



**ELCR-1060 Linear Integrated Circuits**  
**COURSE SYLLABUS**  
**Traditional**  
**Fall Semester 2017**

**COURSE INFORMATION**

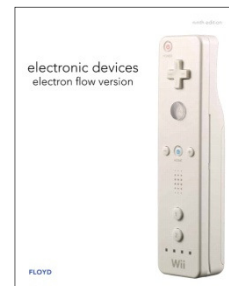
Credit Hours/Minutes: 3 Hours / 3000 Minutes  
Class Location: RMTC, Room 827, Vidalia Campus  
Class Meets: Monday and Wednesday (MW), 3:00 PM to 4:50 PM  
CRN: 20027  
Preferred Method of Contact: Text or Email to Instructor

**INSTRUCTOR CONTACT INFORMATION**

Instructor Name: William (Chip) Greene  
Office Location: RMTC Room 822, Vidalia Campus  
Office Hours: Monday through Thursday, 10:30 AM to Noon, 1:00 PM to 3:00 PM  
Email Address: [wgreene@southeasterntech.edu](mailto:wgreene@southeasterntech.edu)  
Phone: (912) 538-3102  
Fax Number: (912) 538-3106

**REQUIRED TEXT**

*Electronic Devices, Electron Flow Version, 9th ed.*  
by Thomas L. Floyd,  
published by Prentice Hall,  
ISBN# 0-13-254985-9



**REQUIRED SUPPLIES & SOFTWARE**

Engineering / Scientific Calculator

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 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**

Introduces the physical characteristics and applications of solid-state devices.

## **PREREQUISITE(S)**

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 (TRADITIONAL)**

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.

## **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.

## **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 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:

### **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" 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 and its constituent Technical Colleges do not discriminate on the basis of race, color, creed, national or ethnic origin, sex, 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 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).

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

<b>ADA/Section 504 - Equity- Title IX (Students) - OCR Compliance Officer</b>	<b>Title VI - Title IX (Employees) - EEOC Officer</b>
Helen Thomas, Special Needs Specialist Vidalia Campus 3001 East 1 <sup>st</sup> Street, Vidalia Office 108 Phone: 912-538-3126 <a href="mailto:hthomas@southeasterntech.edu">hthomas@southeasterntech.edu</a>	Blythe Wilcox, Director of Human Resources Vidalia Campus 3001 East 1 <sup>st</sup> Street, Vidalia Office 138B Phone: 912-538-3147 <a href="mailto:bwilcox@southeasterntech.edu">bwilcox@southeasterntech.edu</a>

**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](#).

**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

### **\*\*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.**

### **\* 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.  $\geq 75\%$  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.

# ELCR-1060 Linear Integrated Circuits

## Fall Semester 2017 Lesson Plan

### WEEK 1

Date	Chapter/ Lesson	Content	Assignments & Tests Due Dates	Comp. Area
Aug 14	12.1 12.2	Class Introduction – Syllabi, Outline, Work Ethics, Rules, and Regulations Coverage Section 12.1 – Intro to Operational Amps Section 12.2 – Op-Amp Input Modes & Parameters	On BLACKBOARD Review “Start Here” Information Post on “Acknowledge” Message Boards Read Sections 12.1 & 12.2	1, a,b,c
15	12		Read Sections 12.3 & 12.4	1, b,c
16	12.3 12.4	Section 12.3 – Negative Feedback Section 12.4 – Op-Amps w/Negative Feedback		1, b,c
17	12		Read Sections 12.5 through 12.9 <b>Begin Chapter 12 Homework</b> <b>Begin Chapter 12 Study Guides</b>	1, b,c

### WEEK 2

Date	Chapter/ Lesson	Content	Assignments & Tests Due Dates	Comp. Area
Aug 21	12.5 12.6 12.7 12.8	Section 12.5 – Effects on Op-Amp Impedances Section 12.6 – Bias Current & Offset Voltage Section 12.7 – Open-Loop Responses Section 12.8 – Closed-Loop Responses		1, b,c
22	12	<b>BLACKBOARD</b>	<b>Complete Chapter 12 Homework</b> <b>Complete Chapter 12 Study Guides</b>	1, a,b,c
23	12.9	Section 12.9 – Troubleshooting	<b>LabVolt – Introduction to Op-Amps</b>	1,a,b, c
24	12	<b>BLACKBOARD</b>	<b>Chapter 12 Exam</b> Read Sections 13.1 & 13.2	1, b,c

