



**ELCR-1020 Alternating Current (AC) Circuits
COURSE SYLLABUS
Summer Semester 2019**

COURSE INFORMATION

Credit Hours/Minutes: 7 Hours / 6750 Minutes
Campus/Class Location: Vidalia Campus, Gillis Building B, Room 827
Class Meets: Monday through Thursday (MTWR), 8:00 AM to 11:00 AM
Course Reference Number (CRN): 60089

INSTRUCTOR CONTACT INFORMATION

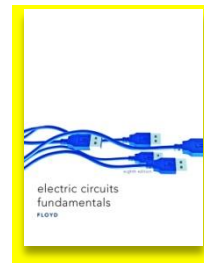
Instructor Name: William Greene
Campus/Office Location: Vidalia Campus, Gillis Building B, Room 822
Office Hours: Monday through Thursday, 11:00 AM to Noon, and 4:30 PM to 6:30 PM
Email Address: [William Greene \(wgreene@southeasterntech.edu\)](mailto:wgreene@southeasterntech.edu)
Phone: (912) 538-3102
Fax Number: (912) 538-3106

SOUTHEASTERN TECHNICAL COLLEGE'S (STC) CATALOG AND HANDBOOK

Students are responsible for all policies and procedures and all other information included in Southeastern Technical College's [Catalog and Handbook \(http://www.southeasterntech.edu/student-affairs/catalog-handbook.php\)](http://www.southeasterntech.edu/student-affairs/catalog-handbook.php).

REQUIRED TEXT

Electric Circuit Fundamentals, 8th ed.
by Thomas L. Floyd,
published by Prentice Hall,
ISBN# 0-13-507293-X



REQUIRED SUPPLIES & SOFTWARE

Engineering / Scientific Calculator (TI-83 Plus or better recommended)

Note: Although students can use their smart phones and tablets to access their online course(s), exams, discussions, assignments, and other graded activities should be performed on a personal computer. Neither Blackboard nor Georgia Virtual Technical Connection (GVTC) provide technical support for issues relating to the use of a smart phone or tablet so students are advised to not rely on these devices to take an online course.

COURSE DESCRIPTION

This course introduces the theory and application of varying sine wave voltages and current, and continues the development of AC concepts with emphasis on constructing, verifying, and troubleshooting reactive circuits using Resistor Inductor Capacitor (RLC) theory and practical application. Topics include AC wave generation,

frequency and phase relationship, impedance, admittance, and conductance power factors, reactive components simple RLC circuits, AC circuit resonance, passive filters, and non-sinusoidal wave forms.

MAJOR COURSE COMPETENCIES / COURSE OUTLINE

1. AC Wave Generation
2. Frequency and Phase Relationships
3. Impedance, Admittance, and Conductance, Power Factors
4. Reactive Components
5. Simple RLC Circuits
6. AC Circuit Resonance
7. Passive Filters
8. Non-sinusoidal Wave Forms

PREREQUISITE(S)

ELCR 1010

GENERAL EDUCATION CORE COMPETENCIES

Southeastern Technical College has identified the following general education core competencies that graduates will attain:

1. The ability to utilize standard written English.
2. The ability to solve practical mathematical problems.
3. The ability to read, analyze, and interpret information.

STUDENT REQUIREMENTS

Students are expected to complete all tests and comprehensive problems by the due dates. A ten point penalty will be assessed for each day a comprehensive problem is late. There are no makeup tests. Tests are made available for several days; therefore, there are no makeup tests. Students who miss a test will be assigned a grade of zero. Students are responsible for policies and procedures included in the [STC Catalog and Handbook](#). All online students must pledge that they have read and understand the STC Online Orientation within the first five days of class. Online students are responsible for checking e-mails and Blackboard announcements DAILY.

TRADITIONAL ATTENDANCE GUIDELINES

Class attendance is a very important aspect of a student's success. Being absent from class prevents students from receiving the full benefit of a course and also interrupts the learning process. Southeastern Technical College considers both tardiness and leaving early as types of absenteeism. Responsibility for class attendance rests with the student. Regular and punctual attendance at all scheduled classes is required for student success. Students will be expected to complete all work required by the instructor as described in the individual course syllabus.

