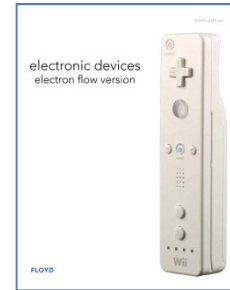


**Course Title:** Linear Integrated Cir.  
**Course Number:** ELCR 1060  
**Credit Hr / Min:** 3 hr / 3000 min  
**Class Location:** RMTC 827, Vidalia  
**Class Meets:** 3:00-4:50 pm / MW  
**CRN:** 20159

**Instructor:** William Greene  
**Office Hours:** Mon –Thurs 8:00 am – 9:00 am  
1:00 pm – 3:00 pm  
**Office:** RMTC Room 822, Vidalia Campus  
**E-mail:** [wgreene@southeasterntech.edu](mailto:wgreene@southeasterntech.edu)  
**Phone:** 912-538-3102 **FAX:** 912-538-3106

**REQUIRED TEXTS:** *Electronic Devices, Electron Flow Version, 9<sup>th</sup> ed.*  
by Thomas L. Floyd, published by Prentice Hall,  
ISBN# 0-13-254985-9



**REQUIRED SUPPLIES:** Engineering / Scientific Calculator, **TI-83 Plus Graphing Calculator.** **This calculator is required for the mathematics classes associated with the Electronics programs.**

**COURSE DESCRIPTION:** Provides in-depth instruction on the characteristics and applications of linear integrated circuits.

**PREREQUISITES:** ELCR-1020

**MAJOR COURSE COMPETENCIES / COURSE OUTLINE:**

1. Operational Amplifiers
2. Timers
3. Three-Terminal Voltage Regulators

**GENERAL EDUCATION CORE COMPETENCIES:** STC 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 E-Catalog*. 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.**

**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.

**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.

**SPECIAL NEEDS:** Students with disabilities who believe that they may need accommodations in this class based on the impact of a disability are encouraged to contact Helen Thomas, 912-538-3126, [hthomas@southeasterntech.edu](mailto:hthomas@southeasterntech.edu), to coordinate reasonable accommodations.

**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 advise me and make appropriate arrangements with Helen Thomas, (912) 538-3126, [hthomas@southeasterntech.edu](mailto:hthomas@southeasterntech.edu).

**WITHDRAWAL PROCEDURE:** Students wishing to officially withdraw from a course(s) or all courses after the drop/add period and prior to the 65% portion of the semester (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 when the student completes the withdrawal form from the course.

Students who are dropped from courses due to attendance (see your course syllabus for attendance policy) after drop/add until the 65% point of the semester will receive a "W" for the course. Abandoning a course(s) instead of following official withdrawal procedures may result in a grade of 'F' being assigned.

After the 65% portion of the semester, the student will receive a grade for the course. (Please note: A zero will be given for all missed assignments.)

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. All grades, including grades of 'W', will count in attempted hour calculations for the purpose of Financial Aid.

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

**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 STC Academic Dishonesty Policy states *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 *STC Catalog and Student Handbook.*

### Procedure for Academic Misconduct

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

#### --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.

#### --Second Offense—

Student is given a grade of "WF" 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.

#### --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 second 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

Southeastern Technical College does not discriminate on the basis of race, color, creed, national or ethnic origin, gender, religion, disability, age, disabled veteran, veteran of Vietnam Era or citizenship status, (except in those special circumstances permitted or mandated by law). This school is in compliance with Title VI of the Civil Rights Act of 1964, which prohibits discrimination on the basis of race, color, or national origin; with the provisions of Title IX of the Educational Amendments of 1972, which prohibits discrimination on the basis of gender; with the provisions of Section 504 of the Rehabilitation Act of 1973, which prohibits discrimination on the basis of handicap; and with the American with Disabilities Act (ADA).

**GRIEVANCE PROCEDURES:** Grievance procedures can be found in the Catalog and Handbook located on STC'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 STC website at [www.southeasterntech.edu](http://www.southeasterntech.edu).

#### **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 employed 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.*

### ELCR 1060 GRADING POLICY

Exams	30%
Labs	20%
Homework	10%
Study Guides	5%
Final Exam *	35%
	100%

### GRADING SCALE

A	(90-100)
B	(80-89)
C	(70-79)
D	(60-69)
F	(0-59)

## **ELECTRONICS COMPETENCY EXAMS:**

\* The ELCR-1060 Final Exam is the ESA Part 3 – Solid State Devices and Linear Integrated 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 3 certificate from the 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-1060.

Upon successful completion of all four parts of the ESA exams (i.e. ≥75% on ESA I through IV exams), the student is awarded their Associate CET Certificate from the ISCET.

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.

