

 FLORIDA ATLANTIC UNIVERSITY	NEW COURSE PROPOSAL Undergraduate Programs		UUPC Approval <u>10-11-21</u> UFS Approval _____ SCNS Submittal _____ Confirmed _____ Banner Posted _____ Catalog _____
	Department Electrical Engineering and Computer Science College Engineering and Computer Science <i>(To obtain a course number, contact erudolph@fau.edu)</i>		
Prefix EEL Number 3514	<i>(L = Lab Course; C = Combined Lecture/Lab; add if appropriate)</i> Lab Code	Type of Course <div style="border: 1px solid red; padding: 2px;">Lecture</div>	Course Title Signals and Digital Filter Design
Credits <i>(Review Provost Memorandum)</i> 3	Grading <i>(Select One Option)</i> Regular <input checked="" type="radio"/> Pass/Fail <input type="radio"/> Sat/UnSat <input type="radio"/>	Course Description <i>(Syllabus must be attached; Syllabus Checklist recommended; see Guidelines)</i> Sampling and data reconstruction, Z Transform, design of simple digital FIR and IIR filters, MATLAB programming and hardware implementation considerations, selected audio and image processing applications and basic spectrum analysis using FFT. Special emphasis is on the processing of realistic music, sound and image signals. Significant portion of the course lecture time will be devoted to MATLAB DSP demonstrations.	
Effective Date <i>(TERM & YEAR)</i> Spring 2022	Prerequisites, with minimum grade* MAC 2312 with "C" or better		
		Corequisites NA	Registration Controls <i>(Major, College, Level)</i>
*Default minimum passing grade is D-. Prereqs., Coreqs. & Reg. Controls are enforced for all sections of course			
WAC/Gordon Rule Course <input type="radio"/> Yes <input checked="" type="radio"/> No <i>WAC/Gordon Rule criteria must be indicated in syllabus and approval attached to proposal. See WAC Guidelines.</i>		Intellectual Foundations Program (General Education) Requirement <i>(Select One Option)</i> None <i>General Education criteria must be indicated in the syllabus and approval attached to the proposal. See GE Guidelines.</i>	
Minimum qualifications to teach course PhD in CS, CE or EE			
Faculty Contact/Email/Phone Hanqi Zhuang, zhuang@fau.edu, 5612973413		List/Attach comments from departments affected by new course	
Approved by Department Chair _____ College Curriculum Chair <u>Dan Meeroff</u> College Dean <u>Fred Bloetscher</u> UUPC Chair <u>Dan Meeroff</u> Undergraduate Studies Dean <u>Edward Pratt</u> UFS President _____ Provost _____		Date 9/23/2021 <u>10-4-21</u> <u>10-4-21</u> <u>10-11-21</u> <u>10-11-21</u> _____ _____	

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

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1. Course title/number, number of credit hours	
Signals and Digital Filter Design – EEL 3514	3 credit hours
2. Course prerequisites, corequisites, and where the course fits in the program of study	
Prerequisite: MAC 2312 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	
Sampling and data reconstruction, Z Transform, design of simple digital FIR and IIR filters, MATLAB programming and hardware implementation considerations, selected audio and image processing applications and basic spectrum analysis using FFT. Special emphasis is on the processing of realistic music, sound and image signals. Significant portion of the course lecture time will be devoted to MATLAB DSP demonstrations.	
7. Course objectives/student learning outcomes/program outcomes	
Course objectives	This course introduces students to basic concepts of signals and digital filters. After taking this course, students shall be able to design and implement digital filters for a variety of applications.
Student learning outcomes & relationship to ABET 1-7 objectives	TBD
8. Course evaluation method	
<ol style="list-style-type: none"> 1. Individual Assignments 40% 2. Group Assignments 50% 3. Discretion 10% 	
9. Course grading scale	

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90 and above: "A-, A", 80-89: "B-, B, B+", 60-79: "C-, C, C+", 40-59: "D-, D, D+", 0-39: 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. Makeup exam should be administered and proctored by department personnel unless there are other pre-approved arrangements

Late work is not acceptable.

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

N/A

12. Classroom etiquette policy

University policy requires that in order to enhance and maintain a productive atmosphere for education, personal communication devices, such as cellular phones and laptops, are to be disabled in class sessions.

13. Attendance Policy

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 (ADA), students who require special accommodation 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

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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 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: James H. McClellan, Ronald W. Schafer and Mark A. Yoder, "DSP First", 2nd Edition, Pearson.

18. Supplementary/recommended readings

TBD

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

- Introduction to signal and system representations
- Sinusoids and phasor operations
- Spectrum representation
- Fourier Series Analysis
- Sampling and Aliasing: The Sampling Theorem
- FIR filtering
- Frequency response of FIR filters
- Discrete-Time Fourier Transform
- The z-Transform
- IIR filters
- Designing filters