### WEEK 3

Date	Chapter/ Lesson	Content	Assignments & Tests Due Dates	Comp. Area
Aug 28	13.1 13.2	Section 13.1 – Comparators Section 13.2 – Summing Amplifiers		1, b,c
29	13		Read Section 13.3	1, b,c
30	13.3	Section 13.3 – Integrators & Differentiators	<b>LabVolt – The Inverting Summer</b>	1, a,b,c
31	13		Read Section 13.4 <b>Begin Chapter 13 Homework</b> <b>Begin Chapter 13 Study Guides</b>	1, b,c
Sept 4		HOLIDAY – LABOR DAY	HOLIDAY – LABOR DAY	

**WEEK 4**

Date	Chapter/ Lesson	Content	Assignments & Tests Due Dates	Comp. Area
Sept 5	13		Read Section 13.4	1, b,c
6	13.4	Section 13.4 – Troubleshooting	LabVolt – Integrators & Differentiators	1, a,b,c
7	13	BLACKBOARD	Complete Chapter 13 Homework Complete Chapter 13 Study Guides	1, a,b,c
11	13	BLACKBOARD	Chapter 13 Exam	1, b,c

**WEEK 5**

Date	Chapter/ Lesson	Content	Assignments & Tests Due Dates	Comp. Area
Sept 12	15		Read Sections 15.1, 15.2 & 15.3	1, b,c
13	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
14	15		Read Sections 15.4, 15.5, 15.6 & 15.7	1, b,c
18	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

**WEEK 6**

Date	Chapter/ Lesson	Content	Assignments & Tests Due Dates	Comp. Area
Sept 19	15	BLACKBOARD		1, a,b,c
20	15		LabVolt – Low Pass Filter (part 1) LabVolt – High Pass Filter (part 1)	1, a,b,c
21	15	BLACKBOARD	Complete Chapter 15 Homework Complete Chapter 15 Study Guides	1, b,c
25	15	BLACKBOARD	LabVolt – Band Pass Filter (part 1) Chapter 15 Exam	1, a,b,c

**WEEK 7**

Date	Chapter/ Lesson	Content	Assignments & Tests Due Dates	Comp. Area
Sept 26	15		Read Sections 16.1 & 16.2	1,2, b,c
27	16.1 16.2	Section 16.1 – The Oscillator Section 16.2 – Feedback Oscillator Principles		1,2, b,c
28	16		Read Sections 16.3 & 16.4	1,2, b,c
Oct 2	16.3 16.4	Section 16.3 – Oscillators with RC Feedback Section 16.4 – Oscillators with LC Feedback		1,2, b,c

**WEEK 8**

Date	Chapter/ Lesson	Content	Assignments & Tests Due Dates	Comp. Area
Oct 3	16		Read Sections 16.5 & 16.6	1,2, b,c
4	16.5 16.6	Section 16.5 – Relaxation Oscillators Section 16.6 – The 555 Timer as an Oscillator		1,2, b,c
5	16	<b>BLACKBOARD</b>	<b>Begin Chapter 16 Homework</b> <b>Begin Chapter 16 Study Guides</b>	1,2, a,b,c
9	16	<b>MID-TERM</b>	<b>ISCET MATERIAL REVIEW</b>	1,2, a,b,c

**WEEK 9**

Date	Chapter/ Lesson	Content	Assignments & Tests Due Dates	Comp. Area
Oct 10	16	<b>BLACKBOARD</b>	<b>Complete Chapter 16 Homework</b> <b>Complete Chapter 16 Study Guides</b>	1,2, a,b,c
11	16	<b>BLACKBOARD</b>	<b>Chapter 16 Exam</b>	1,2, b,c
12	17		Read Sections 17.1 & 17.2	1,3, b,c
16	17.1 17.2	Section 17.1 – Voltage Regulation Section 17.2 – Basic Series Regulators		1,3, b,c