Instructors have the right to give unannounced quizzes/assignments. Students who miss an unannounced quiz or assignment will receive a grade of 0. Students who stop attending class, but do not formally withdraw, may receive a grade of F and face financial aid repercussions in upcoming semesters.

Instructors are responsible for determining whether missed work may be made up and the content and dates for makeup work is at the discretion of the instructor.

Students will not be withdrawn by an instructor for attendance; however, all instructors will keep records of graded assignments and student participation in course activities. The completion dates of these activities will be used to determine a student's last date of attendance in the event a student withdraws, stops attending, or receives an F in a course.

STUDENTS WITH DISABILITIES

Students with disabilities who believe that they may need accommodations in this class based on the impact of a disability are encouraged to contact the appropriate campus coordinator to request services.

Swainsboro Campus: [Macy Gay mgay@southeasterntech.edu](mailto:Macy.Gay@southeasterntech.edu), 478-289-2274, Building 1, Room 1208

Vidalia Campus: [Helen Thomas hthomas@southeasterntech.edu](mailto:Helen.Thomas@southeasterntech.edu), 912-538-3126, Building A, Room 108

SPECIFIC ABSENCES

Provisions for Instructional Time missed because of documented absences due to jury duty, military duty, court duty, or required job training will be made at the discretion of the instructor.

PREGNANCY

Southeastern Technical College does not discriminate on the basis of pregnancy. However, we can offer accommodations to students who are pregnant that need special consideration to successfully complete the course. If you think you will need accommodations due to pregnancy, please make arrangements with the appropriate campus coordinator.

Swainsboro Campus: [Macy Gay mgay@southeasterntech.edu](mailto:Macy.Gay@southeasterntech.edu), 478-289-2274, Building 1, Room 1208

Vidalia Campus: [Helen Thomas hthomas@southeasterntech.edu](mailto:Helen.Thomas@southeasterntech.edu), 912-538-3126, Building A, Room 108

It is strongly encouraged that requests for consideration be made **PRIOR** to delivery and early enough in the pregnancy to ensure that all the required documentation is secured before the absence occurs. Requests made after delivery **MAY NOT** be accommodated. The coordinator will contact your instructor to discuss accommodations when all required documentation has been received. The instructor will then discuss a plan with you to make up missed assignments.

WITHDRAWAL PROCEDURE

Students wishing to officially withdraw from a course(s) or all courses after the drop/add period and prior to the 65% point of the term in which student is enrolled (date will be posted on the school calendar) must speak with a Career Counselor in Student Affairs and complete a Student Withdrawal Form. A grade of "W" is assigned for the course(s) when the student completes the withdrawal form.

Important – Student-initiated withdrawals are not allowed after the 65% point. After the 65% point of the term in which student is enrolled, the student has earned the right to a letter grade and will receive a grade for the course. Please note: Abandoning a course(s) instead of following official withdrawal procedures may result in a grade of 'F' being assigned.

Informing your instructor that you will not return to his/her course, does not satisfy the approved withdrawal procedure outlined above.

There is no refund for partial reduction of hours. Withdrawals may affect students' eligibility for financial aid for the current semester and in the future, so a student must also speak with a representative of the Financial Aid Office to determine any financial penalties that may be assessed due to the withdrawal. A grade of 'W' will count in attempted hour calculations for the purpose of Financial Aid.

MAKEUP GUIDELINES (TESTS, QUIZZES, HOMEWORK, PROJECTS, ETC.)

Students are required to take all tests and complete all assignments scheduled during the semester. Failure to take Tests/Exam(s) and complete assignments will result in a grade of zero. There will be no makeup of assignments or EXAMS. If Internet or browser failure occurs, contact instructor immediately. A decision will be made at that time if the exam will be reset. Instructor reserves the right to deduct points from the exam scores for exceeding the scheduled time limit on the exam and/or requiring student to come to campus to take the final exam. Note: If student notifies instructor about exam problems because of technical issues after the due date or on the last day of the semester, the student will NOT be allowed to make-up the exam. No

exceptions! Assignments must be turned in on the assigned date and will not be accepted late, a grade of zero will be given. ALL Assignments are due according to the lesson plan.

