Walters State Community College Course Syllabus

Course Information

Course Number and Name: EETC 1311 Electric Circuits I
Section ID: 80644.202380
Semester and Year: Fall 2023
Credit Hours: 3
Start Date: August 21, 2023
End Date: December 08, 2023
Course Format: CON - Conventional Methodology
Catalog Course Description: An introductory course in DC and AC circuits. Topics include atomic structure, current and voltage, resistance, power, Ohm's Law, series, parallel and series-parallel circuits. Transient response for capacitors and inductors are also discussed. Fundamental AC concepts and phasor calculations for impedance, voltage, and current in RLC circuits are also covered. Coverage of electrical measurement equipment, including multimeters and oscilloscopes is included. Prerequisite(s): ACT Math score of 19 or higher (or equivalent score as determined by the college placement and assessment procedure) or completion of mathematics learning support requirements; or may be taken as a corequisite with mathematics learning support courses with an ACT Math score of 17 or 18 (or equivalent score as determined by the college placement and assessment procedure). **As required.**
Meeting Details: MW; 08:00AM - 09:50AM; TECH 258
Course Drop Deadline: October 27, 2023

Instructor Information

Name: Andy Aarons
Role: Instructor
Office Location: TECH 218
Office Hours: Please see eLEARN for scheduled office hours.
Office Phone: 423-585-2653
Email: Andy.Aarons@ws.edu
Supervisor Name: Dr. Bob Dixon
Supervisor Phone: 423-318-2758

Secretary Name: Tammy Jones/Kathy McFarling
Secretary Phone: 423-585-2644/423-585-6972

Required Textbook(s) and Materials

Scientific calculator.

Supplemental or Optional Materials

Multimeter, Ugly's Electrical References, **Microsoft Teams**, **MultisimLive Online Circuit Simulation (free)**

Student Learning Outcomes/Objectives

- Demonstrate an understanding of relationships between voltage, current, resistance, and power in DC and AC circuits.
- Demonstrate an understanding series, parallel, and series-parallel circuits in DC and AC circuits.
- Demonstrate the proper use of electrical test equipment.
- Use engineering notation and make electrical unit conversions.
- Explain the atomic nature of conductors, insulators, and semi-conductors.
- Read the resistor color code and use an ohmmeter.
- Apply Ohms Law when two of three variables are known.
- Solve any DC series, parallel, series-parallel circuit for the voltage across, current through, and power dissipated at each resistor.
- Identify whether resistors are arranged in series or parallel.
- Use Kirchhoff's Voltage and Current Laws to verify electrical circuit solutions.

- Apply the Voltage Divider Equation and the Current Divider Equation to assist in the solution of series and parallel circuits.
- Sketch the graphs of the voltage and current in DC RC transient circuits.
- Solve resistor-capacitor transient circuits for storage and decay phases.
- Use an oscilloscope to observe a resistor-capacitor transient.
- Use a Digital Multi-Meter to safely and accurately measure the voltage and current in a DC circuit.
- Use a Digital Multi-Meter to safely and accurately measure the voltage and current in an AC circuit.
- Use a Z-meter to measure the impedances of inductors and capacitors.
- Use complex math to solve any AC series, parallel, or series-parallel RLC(resistor-capacitor-inductor) circuit for the voltage across and current through each component.

Instructional Approach and Methods

Class topics will be introduced through lectures that include power-point presentations provided in eLEARN. Selected problems will then be worked out using a combination of manual calculations and circuit simulation software. Microsoft Teams will be used to record the lectures and example problems for student review. Daily quizzes will be assigned to verify student engagement and understanding. In lieu of a textbook; powerpoints and the All About Circuits website will provide reference material for the course. Additionally; most topics will include a hands-on lab activity to reinforce the topics covered.

Assessment, Evaluation and Testing Procedures

Student assessments include: quizzes, problem sheets, lab activities, and exams. Students may work together to complete quizzes, problem sheets, and lab activities. However; each student is responsible for turning in their own work individually. The only exception is a lab activity that is performed with a lab partner(maximum of two student names per lab). Lab activities may be completed as an individual, but I encourage groups of two where possible to allow for extra hands for taking measurements, making adjustments, and increasing the level of safety. Calculators and

reference materials may be freely used during exams but all work must be done by the individual with no help from other students. NO EXCEPTIONS!!!

