	COURSE CHANGE REQUEST Undergraduate Programs	UUPC Approval 10-11-21
FAU **FLORIDA ATLANTIC UNIVERSITY**	**Department** Electrical Eng. and Comp Science **College** Engineering and Computer Science	UFS Approval _____ SCNS Submittal _____ Confirmed _____ Banner Posted _____ Catalog _____

Current Course Prefix and Number	EEE 3300	*Current* Course Title Electronics 1

*Syllabus must be attached for **ANY** changes to current course details. See Checklist. Please consult and list departments that may be affected by the changes; attach documentation.*

Change title to:	**Change description to:**
	See syllabus attached for new course description.
Change prefix	
From: **To:**	
Change course number	**Change prerequisites/minimum grades to:**
From: **To:**	
Change credits*	
From: 4 **To:** 3	EEL 3111 with C or better
Change grading	**Change corequisites to:**
From: **To:**	
Change WAC/Gordon Rule status*	
Add ☐ **Remove** ☐	**Change registration controls to:**
Change General Education Requirements**	
Add ☐ **Remove** ☐	
*Review Provost Memorandum **WAC/Gordon Rule criteria must be indicated in syllabus and approval attached to this form. See WAC Guidelines. ***General Education criteria must be indicated in syllabus and approval attached to this form. See GE Guidelines.	Please list existing and new pre/corequisites, specify AND or OR and include minimum passing grade (default is D-).

Effective Term/Year for Changes:	Spring 2022	**Terminate course? Effective Term/Year for Termination:**

Faculty Contact/Email/Phone	Hanqi Zhuang, zhuang@fau.edu, 561-297-3413

Approved by		***Date***
Department Chair	_[signature]_	9/23/2021
College Curriculum Chair	_Dan Meeroff_	10-4-21
College Dean	_Fred Bloetscher_	10-4-21
UUPC Chair	_Dan Meeroff_	10-11-21
Undergraduate Studies Dean	_Edward Pratt_	10-11-21
UFS President		
Provost		

Email this form and syllabus to mjenning@fau.edu seven business days before the UUPC meeting.

1. Course title/number, number of credit hours	
Electronics I – EEE 3300	3 credit hours

2. Course prerequisites, corequisites, and where the course fits in the program of study
Prerequisite: EEL 3111 with "C" or better

3. Course logistics
Term: TBD
Class location and time:

4. Instructor contact information	
Instructor's name *Office address* *Office Hours* *Contact telephone number* *Email address*	TBD

5. TA contact information	
TA's name *Office address* *Office Hours* *Contact telephone number* *Email address*	TBD

6. Course description
Operational amplifiers and applications to analog signal processing and conditioning; Introduction to electronic circuits simulation software (such as PSPICE and ADS); Introduction to solid state semiconductor devices (diodes, BJT, MOSFET) and their applications.

7. Course objectives/student learning outcomes/program outcomes	
Course objectives	Introduction to solid state devices (diodes, BJTs,FETs); op-amps, small signal amplifier analysis, large signal analysis. Use of circuit analysis programs (SPICE, etc.).
Assessment	An Ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics. (Problem solving)
Student learning outcomes & relationship to ABET 1-7 outcomes	1) Understanding of op-amp operation and limitations when configured as feedback amplifier. (1, 3, 5) 2) Familiarity with op-amp amplifier applications, which include inverting and non-inverting amplification, buffering, linear summation of signals, voltage level shifting, integration, differential amplification and low-pass filtering. (1, 3, 5) 3) Understanding of op-amp operation and limitations when configured as a comparator. (1, 3, 5)

4) Familiarity with op-amp comparator applications that include Schmitt Trigger design and AstableMultivibrator (square-wave oscillator) design. (1, 3, 5)

5) Understanding of diode and Zener diode operation - specifically, ability to analyze DC operation of resistor-diode circuits. Also - understanding of the role played by diode models of various complexities. (1, 3, 5)

6) Ability to design and analyze a regulated DC voltage supply, using transformers, diodes and Zener diodes. (1, 3, 5)

7) Familiarity with diode applications, including voltage limiting and clamping. (only if time permits)* (1, 3, 5)

8) Understanding of the operation of a BJT transistor. Specifically, ability to analyze NPN and PNP transistor DC conditions in active, saturation and cutoff modes. (1, 3, 5)

9) Understanding of the concept of transistor biasing, and familiarity with common biasing techniques. (1, 3, 5)

10) Understanding of the concept of a small-signal transistor model, and ability to analyze simple amplifier circuits. (1, 3, 5)

11) Ability to design BJT common-emitter and emitter-follower amplifiers to meet voltage gain and input resistance specifications. (only if time permits) (1, 3, 5)

12) Understanding of the principle of operation of a MOSFET transistor, and ability to analyze simple (single transistor, at Level 1 modeling) NMOS and PMOS DC circuits. Specifically, ability to find out at what mode of operation (saturation, triode or cutoff) the transistor operates. (1, 3, 5)

13) Understanding the concepts of simple Common-Source Amplifiers. (1, 3, 5)

8. Course evaluation method

Homework - 20% Quiz 1 - 20% Quiz 2 - 20% Quiz 3 - 20% Quiz 4 - 20%	*Note*: The minimum grade required to pass the course is C.

