended format. They are responsible for turning in all of the pages and putting them in the correct order. They are also responsible for turning in the correct homework.**

Exams:

Midterm I: Subject coverage to be announced in class (**Thursday Feb 6, during lab Time**) Midterm II: Subject coverage to be announced in class (**Thursday Feb 27, during lab Time**) Final Exam: Comprehensive (**Wednesday Mar 18, at 1:00 pm – 2:50 pm**)
https://www.linnbenton.edu/current-students/schedule-and-learn/finals-schedule/

For exams you may bring a calculator and a handwritten 8.5” x 11” note sheet to be turned in with the exam. Computers and cell phones are not to be used during exams. **Anyone caught using a cell phone during the exam will receive a zero grade.**

Labs: Each lab report will be graded on conformance with specific criteria, which will be reviewed during the first week’s lab session. Lab reports are due for grading at the beginning of the next lab, with dates indicated in Moodle. Late lab reports will lose 10% per day for each day the report is late.

Links to the experimental procedures can be found in Moodle and should be reviewed carefully before coming to lab.

Holidays:

Martin Luther King Jr. Day: LBCC will be closed (**Monday Jan 20, 2020**) Presidents' Day: LBCC will be closed (**Monday Feb 17,**

2020)

Expectations: I expect you to be respectful of everyone in the class, in word as well as behavior. Along these lines, I ask that you **turn off your cell phone and computers during class** and put them away so as to avoid causing a distraction. If you need to leave class for any reason, please do so quietly.

Course Evaluations: Student feedback is important to improve this course and to help the instructor know how to adjust teaching methods. Your feedback is taken seriously and does influence future versions of the course. The Student Evaluations of Teaching (SETs) are anonymous, and links to the evaluations will be emailed to your student email account after the 5th week of the term. I encourage you take this opportunity to provide constructive feedback on the class. Thank you in advance for your input!

Academic Integrity: You may work together and discuss your homework with your classmates, but you are expected to turn in your own work. If you turn in something that is not your work, it is considered cheating (This includes copying and sharing computer files). **Those caught cheating and those who aid them will receive a score of zero for that assignment or test and will be reported to the Dean of Students.**

Drop/Withdraw Policy: If you are withdrawing from the class you must file a Schedule Change Form with Registration or use WebRunner. If you formally drop the class **before Monday of the second week of the term**, you will receive a tuition refund. If you withdraw after the Monday of the second week of instruction through the seventh week a **'W'** will show up on your transcript. **No withdrawals are allowed after the end of the seventh week**. An instructor may not assign a "W" grade. If you received financial aid or veteran's benefits, PLEASE talk with associates at the appropriate office to determine what effects on eligibility dropping a course will have. Don't jeopardize your eligibility!! You can contact the Financial Aid Office by calling (541) 917-4850 or by visiting the Financial Aid Office in Takena Hall. If you stop attending the course without formally withdrawing you will continue to accumulate grades (zeroes for all assignments not turned in) and will receive the grade assigned by the instructor. You will also be held accountable for all charges on your account.

College

Policies

Center for Accessibility Resources (CFAR): You should meet with your instructor during the first week of class if:

1. You have a documented disability and need accommodations. 2. Your instructor needs to know medical information about you. 3. You need special arrangements in the event of an emergency.

If you have documented your disability, remember that you must make your request for accommodations through the Center for Accessibility Resources Online Services web page every term in order to receive accommodations. If you believe you may need accommodations but are not yet registered with CFAR, please visit the CFAR website at http://www.linnbenton.edu/cfar for steps on how to apply for services or call 541-917-4789.

LBCC Comprehensive Statement of Nondiscrimination LBCC prohibits unlawful discrimination based on race, color, religion, ethnicity, use of native language, national origin, sex, sexual orientation, gender, gender identity, marital status, disability, veteran status, age, or any other status protected under applicable federal, state, or local laws. For further information see Board Policy P1015 in our Board Policies and Administrative Rules. Title II, IX, & Section 504: Scott Rolen, CC-108, 541-917-4425; Lynne Cox, T-107B, 541-917-4806, LBCC, Albany, Oregon. To report: linnbenton-advocate.symplicity.com/public report.

Know your rights and responsibilities: LBCC students have rights: the right to free speech, the right to assemble, the right of a free press, etc. LBCC students also have responsibilities to their community: the responsibility to participate and engage in class, the responsibility to advocate for their needs (ask for help), the responsibility to support a respectful teaching and learning environment, the responsibility to treat all persons with respect, the responsibility to be truthful and honest in all work and communications, and the responsibility to follow staff directions, local, state, and federal laws.

Rights and responsibilities balance together to create the best learning environment. For example, while you have free speech in the café or courtyard, in class the instructor decides whose turn it is to talk and what the topics for conversation will be. Students are free to believe what they believe, but instructors may require students to learn and recite concepts, principles, or theories for a class even if the student does not believe those concepts. You play a role in creating a positive community at LBCC.

Please review your rights and responsibilities (http://linnbenton.edu/go/studentrights). If you believe a student is violating your rights, ask to be treated with respect. If that does not cure the situation, report to Associate Dean Dr. Lynne Cox, Takena Hall Rm. 107. If you believe a faculty member or LBCC employee is violating your rights, please report to Human Resources, Scott Rolen, Calapooia Center Rm. 108.

Changes to the Syllabus I reserve the right to change the contents of this syllabus due to unforeseen circumstances. You will be given notice of relevant changes in class, or through LBCC e-mail.