ACADEMIC DISHONESTY POLICY

The Southeastern Technical College Academic Dishonesty Policy states that all forms of academic dishonesty, including but not limited to cheating on tests, plagiarism, collusion, and falsification of information, will call for discipline. The policy can also be found in the Southeastern Technical College Catalog and Handbook.

PROCEDURE FOR ACADEMIC MISCONDUCT

The procedure for dealing with academic misconduct and dishonesty is as follows:

1. First Offense

Student will be assigned a grade of "0" for the test or assignment. Instructor keeps a record in course/program files and notes as first offense. The instructor will notify the student's program advisor, academic dean, and the Registrar at the student's home campus. The Registrar will input the incident into Banner for tracking purposes.

2. Second Offense

Student is given a grade of "WF" (Withdrawn Failing) for the course in which offense occurs. The instructor will notify the student's program advisor, academic dean, and the Registrar at the student's home campus indicating a "WF" has been issued as a result of second offense. The Registrar will input the incident into Banner for tracking purposes.

3. Third Offense

Student is given a grade of "WF" for the course in which the offense occurs. The instructor will notify the student's program advisor, academic dean, and the Registrar at the student's home campus indicating a "WF" has been issued as a result of third offense. The Vice President for Student Affairs, or designee, will notify the student of suspension from college for a specified period of time. The Registrar will input the incident into Banner for tracking purposes.

STATEMENT OF NON-DISCRIMINATION

The Technical College System of Georgia (TCSG) and its constituent Technical Colleges do not discriminate on the basis of race, color, creed, national or ethnic origin, gender, religion, disability, age, political affiliation or belief, genetic information, disabled veteran, veteran of the Vietnam Era, spouse of military member, or citizenship status (except in those special circumstances permitted or mandated by law). This nondiscrimination policy encompasses the operation of all technical college-administered programs, federally financed programs, educational programs and activities involving admissions, scholarships and loans, student life, and athletics. It also applies to the recruitment and employment of personnel and contracting for goods and services.

All work and campus environments shall be free from unlawful forms of discrimination, harassment and retaliation as outlined under Title IX of the Educational Amendments of 1972, Title VI and Title VII of the Civil Rights Act of 1964, as amended, the Age Discrimination in Employment Act of 1967, as amended, Executive Order 11246, as amended, the Vietnam Era Veterans Readjustment Act of 1974, as amended, Section 504 of the Rehabilitation Act of 1973, as amended, the Americans With Disabilities Act of 1990, as amended, the Equal Pay Act, Lilly Ledbetter Fair Pay Act of 2009, the Georgia Fair Employment Act of 1978, as amended, the Immigration Reform and Control Act of 1986, the Genetic Information Nondiscrimination Act of 2008, the Workforce Investment Act of 1998 and other related mandates under TCSG Policy, federal or state statutes.

The Technical College System and Technical Colleges shall promote the realization of equal opportunity through a positive continuing program of specific practices designed to ensure the full realization of equal opportunity.

The following individuals have been designated to handle inquiries regarding the nondiscrimination policies:

American With Disabilities Act (ADA)/Section 504 - Equity- Title IX (Students) – Office of Civil Rights (OCR) Compliance Officer	Title VI - Title IX (Employees) – Equal Employment Opportunity Commission (EEOC) Officer
Helen Thomas, Special Needs Specialist Vidalia Campus 3001 East 1 st Street, Vidalia Office 108 Phone: 912-538-3126 Email: Helen Thomas hthomas@southeasterntech.edu	Lanie Jonas, Director of Human Resources Vidalia Campus 3001 East 1 st Street, Vidalia Office 138-B Phone: 912-538-3230 Email: Lanie Jonas ljonas@southeasterntech.edu

ACCESSIBILITY STATEMENT

Southeastern Technical College is committed to making course content accessible to individuals to comply with the requirements of Section 508 of the Rehabilitation Act of Americans with Disabilities Act (ADA). If you find a problem that prevents access, please contact the course instructor.

GRIEVANCE PROCEDURES

Grievance procedures can be found in the Catalog and Handbook located on Southeastern Technical College’s website.