**IMPORTANT REMINDERS CONCERNING ASSIGNMENTS:** *(Students are responsible for all information contained in this lesson plan).*

- **Assignments:** This lesson plan is subject to change at instructor's discretion. All assignments must be submitted and completed by the due dates listed above to receive credit.....so manage your time wisely each week. Missing assignments receive a grade of zero.
- **Study Guides:** For each Chapter within this course, there are online Study Guides (i.e. Practice Tests). You may take these Practice Tests as many times as you would like in order to prepare for the test. *There are three to four Practice Tests for each Chapter: (example) Multiple Choice, True / False, and Fill in the Blanks. You are required to complete all of these for each Chapter.* You should refer to lesson plan information for specific weeks when material is covered and when the Practice Tests are due for your grade.
- **Grades:** Can be checked via the BLACKBOARD class.

## **\*\*Disclaimer Statements\*\***

- (1) Instructor reserves the right to change the syllabus and/or lesson plan as necessary.
- (2) The official copy of the syllabus is located inside the student's online course shell or will be given to them during face to face class time the first day of the semester. The syllabus displayed in advance of the semester in a location other than the course you are enrolled in is for planning purposes only.

**LESSON PLAN**  
**ELCR 1060 – Linear Integrated Circuits**  
**Fall Semester 2016 (201712)**

Color Codes: **Black** = Assignments / Information, **Blue** = Graded Assignments

Date	Chapter / Lesson	Content	Assignments & Tests	*Comp. Area
<b>WEEK 1</b>				
Aug 15		<b>Class Introduction – Syllabi, Outline, Work Ethics, Rules, and Regulations Coverage</b>	<b>On BLACKBOARD</b> Review “Start Here” Information Post on “Acknowledge” Message Boards	1, a,b,c
	12.1	<b>Section 12.1 – Intro to Operational Amps</b>	<b>Read Sections 12.1 &amp; 12.2</b>	
	12.2	<b>Section 12.2 – Op-Amp Input Modes &amp; Parameters</b>		
16	12		<b>Read Sections 12.3 &amp; 12.4</b>	1, b,c
17	12.3	<b>Section 12.3 – Negative Feedback</b>		1, b,c
	12.4	<b>Section 12.4 – Op-Amps w/Negative Feedback</b>		
18	12		<b>Read Sections 12.5 through 12.9</b> <b>Begin Chapter 12 Homework</b> <b>Begin Chapter 12 Study Guides</b>	1, b,c
<b>WEEK 2</b>				
Aug 22	12.5	<b>Section 12.5 – Effects on Op-Amp Impedances</b>		1, b,c
	12.6	<b>Section 12.6 – Bias Current &amp; Offset Voltage</b>		
	12.7	<b>Section 12.7 – Open-Loop Responses</b>		
	12.8	<b>Section 12.8 – Closed-Loop Responses</b>		
23	12	<b>BLACKBOARD</b>	<b>Complete Chapter 12 Homework</b> <b>Complete Chapter 12 Study Guides</b>	1, a,b,c
24	12.9	<b>Section 12.9 – Troubleshooting</b>	<b>LabVolt – Introduction to Op-Amps</b>	1,a,b,c
25	12	<b>BLACKBOARD</b>	<b>Chapter 12 Exam</b> <b>Read Sections 13.1 &amp; 13.2</b>	1, b,c
<b>WEEK 3</b>				
Aug 29	13.1	<b>Section 13.1 – Comparators</b>		1, b,c
	13.2	<b>Section 13.2 – Summing Amplifiers</b>		
30	13		<b>Read Section 13.3</b>	1, b,c
31	13.3	<b>Section 13.3 – Integrators &amp; Differentiators</b>	<b>LabVolt – The Inverting Summer</b>	1, a,b,c
Sept 1	13		<b>Read Section 13.4</b> <b>Begin Chapter 13 Homework</b> <b>Begin Chapter 13 Study Guides</b>	1, b,c

<b>WEEK 4</b>				
Sept 5		<b>HOLIDAY – LABOR DAY</b>	<b>HOLIDAY – LABOR DAY</b>	
6	13		Read Section 13.4	1, b,c
7	13.4	Section 13.4 – Troubleshooting	LabVolt – Integrators & Differentiators	1, a,b,c
8	13	<b>BLACKBOARD</b>	Complete Chapter 13 Homework Complete Chapter 13 Study Guides	1, a,b,c
12	13	<b>BLACKBOARD</b>	Chapter 13 Exam	1, b,c
<b>WEEK 5</b>				
Sept 13	15		Read Sections 15.1, 15.2 & 15.3	1, b,c
14	15.1 15.2 15.3	Section 15.1 – Basic Filter Responses Section 15.2 – Filter Response Characteristics Section 15.3 – Active Low-Pass Filters		1, b,c
15	15		Read Sections 15.4, 15.5, 15.6 & 15.7	1, b,c
19	15.4 15.5 15.6 15.7	Section 15.4 – Active High-Pass Filters Section 15.5 – Active Band-Pass Filters Section 15.6 – Active Band-Stop Filters Section 15.7 – Filter Response Measurements	Begin Chapter 15 Homework Begin Chapter 15 Study Guides	1, b,c
<b>WEEK 6</b>				
Sept 20	15	<b>BLACKBOARD</b>		1, a,b,c
21	15		LabVolt – Low Pass Filter (part 1) LabVolt – High Pass Filter (part 1)	1, a,b,c
22	15	<b>BLACKBOARD</b>	Complete Chapter 15 Homework Complete Chapter 15 Study Guides	1, b,c
26	15	<b>BLACKBOARD</b>	LabVolt – Band Pass Filter (part 1) Chapter 15 Exam	1, a,b,c
<b>WEEK 7</b>				
Sept 27	15		Read Sections 16.1 & 16.2	1,2, b,c
28	16.1 16.2	Section 16.1 – The Oscillator Section 16.2 – Feedback Oscillator Principles		1,2, b,c
29	16		Read Sections 16.3 & 16.4	1,2, b,c
Oct 3	16.3 16.4	Section 16.3 – Oscillators with RC Feedback Section 16.4 – Oscillators with LC Feedback		1,2, b,c

