

**FLORIDA INTERNATIONAL UNIVERSITY
UNIVERSITY CURRICULUM COMMITTEE**
Course Change/Deletion Request

DO NOT TYPE IN THIS BOX

Bulletin # : _____
Academic Year : _____

INSTRUCTIONS: Fill out Part I completely. In Part II, fill out the items which have changed and explain reason for change.

I. 1a. SCHOOL/COLLEGE Engineering and Computing DIV./DEPT. IN WHICH TAUGHT Electrical and Computer Engineering

b. DIV./DEPT. NO. EGEL DEPT. ACCOUNT NO. 2124001
(9 digits)

2a. Present Course Title Filter Design

b.

<u>EEL</u>	<u>4</u>	<u>140</u>	<u>3</u>			
Alpha Prefix	1st Digit	last 3 Digits	"C"-lec-lab "L"-Lab	Cr. Hrs.	HEGIS No. (6 digits)	CIP Code (Leave this blank)

3. Deletion Request? Yes Effective Date / / 20

a. Reason for Deletion: _____

b. Skip Change Information Section (Part II)
No Fill out Part II.

II. CHANGE INFORMATION ONLY

4a. New Title: _____ Change Effective / / 20

b. Abbreviated course Title (for computer class schedules, transcripts)
25 Characters (including spaces)

5a.

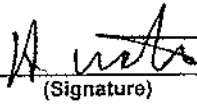
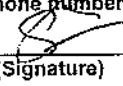
<u> </u>	<u> </u>	<u> </u>	<u> </u>	Credit Hours: From <u> </u> To <u> </u>
New Alpha Prefix	1st Digit	last 3 Digits	"C"-lec-lab "L"-Lab	

6. Catalog Description (not to exceed 200 characters including spaces)

7. New Prerequisite(s) : EEE 3303 and EEE 3303L New Corequisite(s): _____

8. Explain Reclassification Request: _____

CHANGE REQUESTED BY:

Faculty Contact	<u>Herman Watson</u> (Type name)	 (Signature)	<u>09/04/2012</u>
	<u>herman.watson@fiu.edu</u> (Email address)	<u>(305)348-3018</u> (Phone number)	
Chairperson (Dept./Div.)	<u>Shekhar Bhansali</u> (Type name)	 (Signature)	<u>9/4/2012</u>
Chairperson (Curr. Comm.)	<u>Nagarajan Prabhakaran</u> (Type name)	<u> </u> (Signature)	<u> </u> / <u> </u> / 20 <u> </u>
College/School Dean	<u>Amir Mirmiran</u> (Type name)	<u> </u> (Signature)	<u> </u> / <u> </u> / 20 <u> </u>

APPROVED BY:

University Curriculum Committee _____ / _____ / 20

Faculty Senate Chairperson _____ / _____ / 20

Academic Affairs V.P. _____ / _____ / 20

Submit one original copy of this form. Attach one hard copy and one electronic copy of the course syllabus containing: Objectives, Learning Outcomes, Major Topics and Textbooks.

**FLORIDA INTERNATIONAL UNIVERSITY
COLLEGE OF ENGINEERING AND COMPUTING
DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING**

**EEL 4140 – FILTER DESIGN
FALL 2010**

Class time and days: 2:00 pm – 3:15 pm / T-Th/Room EC 2420

Final Exam: 12/09/2010 12:00 pm – 2:00 pm Room EC 2420

Instructor: Gustavo Roig, Ph.D.

Email: gustavo.roig@fiu.edu

Office: EC 3265A

OFFICE HOURS:
Monday – 10:00 am to 12:00 pm
Tuesday – 09:30 am to 10:30 am
Wednesday – 08:30 am to 11:30 am
01:30 pm to 03:00 pm
Thursday – 09:30 am to 10:30 am

or by appointment.

Textbook:: Design of Analog Filters 2nd edition
By R. Schaumann, H. Xiao and M.E.
Van Valkerburg-OXFORD Pres

GRADING:

Test 1	40%
Test 2	40%
Project	20%
A- to A	90-100
B- to B+	80-89
C- to C+	70-79
D- to D+	60-69
F	below 60

COURSE OBJECTIVES:

After completing this course, students will have learned:

- The important characteristics of the different standard filters
- How to translate system requirements into filter specifications
- How to design the op amp circuits for all second-order filter sections
- How to cascade filter sections to create higher order filters
- How to evaluate and compensate for the component variations
- How to evaluate the sensitivity factors in filter circuits
- How to synthesize a LC ladder filter circuit
- The basic principles of switched-capacitor and OTA filters on VLSI chips

EEL 4140 – FILTER DESIGN (3 credits)

Approximation techniques. Active RC second order modules. Low pass filters, bandpass filters, all pass filters, notch filters are studied in detail. Sensitivity and high order filters. S design, computer simulation and implementation is required.

Prerequisites: EEE 3303 ELECTRONICS I and EEE 3303L ELECTRONICS I LAB

COURSE CONTENT (Short Form)

Chapter 1	Introduction.
Chapter 2	Operational amplifiers.
Chapter 3	First-Order filters: Bilinear Transfer Functions and frequency Response.
Chapter 4	Second-Order Lowpass and Bandpass filters.
Chapter 6	Butterworth filters
	Test # 1
Chapter 7	Chebyshev filters.
Chapter 10	Delay Filters.
Chapter 12	Sensitivity.
Chapter 13	LC Ladder Filters.
Chapter 17	Switched-Capacitor Filters

Test # 2

Department Regulation Concerning Incomplete Grades

To qualify for an incomplete

1. Must contact (e.g. phone, email, etc.) the instructor or secretary before or during portion of class.
2. Must be passing the course prior to that part of the course that is not completed.
3. Must have documented circumstances beyond his/her control.
4. Must make up the incomplete work through the instructor of the course.
5. Must see the instructor. All missed work must be finished before last two weeks of the following terms.

“Florida International University is a community dedicated to generating and imparting knowledge through excellent teaching and research, the rigorous and respectful exchange of ideas, and community service. All students should respect the right of others to have an equitable opportunity to learn and honestly to demonstrate the quality of their learning. Therefore, all students are expected to adhere to a standard of academic conduct, which demonstrate respect for themselves, their fellow students, and the educational mission of the University. All students are deemed by the University to understand that if they are found responsible for academic misconduct, they will be subject to the Academic Misconduct procedures, sanctions, as outlines in the Student Handbook.”