ACCESS TO TECHNOLOGY

Students can now access Blackboard, Remote Lab Access, Student Email, Library Databases (Galileo), and BannerWeb via the mySTC portal or by clicking the Current Students link on the [Southeastern Technical College \(STC\) Website \(www.southeasterntech.edu\)](http://www.southeasterntech.edu).

TECHNICAL COLLEGE SYSTEM OF GEORGIA (TCSG) GUARANTEE/WARRANTY STATEMENT

The Technical College System of Georgia guarantees employers that graduates of State Technical Colleges shall possess skills and knowledge as prescribed by State Curriculum Standards. Should any graduate employee within two years of graduation be deemed lacking in said skills, that student shall be retrained in any State Technical College at no charge for instructional costs to either the student or the employer.

GRADING POLICY

Assessment/Assignment	Percentage
Exams	30%
Homework	10%
Laboratories	20%
Study Guides	5%
Final Exam*	35%

GRADING SCALE

Letter Grade	Range
A	90-100
B	80-89
C	70-79
D	60-69
F	0-59

***ELECTRONICS COMPETENCY EXAMS:**

The ELCR-1020 Final Exam is the **Electronics Systems Associate (ESA) Level 2 – Alternating Current Circuits Exam**. The cost for taking this exam is **\$35** payable to the STC Business Office before the last week of the semester. Please plan for this cost to complete the Direct Current series of classes successfully. A grade of 75% or higher on this exam will result in the student being awarded their ESA Level 2 certificate from the International Society of Certified Electronics Technicians (ISCET).

No minimum grade is required for this exam; however, this exam will carry a **35% grading weight**. Poor performance on this exam could result in a final class grade of <70 out of 100 which will require the student to retake ELCR-1020. Students who wish to retake any ESA Exam in order to improve their grades to receive their Associate CET Certificate can do so at a cost of \$15 per exam within two years of the original purchase of their test voucher for that exam.

ELCR-1020 Alternating Current Circuits Summer Semester 2019 Lesson Plan

WEEK 1

Date	Chapter / Lesson	Content	Assignments & Tests Due Dates	Competency Area
May 14	7.1, 7.2	Class Introduction – Syllabi, Outline, Work Ethics, Rules, and Regulations Coverage For any assigned reading, complete the Section Checkups at the end of each Section. Section 7.1 – The Magnetic Field Section 7.2 – Electromagnetism	Read Sections 7.1 & 7.2 [On BLACKBOARD] Read / Review START HERE information POST to appropriate Message Boards Read Sections 7.3 – 7.7	1,b,c
May 15	7.3 – 7.7	Section 7.3 – Electromagnetic Devices Section 7.4 – Magnetic Hysteresis Section 7.5 – Electromagnetic Induction Section 7.6 – Direct Current (DC) Generators Section 7.7 – DC Motors	Do Chapter 7 Homework Watch All Chapter 7 Videos	1,a,b,c
May 16	7	LabVolt – Magnetism Chapter 7 Review	Do Chapter 7 Study Guides Study for Chapter 7 Test	1,a,b,c
May 20	7	Chapter 7 Test ISCET Material Review – Chapter 7	Take Chapter 7 Test Read Sections 8.1 – 8.8	1,b,c

WEEK 2

Date	Chapter / Lesson	Content	Assignments & Tests Due Dates	Competency Area
May 21	8.1 – 8.8	Section 8.1 – The Sinusoidal Waveform Section 8.2 – Voltage & Current Values Section 8.3 – Angular Measurements Section 8.4 – Sine Wave Formula Section 8.5 – Analysis of AC Circuits Section 8.6 – Alternators (AC Generators) Section 8.7 – AC Motors Section 8.8 – Non-sinusoidal Waveforms	Read Section 8.9 Watch All Chapter 8 Videos	1,2,3,8,b,c
May 22	8.9	Section 8.9 – The Oscilloscope LabVolt – AC Waveform Generator	Do Chapter 8 Homework	1,2,3,8,a,b,c
May 23	8	LabVolt – AC Measurements Chapter 8 Review	Do Chapter 8 Study Guides Study for Chapter 8 Test	1,2,3,8,a,b,c
May 27	8	HOLIDAY – Memorial Day	HOLIDAY – Memorial Day	
May 28	8	Chapter 8 Test ISCET Material Review – Chapter 8	Take Chapter 8 Test Read Sections 9.1 – 9.6	1,2,3,8,b,c