9. Course grading scale

Grading Scale:
"A", 90-100: "A-", 85-89: "B+", 80-84: "B", 75-79 : "B-", 70-74: "C+", 65-69: "C", 60-64: "C-", 55-59: "D+", 50-54: "D", 45-49: "D-", 40-44: 39 and below: "F."

10. Policy on makeup tests, late work, and incompletes

Makeup tests are given only if there is solid evidence of a medical or otherwise serious emergency that prevented the student from participating in the exam.

Late work is not acceptable unless the instructor previously agreed.

Incomplete grades are against the policy of the department. Unless there is solid evidence of a medical or otherwise serious emergency situation incomplete grades will not be given.

11. Special course requirements

TBD

12. Classroom etiquette policy

Due to the casual communication common in the online environment, students are sometimes tempted to relax their grammar, spelling, and/or professionalism. Please remember that you are adult students and professionals—your communication should be appropriate.

Disruptive behavior is defined in the FAU Student Code of Conduct as "… activities which interfere with the educational mission within the classroom." Students who disrupt the educational experiences of other students and/or the instructor's course objectives in a face-to-face or online course are subject to disciplinary action. Such behavior impedes students' ability to learn or an instructor's ability to teach. Disruptive behavior may include, but is not limited to non-approved use of electronic devices (including cellular telephones); cursing or shouting at others in such a way as to be disruptive; or, other violations of an instructor's expectations for classroom conduct.

13. Attendance policy statement

Students are expected to attend all of their scheduled University classes and to satisfy all academic objectives as outlined by the instructor. The effect of absences upon grades is determined by the instructor, and the University reserves the right to deal at any time with individual cases of non-attendance.

Students are responsible for arranging to make up work missed because of legitimate class absence, such as illness, family emergencies, military obligation, court-imposed legal obligations or participation in University approved activities. Examples of University-approved reasons for absences include participating on an athletic or scholastic team, musical and theatrical performances and debate activities. It is the student's responsibility to give the instructor notice prior to any anticipated absences and within a reasonable amount of time after an unanticipated absence, ordinarily by the next scheduled class meeting. Instructors must allow each student who is absent for a University-approved reason the opportunity to make up work missed without any reduction in the student's final course grade as a direct result of such absence.

14. Disability policy statement

In compliance with the Americans with Disabilities Act Amendments Act (ADAAA), students who require reasonable accommodations due to a disability to properly execute coursework must register with Student Accessibility Services (SAS) and follow all SAS procedures. SAS has offices across three of FAU's campuses – Boca Raton, Davie and Jupiter – however disability services are available for students on all campuses. For more information, please visit the SAS website at www.fau.edu/sas/.

15. Counseling and Psychological Services (CAPS) Center

Life as a university student can be challenging physically, mentally and emotionally. Students who find stress negatively affecting their ability to achieve academic or personal goals may wish to consider utilizing FAU's Counseling and Psychological Services (CAPS) Center. CAPS provides FAU students a range of services – individual counseling, support meetings, and psychiatric services, to name a few – offered to help improve and maintain emotional well-being. For more information, go to http://www.fau.edu/counseling/

16. Code of Academic Integrity policy statement

Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty is considered a serious breach of these ethical standards, because it interferes with the university

mission to provide a high quality education in which no student enjoys an unfair advantage over any other. Academic dishonesty is also destructive of the university community, which is grounded in a system of mutual trust and places high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. For more information, see University Regulation 4.001. If your college has particular policies relating to cheating and plagiarism, state so here or provide a link to the full policy—but be sure the college policy does not conflict with the University Regulation.

17. Required texts/reading

Textbook: Sedra and Smith "Microelectronic Circuits" 8th edition, Oxford Press.

18. Supplementary/recommended readings

N/A

19. Course topical outline, including dates for exams/quizzes, papers, completion of reading

- Op-Amp applications
- Introduction to PSPICE (or ADS)
- Semiconductor Physics of PN Junctions, BJT Transistors and MOSFET Transistors
- Diodes and applications
- BJT Transistors and applications
- Introduction to MOSFET Transistor circuits