**WEEK 10**

Date	Chapter/ Lesson	Content	Assignments & Tests Due Dates	Comp. Area
Oct 17	17		<b>ISCET MATERIAL REVIEW</b>	1,3, b,c
18	17		<b>LabVolt – Series Voltage Regulator</b>	1,3, a,b,c
19	17		Read Sections 17.3 & 17.4	1,3, b,c
23	17.3 17.4	Section 17.3 – Basic Shunt Regulators Section 17.4 – Basic Switching Regulators		1,3, b,c



**WEEK 11**

Date	Chapter/ Lesson	Content	Assignments & Tests Due Dates	Comp. Area
Oct 24	17	<b>65% Point for Full Term Fall Semester</b>	<b>ISCET MATERIAL REVIEW</b>	1,3, a,b,c
25	17	<b>BLACKBOARD</b>	<b>LabVolt – Shunt Voltage Regulator Begin Chapter 17 Homework Begin Chapter 17 Study Guides</b>	1,3, b,c
26	17		<b>Read Sections 17.5 &amp; 17.6</b>	
30	17.5 17.6	Section 17.5 – IC Voltage Regulators Section 17.6 – IC-VR Configurations		3, b,c

**WEEK 12**

Date	Chapter/ Lesson	Content	Assignments & Tests Due Dates	Comp. Area
Oct 31	17		<b>Review Chapter 17</b>	1,3, b,c
Nov 1	17		<b>LabVolt – Three-Pin IC Regulator</b>	3, a,b,c
2	17	<b>BLACKBOARD</b>	<b>Complete Chapter 17 Homework Complete Chapter 17 Study Guides</b>	1,3, a,b,c
6	17	<b>BLACKBOARD</b>	<b>Chapter 17 Exam</b>	1,3, b,c

**WEEK 13**

Date	Chapter/ Lesson	Content	Assignments & Tests Due Dates	Comp. Area
Nov 7	14		<b>Read Sections 14.1 &amp; 14.2</b>	1, b,c
8	14.1 14.2	Section 14.1 – Instrumentation Amplifiers Section 14.2 – Isolation Amplifiers		1, b,c
9	14	<b>BLACKBOARD</b>	<b>Read Sections 14.3 &amp; 14.4 Begin Chapter 14 Homework Begin Chapter 14 Study Guides</b>	1, b,c
13	14.3 14.4	Section 14.3 – OTAs Section 14.4 – Log and Antilog Amplifiers		1, b,c

**WEEK 14**

Date	Chapter/ Lesson	Content	Assignments & Tests Due Dates	Comp. Area
Nov 14	14		<b>Read Section 14.5</b>	1, b,c
15	14.5	Section 14.5 – Converters and Others	<b>LabVolt – TBA</b>	1, a,b,c
16	14	<b>BLACKBOARD</b>	<b>Complete Chapter 14 Homework Complete Chapter 14 Study Guides</b>	1, a,b,c
20	14	<b>BLACKBOARD</b>	<b>Chapter 14 Exam</b>	1, b,c

## WEEK 15

Date	Chapter/ Lesson	Content	Assignments & Tests Due Dates	Comp. Area
Nov 21	ESA-3		ISCET MATERIAL REVIEW	1-3, b,c
22		HOLIDAY - THANKSGIVING	HOLIDAY - THANKSGIVING	
23		HOLIDAY - THANKSGIVING	HOLIDAY - THANKSGIVING	
27	ESA-3		ISCET MATERIAL REVIEW	1-3, b,c
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

## FINAL EXAM WEEK

Date	Chapter/ Lesson	Content	Assignments & Tests Due Dates	Comp. Area
Dec 5	12 – 17	FINAL EXAM (ESA III – Semiconductors)		1-3, b,c
6	12 – 17	FINAL EXAM (ESA III – Semiconductors)		1-3, b,c

### Competency Areas:

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

### 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.