WEEK 3

Date	Chapter / Lesson	Content	Assignments & Tests Due Dates	Competency Area
May 29	9.1 – 9.6	Section 9.1 – The Basic Capacitor Section 9.2 – Types of Capacitors Section 9.3 – Series Capacitors Section 9.4 – Parallel Capacitors Section 9.5 – Capacitors in DC Circuits Section 9.6 – Capacitors in AC Circuits	Read Section 9.7 Watch Chapter 9 Videos	2,3,4,b,c
May 30	9.7	Section 9.7 – Capacitor Applications	Do Chapter 9 Homework	2,3,4,a,b,c
June 3	9	LabVolt – Capacitance Chapter 9 Review	Do Chapter 9 Study Guides Study for Chapter 9 Test	2,3,4,a,b,c
June 4	9	Chapter 9 Test ISCET Material Review – Chapter 9	Take Chapter 9 Test Read Sections 11.1 – 11.5	2,3,4,b,c

WEEK 4

Date	Chapter / Lesson	Content	Assignments & Tests Due Dates	Competency Area
June 5	11.1 – 11.5	Section 11.1 – The Basic Inductor Section 11.2 – Types of Inductors Section 11.3 – Series & Parallel Inductors Section 11.4 – Inductors in DC Circuits Section 11.5 – Inductors in AC Circuits	Read Section 11.6 Watch Chapter 11 Videos	2,3,4,b,c
June 6	11.6	Section 11.6 – Inductor Applications	Do Chapter 11 Homework	2,3,4,a,b,c
June 10	11	LabVolt – Inductance Chapter 11 Review	Do Chapter 11 Study Guides Study for Chapter 11 Test	2,3,4,a,b,c
June 11	11	Chapter 11 Test ISCET Material Review – Chapter 11	Take Chapter 11 Test Read Sections 14.1 – 14.5	2,3,4,b,c

WEEK 5

Date	Chapter / Lesson	Content	Assignments & Tests Due Dates	Competency Area
June 12	14.1 – 14.5	Section 14.1 – Mutual Inductance Section 14.2 – The Basic Transformer Section 14.3 – Step-Up & Step-Down Section 14.4 – Loading the Secondary Section 14.5 – Reflected Load	Read Sections 14.6 – 14.9 Watch Chapter 14 Videos	2,3,4,b,c
June 13	14.6 – 14.9	Section 14.6 – Impedance Matching Section 14.7 – Transformer Ratings Section 14.8 – Tapped & Multiple Winding Section 14.9 – Troubleshooting	Do Chapter 14 Homework	2,3,4,a,b,c
June 17	14	LabVolt – Transformers Chapter 14 Review MIDTERM	Do Chapter 14 Study Guides Study for Chapter 14 Test MIDTERM	2,3,4,a,b,c
June 18	14	Chapter 14 Test ISCET Material Review – Chapter 14	Take Chapter 14 Test Read Sections 10.1 – 10.4	2,3,4,b,c

WEEK 6

Date	Chapter / Lesson	Content	Assignments & Tests Due Dates	Competency Area
June 19	10.1 – 10.4	Section 10.1 – Sinusoidal Response of Resistive Capacitive (RC) Circuits Section 10.2 – Impedance & Phase Angle of Series RC Circuits Section 10.3 – Analysis of Series RC Circuits Section 10.4 – Impedance & Phase Angle of Parallel RC Circuits	Read Sections 10.5 – 10.9 Watch All Chapter 10 Videos	3,4,7,b,c
June 20	10.5, 10.6	Section 10.5 – Analysis of Parallel RC Circuits Section 10.6 – Analysis of Series-Parallel RC Circuits Section 10.7 – Power in RC Circuits Section 10.8 – Basic Applications Section 10.9 – Troubleshooting	Do Chapter 10 Homework	3,4,7,b,c
June 24	10	LabVolt – Capacitive Reactance 65% Semester Point	Do Chapter 10 Study Guides 65% Semester Point	3,4,7,a,b,c
June 25	10	Chapter 10 Review	Study for Chapter 10 Test	3,4,7,b,c