10 - Quizzes, **20%**

17 - Problem Sheets, **40%**

12 - Labs, **20%**

5 - Exams, **20%**

Grading Scale

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

Assignments

Quizzes(20%): Engineering Units, DC Series, DC Parallel, DC Series-Parallel, Capacitors, Inductors, Complex Math, AC Series, AC Parallel, AC Series-Parallel

Problem Sheets(40%): 1.1-1.12, 2.1, 2.2, 3.1, 4.1, 5.1

Lab Exercises(20%): 1-Safety, 2-Resistance, 3-Ohm's Law, 4-Energy&Power, 5-DC Series, 6-DC Parallel, 7-DC Series-Parallel, 8-Capacitor Characteristics, 9-Oscilloscope, 10-AC Series, 11-AC Parallel, 12-Phase Angle

Exams(20%): 1-DC Circuit Calculations, 2-Capacitors&Inductors, 3-AC Series Calculations, 4-AC Parallel Calculations, 5-AC Series-Parallel Calculations

Class Participation

Students are expected to attend all class meetings and actively participate in classroom activities. Numerous studies have shown that students who do not regularly attend class have a greatly reduced likelihood of completing a course successfully. Students are responsible for catching-up on missed materials and assignments. If the course is required to change to remote learning due to COVID-19

measures and class attendance shifts to participation through Microsoft Teams: the student must have a web-cam/microphone and have camera in "live" mode for at least the first 15 minutes of class. After the first 15 minutes the "live" feed can be turned off to reduce buffering, but it is preferable to have the camera on for the entire class.

Academic Program Standards/Policies/Accreditation Information

The AAS degree in Electrical Engineering Technology and the AAS degree in Engineering Systems Technology are both accredited by the Association of Technology, Management and Applied Engineering, or ATMAE. Students should be mindful of this and make sure to include this information on resumes when the job search process begins.

Academic Honesty

Faculty expect all students to refrain from acts of academic misconduct including but not limited to:

1. Plagiarism - refers to using another person's ideas or writing without giving proper credit to the original source. Indulging in this type of conduct will subject the student to disciplinary sanctions, which may be imposed through the regular institutional procedures of Walters State Community College as outlined in the Student Handbook. Plagiarism will result in a grade of "0" for the paper/exam/presentation. Student Conduct and Disciplinary Sanctions contained in the college Catalog/Student Handbook apply (see policy 04:18:02 Disciplinary Sanctions). Plagiarism includes, but is not limited to the following:
    a. Using cut/paste tool from original document with no references given.
    b. Copying another student's work and submitting it as one's own.
    c. Forging or otherwise altering signatures.
    d. Giving or falsifying academic documents or materials.
2. Cheating - construed as attempting to deceive or mislead which includes, but is not limited to the following:
    a. Utilizing old tests, projects, notes or written papers.
    b. Providing unauthorized information to a fellow student about exam content.
    c. Receiving unauthorized aid from any source with quizzes, examinations, or other assignments.
    d. Seeking information in an unacceptable manner during/preceding an exam or other assigned work (cheat sheet, verbal exchange, looking at another person's paper or electronic device, utilizing headphones, using textbook when the test/quiz is not an open book test/quiz, using textbook test bank etc.).

e. Consulting with a classmate or others when taking a computerized test.

f. Disregarding other specific policies and procedures outlined for a particular class.

g. Utilizing unapproved technology/electronic equipment during testing (i.e.: mobile devices such as cell phones, smart devices, or tablets, etc.).

h. Using the same Internet Protocol network address (IP address) as another student for testing without approval from the course faculty.

3. The use of any generative artificial intelligence (AI) tool, such as OpenAI's ChatGPT, Google's Bard, or any other pre-trained language model (commonly referred to as "chatbot"), must be cited for any assignment where it has been used and may not be used unless specifically allowed by your instructor. Please see your instructor or the course policies within the syllabus if you have questions.

Student Resources

TUTORING SERVICES

Students in need of tutoring assistance are encouraged to contact the Office of Student Tutoring located as follows:

- Morristown Campus - Student Services Building Room L107 - (423) 585-6920
- Niswonger Campus - GRNV 226 - (423) 798-7982
- Sevierville Campus - MMH Room 210 - (865) 286-2787
- Claiborne Campus - Room 123A - (423) 851-4761

Specific tutoring assistance in mathematics and writing is available in-person and online as follows:

- Morristown Campus - English Learning Lab - HUM 120 - (423) 585-6970

  Walters State English Learning Lab (opens in new window)
  ws.edu/academics/humanities/writing-lab

- Morristown Campus - Mathematics Lab - MBSS 222 - (423) 585-6872

  Walters State Mathematics Learning Lab (opens in new window)
  ws.edu/academics/mathematics/learning-lab

TECHNOLOGY SUPPORT

Students who need assistance with computing and technology issues should contact the IET Helpdesk by phone at Morristown: (423) 318-2742; Niswonger: (423) 798-8186; or Sevierville: (865)

286-2789 or on-line access.

Walters State Helpdesk (opens in new window)
helpdesk.ws.edu

STUDENTS WITH DISABILITIES SUPPORT SERVICES

Students with disabilities must register with Student Support Services each semester in the Student Services Building, Room U134 (phone (423) 585-6892) if they need any special facilities, services, or consideration.

