

Spring 2012

Course Syllabus: **EET1141C – Semiconductor Devices & Circuits** – CRN 24780

Catalog Course Description: First of two-course sequence in electronic semiconductor circuits. Provides basic understanding of electronic circuits which utilize semiconductor diode and transistor circuit elements. Introduces concept of circuit simplification via idealizations, approximations and overview of semiconductor devices and their electrical properties. Emphasis on circuit analysis and various small-signal, linear and power applications utilizing diodes and transistors. Students assigned appropriate hands-on laboratory projects to expose them to practical considerations in implementing various semiconductor circuits analyzed in classroom. (Special Fee: \$61.00)

Prerequisites: EET 1036C or EET 1025C

Class Time and Location: Lecture: Tuesday, 5:30 – 7:20 PM, University Center – Room 238 Laboratory: Tuesday, 7:25 – 9:00 PM, University Center – Room 244

Textbook(s): <u>Electronic Devices, 9th edition</u> by Floyd. ISBN: 0-13-242973-X

Lab Manual(s): Semiconductor Devices and Circuits Laboratory Manual by Dr. Hedayat

Professor's Information:

nstructor:	Dr. Hall
Office:	West Campus, University Center – Room 254
Phone:	(Office) 407.582.1963
Email:	dhall@valenciacollege.edu
Office Hours:	Posted just outside my office door and within our Blackboard online course

Student Performance Assessment:

Attendance and In Class Participation	10%		
Lab Final Exam	10%		
Laboratory Experiments	30%	Α	90 – 100 %
Exam Preparation Problems	10%	В	80 – 89 %
Two Exams (10% each)	20%	С	70 – 79 %
Theory Final Exam	20%	D	60 – 69
		F	< 59 %

Important Dates:

No Show Reporting Period	January 18-24
MLK Day (College Closed)	January 16
Faculty Learning Day (College Closed)	February 10
Spring Break (College Closed)	March 5-11
Withdrawal deadline for "W" Grade	March 23
Final exam	April 24
Final Grades Viewable in Atlas	May 1

DISCLAIMER: Any changes in the policy and/or schedule of this syllabus may be made at the discretion of the instructor at anytime during the semester.

Course Outline for EET 1141C – CRN 24780; Spring 2012			
Tuesday Date 2012	Due Online Before Class Begins	Material To Be Covered	Laboratory Experiments
W1 - 1/10		Introductions Course Overview Chapter 1: Introduction to Electronics Chapter 2: Diodes and Applications	 1 – Diode Characteristics and Circuits
W2 – 1/17		Chapter 2: Diodes and Applications	2 – Half-Wave and Full-Wave Rectifiers
W3 – 1/24	 Experiment 1 Lab Report Experiment 2 Lab Report Scanned Chapter 1 Exam Preparation Problems 	Chapter 2: Diodes and Applications continued	 3 – Diode Limiting and Clamping Circuits
W4 – 1/31	 Experiment 3 Lab Report Scanned Chapter 2 Exam Preparation Problems 	Chapter 3: Special- Purpose Diodes	 4 – Zener Diode, Voltage Regulator, and Limiter
W5 – 2/7	 Experiment 4 Lab Report Scanned Chapter 3 Exam Preparation Problems 	Exam 1 – Chapters 1	– 3 and Labs 1 – 4
W6 – 2/14		Chapter 4: Bipolar Junction Transistors (BJT)	5 – Basic Logic Circuits
W7 – 2/21	Experiment 5 Lab Report	Chapter 4: Bipolar Junction Transistors (BJT) continued	6 – Base Biasing
W8 – 2/28	 Experiment 6 Lab Report Scanned Chapter 4 Exam Preparation Problems 	Chapter 5: Transistor Bias Circuits (BJT)	7 – Voltage DividerBiasing
W9 – 3/6 Spring Break (College Closed)			
W10-3/13	 Experiment 7 Lab Report Scanned Chapter 5 Exam Preparation Problems 	Chapter 6: BJT Amplifiers	8 – Common Emitter Amplifier
W11 – 3/20	 Experiment 8 Lab Report Chapter 7 Overview Summary Paper 	Chapter 6: BJT Amplifiers (continued)	9 – Common Collector Amplifier
W12 – 3/27	 Experiment 9 Lab Report Scanned Chapter 6 Exam Preparation Problems 	Exam 2 – Chapters 4	– 6 and Labs 5 – 9
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W16 – 4/24	 Scanned Chapter 9 Exam Preparation Problems All GEOs (Not Required) 	Theory Final Exam (<u>Comprehensive</u>) [Begins at 5:30 PM]	
W15 – 4/17	Experiment 10 Lab Report	Chapter 9: FET Amplifiers & Switching Circuits	Lab Final Exam (<u>Comprehensive</u>)
W14-4/10	 MOSFET Summary Paper Scanned Chapter 8 Exam Preparation Problems 	Chapter 8: Field-Effect Transistors (FETs)	10 – FET
W13 – 4/3		Review Exam 2	