WEEK 8				
Oct 4	16		Read Sections 16.5 & 16.6	1,2, b,c
5	16.5 16.6	Section 16.5 – Relaxation Oscillators Section 16.6 – The 555 Timer as an Oscillator		1,2, b,c
6	16	BLACKBOARD	Begin Chapter 16 Homework Begin Chapter 16 Study Guides	1,2, a,b,c
10	16	MID-TERM	ISCET MATERIAL REVIEW	1,2, a,b,c
WEEK 9				
Oct 11	16	BLACKBOARD	Complete Chapter 16 Homework Complete Chapter 16 Study Guides	1,2, a,b,c
12	16	BLACKBOARD	Chapter 16 Exam	1,2, b,c
13	17		Read Sections 17.1 & 17.2	1,3, b,c
17	17.1 17.2	Section 17.1 – Voltage Regulation Section 17.2 – Basic Series Regulators		1,3, b,c
WEEK 10				
Oct 18	17		ISCET MATERIAL REVIEW	1,3, b,c
19	17		LabVolt – Series Voltage Regulator	1,3, a,b,c
20	17		Read Sections 17.3 & 17.4	1,3, b,c
24	17.3 17.4	Section 17.3 – Basic Shunt Regulators Section 17.4 – Basic Switching Regulators		1,3, b,c
WEEK 11				
Oct 25	17	65% Point for Full Term Fall Semester	ISCET MATERIAL REVIEW	1,3, a,b,c
26		FALL ACTIVITY DAY	FALL ACTIVITY DAY	
26	17	BLACKBOARD	LabVolt – Shunt Voltage Regulator Begin Chapter 17 Homework Begin Chapter 17 Study Guides	1,3, b,c
27	17		Read Sections 17.5 & 17.6	
31	17.5 17.6	Section 17.5 – IC Voltage Regulators Section 17.6 – IC-VR Configurations		3, b,c
Nov 1	17		Review Chapter 17	1,3, b,c

<b>WEEK 12</b>				
Nov 2	17		LabVolt – Three-Pin IC Regulator	3, a,b,c
3	17	BLACKBOARD	Complete Chapter 17 Homework Complete Chapter 17 Study Guides	1,3, a,b,c
7	17	BLACKBOARD	Chapter 17 Exam	1,3, b,c
8	14		Read Sections 14.1 & 14.2	1, b,c
<b>WEEK 13</b>				
Nov 9	14.1 14.2	Section 14.1 – Instrumentation Amplifiers Section 14.2 – Isolation Amplifiers		1, b,c
10	14	BLACKBOARD	Read Sections 14.3 & 14.4 Begin Chapter 14 Homework Begin Chapter 14 Study Guides	1, b,c
14	14.3 14.4	Section 14.3 – OTAs Section 14.4 – Log and Antilog Amplifiers		1, b,c
15	14		Read Section 14.5	1, b,c
<b>WEEK 14</b>				
Nov 16	14.5	Section 14.5 – Converters and Others	LabVolt – TBA	1, a,b,c
17	14	BLACKBOARD	Complete Chapter 14 Homework Complete Chapter 14 Study Guides	1, a,b,c
21	14	BLACKBOARD	Chapter 14 Exam	1, b,c
22	ESA-3		ISCET MATERIAL REVIEW	1-3, b,c
<b>THANKSGIVING HOLIDAYS</b>				
23		HOLIDAY - THANKSGIVING	HOLIDAY - THANKSGIVING	
24		HOLIDAY - THANKSGIVING	HOLIDAY - THANKSGIVING	
<b>WEEK 15</b>				
Nov 28	ESA-3		ISCET MATERIAL REVIEW	1-3, b,c
29	ESA-3		ISCET MATERIAL REVIEW	1-3, b,c
30	ESA-3		ISCET MATERIAL REVIEW	1-3, b,c
Dec 1	ESA-3		ISCET MATERIAL REVIEW	1-3, b,c



**FINALS WEEK**

Dec 6	12 – 17	<b>FINAL EXAM (ESA III – Semiconductors)</b>		1-3, b,c
7	12 – 17	<b>FINAL EXAM (ESA III – Semiconductors)</b>		1-3, b,c

**\* Competency Areas:****Electronics Technology Competency Areas:**

1. Operational Amplifiers
2. Timers
3. Three Terminal Voltage Regulators

**General Core Competency Areas:**

- 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.