Walters State Student Support Services (opens in new window)
ws.edu/student-services/disability/

SUICIDE PREVENTION STATEMENT

Walters State is committed to and cares about all students. Support services are available for any person at Walters State who is experiencing feelings of being overwhelmed, hopelessness, depression, thinking about dying by suicide, or is otherwise in need of assistance. For immediate help, contact the National Suicide Prevention Lifeline by calling or texting 9-8-8 or the Trevor Lifeline at 1-866-488-7386. Veterans may also contact the Veterans Crisis Line at 1-800-273-8255 (press 1) or Text 838255.

Walters State has a relationship in place with the following community agencies to provide services (may include crisis referral services, prevention screenings, etc.):

- Cherokee Health Systems 423-586-5032
- Frontier Health 423-467-3600

College Policies

STUDENTS HANDBOOK AS OFFICIAL GOVERNING DOCUMENT

This class is governed by the policies and procedures stated in the current Walters State Community College Student Handbook. All students attending Walters State Community College, regardless of the time, location, or format of the class, must abide by the rules and regulations outlined in the current Walters State Catalog/Student Handbook and the current Walters State Timetable of Classes.

Walters State Catalog (opens in new window)
catalog.ws.edu/

Walters State Timetable of Classes (opens in new window)
ws.edu/admissions/registration/

PURPOSE, LIMITATIONS AND MODIFICATION OF SYLLABUS

This syllabus sets forth the expectations for the course content, work, and grading as well as expectations for student performance and conduct. The syllabus does not constitute a contract between the student and the instructor or the College. The information contained here is subject to change at any time. The instructor reserves the right to modify this syllabus at any time with written notification to the students. Though changes are possible, it is expected that the course will be conducted as described in this syllabus for the semester/year specified in the Course Information section of the syllabus. This syllabus is only valid for the semester/year specified and course requirements are not guaranteed for future semesters.

COURSE GROUND RULES

- Students must attend the first day of on-ground class or contact the instructor prior to the first class. Failure to do this may result in being dropped from the class. Excessive absences may substantially lower the course grade.
- Regular class attendance is a student's obligation for any course regardless of format. (See the Walters State Catalog/Student Handbook). If a student misses class, it is his or her responsibility to contact the instructor regarding missed assignments and/or activities and to be prepared for the next class assignment.
- Students enrolled in web courses must follow the course attendance policy defined for online attendance during the first week of class and throughout the term. Failure to do this may result in being dropped from the class during week one OR may result in the accrual of absences which may negatively impact the student's grade in the course.
- Students who have not paid fees on time and/or are not correctly registered for this class and whose names do not appear on official class rolls generated by the Walters State student information system (MyWS) will not be allowed to remain in class or receive credit for this course.
- Electronic devices must not disrupt the instructional process or college-sponsored academic activity. Use of electronic devices is prohibited unless use of the device is relevant to the activity and use is sanctioned by the faculty member in charge. Electronic devices that are not relevant to the activity or sanctioned by the faculty member in charge should be set so that they will not produce an audible sound during classroom instruction or other college-sponsored academic activity.

FINANCIAL AID

Students receiving any type of financial aid or scholarship should contact the Financial Aid Office before making any changes to their schedule. Schedule changes without prior approval may result in loss of award for the current term and future terms.

All forms of student Financial Aid may be jeopardized or lost due to the lack of Satisfactory Academic Progress in one or multiple courses. Lack of Satisfactory Academic Progress may negatively impact a student's degree/certificate completion pace and further jeopardize Financial Aid eligibility.

CANCELLATION OF CLASSES AND ACADEMIC CONTINUITY

For information related to the cancellation of classes due to inclement weather or other events, please check the Senators Emergency Text system or the college's Web site at:

Walters State Homepage (opens in new window)
ws.edu/home/

Walters State Facebook page (opens in new window)
https://www.facebook.com/WaltersState/

Walters State Twitter page (opens in new window)
https://twitter.com/waltersstate

or call the college's student information line, 1-800-225-4770, option 1; the Sevier County Campus, (865) 774-5800, option 7; the Niswonger Campus (423) 798-7940, option 7; or the Claiborne County Campus, 423-636-6200, option 7. Also, please monitor local TV and radio stations for further announcements.

When an event or disaster interrupts the scheduled operations of the college and the ability to proceed with the academic course activities as planned, the college and your instructor may alter the course plan outlined in the syllabus. Should an event occur, students should refer to their course e-Learn pages and/or class materials previously delivered to receive guidance from their instructor. Students should continue to monitor the official college channels of communication listed in the above paragraph. If you would like to sign up for the Senators Emergency Text system, please go to the following Web site:

Senator Emergency Text System (opens in new window)
ws.edu/set/

Dual Enrollment students attending on a high school campus should refer to the high school inclement weather cancellations.

LEARNING MANAGEMENT SYSTEM

Brightspace (commonly known as eLearn or D2L) is the college's Learning Management System (LMS).

Brightspace is committed to accessibility by "deliver[ing] a learning experience that meets the needs of all people, regardless of age or ability." Brightspace Accessibility Standard (opens in new window)

Brightspace is also committed to guarding student data and privacy. Brightspace Privacy Policy (opens in new window)