The Kimmel School of Construction Management, Engineering and Technology
Electrical Engineering

Course Syllabus
EE 342 – Solid State Electronic Devices
3 Credits

Instructor(s): Dr. Weiguo Yang

Contact Info:
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Office Hours: Posted on office door
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Meeting Periods: Tuesday, Thursday, 9:30am – 10:45am, BL364

Course Description: Theory and applications of semiconductor devices. Diode characteristics and applications. Transistor fundamentals. D. C. biasing and stabilization. Small-signal analysis. Field effect transistors. Operational amplifier fundamentals. .

Course Goals: This course will provide the students with:

- The foundations for understanding the behavior and the properties of basic devices used in IC circuits;
- The ability to further develop and understand newly developed devices;
- The required knowledge of devices and circuits for employment in electronics industries;
- Better understanding of circuit simulation and design through the knowledge of device operation;
- The ability to pursue graduate or in-depth studies of solid state devices, process design and circuit simulation.

Prerequisites: EE 321, Electromagnetic Fields, and PHYS 310, Modern Physics.

Corequisites: none.

Required Text: Neamen, D. A. (2006). *An Introduction to Semiconductor Devices*, New York: McGraw Hill. ISBN: 0-07-298756-1

References: Sedra, A.S. & Smith, K.C. (2004). *Microelectronic Circuits, 5th Ed.*, New York, New York: Oxford University Press. ISBN: 0-19-514251-9.

Website materials: http:\\paws.wcu.edu\wyang

Instructional Approach: Course material will be introduced during lecture. Reading, homework assignments, and quizzes will reinforce material covered in class.

Evaluation: Each student will be evaluated based on performance in the following areas. Respective weights of each performance area are as noted.

- Homework (7) 20%
- Project 10%
- Exams (4) 60%
- Final exam 10%

Grading Scale: The grading scale below will be used to determine final grades:

92 – 100	A	72 – 77	C
90 – 91	A-	70 – 71	C-
88 – 89	B+	68 – 69	D+
82 – 87	B	62 – 67	D
80 – 81	B-	60 – 61	D-
78 – 79	C+	0 – 59	F

Attendance: Students are required to attend all lectures.

Assignments: Timely and full completion of assignments is vital to student success in this course. To this end, the following policies will be in effect:

- Students are expected to submit work on time.
- Late assignments will not be accepted.
- Students who submit assignments after the due date/time will receive a grade of zero.
- No make-up exams will be given unless the instructor is notified prior to the absence and/or corroborating documentation of the reason for the absence is provided.
- Assignments missed due to an excused absence will be due during the next class period.

Honor Code: Students are expected to comply with the spirit and intent of the University Academic Honesty Policy as stated in the Undergraduate Catalogue**. Visit WCU's Undergraduate Student Handbook for all related policies and procedures. http://www.wcu.edu/studentd/StudentHandbook.** Evidence of academic dishonesty will result in a grade of F (numerically "0") for that assignment on the first infraction. A second infraction will result in a grade of F for the course.

Accommodations for Students with Disabilities:

Western Carolina University is committed to providing equal educational opportunities for students with documented disabilities. Students who require disability services or reasonable accommodations must identify themselves as having a disability and provide current diagnostic documentation to Disability Services. All information is confidential. Please contact Disability Services for more information at (828) 227-2716 or 144 Killian Annex.

Classroom Policies: The following policies will be in effect during class meetings and project sessions:

- Cell phones must be turned off during class time.
- Drinks, food and tobacco are not permitted in classrooms or laboratories.
- Instant messenger, AOL or other non-instructional software is not permitted on classroom or lab computers. Printing of material in lab which is not course-related is also not permitted.

Weekly Lesson Plan

Week	Topic	Book Section	Assessment
Jan.14, 2008	Intro to semiconductors, crystal structure	Chapter 1	HW 1
Jan 21, 2008	Theory of Solids	Chapter 2	
Jan 28, 2008		Chapter 2	HW 2
Feb 4, 2008	Semiconductors in Equilibrium	Chapter 3	Test 1
Feb 11, 2008		Chapter 3	
Feb 18, 2008		Chapter 3	HW 3
Feb 25, 2008	Carrier Transport and Excess Carrier Phenomena	Chapter 4	Test 2
Mar 3, 2008	Spring Break		
Mar 10, 2008	PN junction and Metal-Semiconductor Contact	Chapter 5	HW 4
Mar 17, 2008		Chapter 5	HW 5
Mar 24, 2008	MOSFET Transistors	Chapter 6	Test 3
Mar 31, 2008		Chapter 6	Project
April 7, 2008	More MOSFET	Chapter 7	HW 6
April 14, 2008	BJTs	Chapter 10	Test 4
April 21, 2008	Optical Devices	Chapter 12	
April 28, 2008		Chapter 12	HW 7
May 7, 2008	Wednesday	12:00 – 2:30 PM	Final Exam