WEEK 7

Date	Chapter / Lesson	Content	Assignments & Tests Due Dates	Competency Area
June 26	10	Chapter 10 Test ISCET Material Review – Chapter 10 SUMMER ACTIVITY DAY	Take Chapter 10 Test Read Sections 12.1 – 12.6 SUMMER ACTIVITY DAY	3,4,7,b,c
June 27	12.1 – 12.6	Section 12.1 – Sinusoidal Response of Resistive Inductive (RL) Circuits Section 12.2 – Impedance & Phase Angle of Series RL Circuits Section 12.3 – Analysis of Series RL Circuits Section 12.4 – Impedance & Phase Angle of Parallel RL Circuits Section 12.5 – Analysis of Parallel RL Circuits Section 12.6 – Analysis of Series-Parallel RL Circuits	Read Sections 12.7 – 12.9 Watch All Chapter 12 Videos	3,4,7,b,c
July 1 – 4		HOLIDAY – Independence Day	HOLIDAY – Independence Day	
July 8	12.7, 12.8, 12.9	Section 12.7 – Power in RL Circuits Section 12.8 – Basic Applications Section 12.9 – Troubleshooting	Do Chapter 12 Homework Do Chapter 12 Study Guides	3,4,7,a,b,c
July 9	12	LabVolt – Inductive Reactance		3,4,7,a,b,c

WEEK 8

Date	Chapter / Lesson	Content	Assignments & Tests Due Dates	Competency Area
July 10	12	LabVolt – Power in AC Circuits Chapter 12 – Review	Study for Chapter 12 Test	3,4,7,a,b,c
July 11	12	Chapter 12 Test ISCET Material Review – Chapter 12	Take Chapter 12 Test Read Sections 13.1 – 13.4	3,4,7,b,c
July 15	13.1, 13.2, 13.3, 13.4	Section 13.1 – Impedance & Phase Angle of Series Resistive Inductive Capacitive (RLC) Circuits Section 13.2 – Analysis of Series RLC Circuits Section 13.3 – Series Resonance Section 13.4 – Series Resonant Filters	Watch All Chapter 13 Videos Begin Chapter 13 Homework	3,5,6,7,a,b,c
July 16	13	LabVolt – RLC Circuits (Series) LabVolt – Series Resonance	Read Sections 13.5 – 13.8	3,5,6,7,a,b,c

WEEK 9

Date	Chapter / Lesson	Content	Assignments & Tests Due Dates	Competency Area
July 17	13.5, 13.6, 13.7, 13.8	Section 13.5 – Parallel RLC Circuits Section 13.6 – Parallel Resonance Section 13.7 – Parallel Resonant Filters Section 13.8 – Applications	Complete Chapter 13 Homework	3,5,6,7,a,b,c
July 18	13	LabVolt – RLC Circuits (Parallel) LabVolt – Parallel Resonance	Do Chapter 13 Study Guides	3,5,6,7,a,b,c
July 22	13	Chapter 13 – Review	Study for Chapter 13 Test	3,5,6,7,a,b,c
July 23	13	Chapter 13 Test ISCET ESA Exam Review Semester Classes End	Take Chapter 13 Test Study for Final Exam	1-8,b,c

FINALS WEEK

Date	Chapter / Lesson	Content	Assignments & Tests Due Dates	Competency Area
July 24	7 – 15	AC Circuits Final Exam [Proctored] ISCET ESA-2 Exam	9:00 AM Test Time	1-8,b,c
July 25	7 – 15	AC Circuits Final Exam [Proctored] ISCET ESA-2 Exam	1:00 PM Test Time	1-8,b,c

COMPETENCY AREAS:

1. AC Wave Generation
2. Frequency and Phase Relationships
3. Impedance, Admittance, and Conductance, Power Factors
4. Reactive Components
5. Simple RLC Circuits
6. AC Circuit Resonance
7. Passive Filters
8. Non-sinusoidal Wave Forms

GENERAL CORE EDUCATIONAL COMPETENCIES:

- a) The ability to utilize standard written English.
- b) The ability to solve practical mathematical problems.
- c) The ability to read, analyze, and interpret information.