Exam Preparation Problem Fun
[Scan and submit online under Assignments]
Chapter 1
1, 3, 7, 9, 11, GreenTech Application 1: Questions 1 - 5
Chapter 2
1, 3, 5, 9, 15, GreenTech Application 2: Questions 1 – 5
Chapter 3
1, 7, 17, 21, 27, GreenTech Application 3: Questions 1 – 5
Chapter 4
1, 3, 7, 25, 29, GreenTech Application 4: Questions 1 – 5
Chapter 5
1, 11, 19, 33, 35, GreenTech Application 5: Questions 1 – 5
Chapter 6
1, 3, 7, 21, 27, 29, GreenTech Application 6: Questions 1 – 4
Chapter 7
Chapter Overview Summary Paper
Chapter 8
1, 3, 5, 17, 29
Chapter 9
1, 3, 5, 7, 25
Grade Enhancement Opportunities (a.k.a. Extra CreditNot Required)
[Submit Online under Assignments]
GEO_1: Chapter 7: Complete Self-Test Questions 1-17 (located at end of chapterwrite down all
questions and your selected answersshow any work as problem dictates.)
GEO_2: Chapter 11: 1, 3, 5, 7, 9, 11, 13, 15, 17, 19
GEO_3: Give Kids the World Technical Service Learning Experience Commentary Paper
GEO_4: Florida Solar Energy Center Field Trip Commentary Paper
GEO_5: Block Kids Building Competition Judge
GEO_6: Orlando Science Center Technical Service Learning Experience
GEO_7: Chapter 10: 1, 3, 5, 7, 9, 13, 19, 23
GEO_8: Experiment 11 Lab Report
(Conduct experiment in Multisim and analyze your results in the Discussion section of your lab report)

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Rules and Comments:

- Students are strongly encouraged to read the Valencia policy Manual <u>Student Code of</u> <u>Conduct</u> and <u>Computer Acceptable Usage</u> found at: <u>http://valenciacollege.edu/policies/policydetail2.cfm?PolicyCatID=10&PolicyID=3</u>
- You are expected to be in class <u>on time</u>. You are responsible for all information and/or assignments given during class, whether you are present or not.
- **NO LATE WORK** will be accepted (no exceptions).
- **NO MAKE UPS** on missed lab assignments or missed exams (no exceptions).
- All lab experiments must be completed during class time. Labs performed in the University Center Open Lab will not be accepted unless prior permission from professor.
- Use pencil or erasable pen ONLY and <u>erase all errors</u> when recording data within your lab manual. Five points will be deducted on each lab report grade if non-erasable pen is used in the lab manual or for scratch outs done with any type of writing instrument.
- Lab reports are to be submitted in an organized, well documented, and structured manner representative of the student's best effort. No hand-written material will be accepted in the lab reports.
- As we embark upon completing various lab experiments within this course during which you will be recording various data within your lab manual, be diligent every step of the way to try and record an explanation of why you think your circuit is behaving as you are observing it during the lab and not to simply just note down your data observations without conveying some reason as to why they might be occurring.
- No audio or video recording allowed in class unless prior permission is granted from professor and every other student in the class.
- It is the student's responsibility to withdraw from the course. Any withdrawal after the withdraw deadline may result in earning an F as the overall grade for the course.
- If interested, you may calculate your most current grade in the course utilizing the "Student Performance Assessment" section listed on the first page of this syllabus along with what grades have been posted in Blackboard Learn and with what graded assignments have been returned in class to you thus far in the course. Your professor will calculate the final grade in the course that you have earned after the final exam has been given and will post this grade in Atlas for you to view at the end of the semester.

Student Core Competencies:

The faculty members of Valencia College have established four Core Competencies that describe the learning outcomes for a Valencia graduate. They are: THINK, VALUE, COMMUNICATE, and ACT. These general competencies can be applied in many contexts and must be developed over a lifetime. They specify how learning can be expressed and assessed in practice. They enable students and faculty to set learning goals and assess learning within and across the many disciplines of human inquiry. Use the descriptions and examples of academic work for each to measure your own learning outcomes. Samples of the academic work are great additions to your Learning Portfolio. For further information on student core competencies please go to: www.valenciacollege.edu/competencies.

Expected Student Conduct:

Valencia College is dedicated not only to the advancement of knowledge and learning but is concerned with the development of responsible personal and social conduct. By enrolling at Valencia College, a student assumes the responsibility for becoming familiar with and abiding by the general rules of conduct. The primary responsibility for managing the classroom environment rests with the faculty. Students who engage in any prohibited or unlawful acts that result in the disruption of a class may be directed by the faculty member to leave the class. Violation of any classroom or Valencia's rules may lead to disciplinary action up to and including expulsion from Valencia. Disciplinary action could include being withdrawn from class, disciplinary warning, probation, suspension, expulsion, or other appropriate and authorized actions. You will find the Student Code of Conduct in the current Valencia Student Handbook

Students with disabilities who qualify for academic accommodations must provide a letter from the Office for Students with Disabilities (OSD) and discuss specific needs with the professor, preferably during the first two weeks of class. The Office for Students with Disabilities determines accommodations based on appropriate documentation of disabilities (West Campus SSB 102, ext. 1523).

Valencia College is interested in making sure all our students have a rewarding and successful college experience. To that purpose, Valencia students can get immediate help with issues dealing with stress, anxiety, depression, adjustment difficulties, substance abuse, time management as well as relationship problems dealing with school, home or work. BayCare Behavioral Health Student Assistance Program (SAP) services are free to all Valencia students and available 24 hours a day by calling (800) 878-5470. Free face-to-face counseling is also available.