

ECE Department Catalog Changes – November, 2008

Proposed New Courses (Add to catalog)

1. Proposed course number and course description (as it will appear in course catalog):

ECE 3XX. Wireless Circuits (3) spring

Theory and design of high-frequency circuits for wireless communications. Transmission lines and microwave networks. Types of circuits explored include filters, amplifiers, mixers, voltage controlled oscillators (VCOs), phase locked loops (PLLs), synthesizers, modulators and demodulators, and antennae. Design using scattering parameters, Smith chart and RF/microwave CAD programs for simulation. System performance analysis based on noise figure, antenna gain and the Friis equation will be developed. Modulation techniques of AM, FM, PM, and QPSK systems will be compared based on bit error rates (BER) calculated from system parameters. Prerequisite: ECE203

ECE 3YY. Microprocessors (3) spring

Microprocessor architectures with focus on Motorola 8, 16, and 32-bit microprocessors (68HC11, 9S12DP256 and Coldfire MCF5XXX series). Chip features, programming model, instruction set, use of programming tools, flash memory programming, interrupt programming and interfacing to external devices and memory. Programming primarily in C-language with some assembly. (two lectures and one laboratory per week). Prerequisite: ECE33.

2. Description of proposed change(s):

These two courses have been taught previously as experimental courses, ECE350-XX. We would now like to have them included in the catalog.

3. Rationale for proposed change(s):

These courses can no longer be taught as experimental courses.

5. Impact Statement:

There is no impact for our students. These are technical elective courses.

6. Resource Impact:

There is no impact on resources.

2009/2010 Catalog Description

Electrical Engineering Minor

Program Management: Electrical and Computer Engineering Curriculum Committee

Minor Program Director: William R. Haller

Minor in Electrical Engineering

The purpose of the Electrical Engineering minor is to enable students to supplement their major with knowledge and skills that increase their ability to realize their multi-disciplinary goals and/or make them more marketable upon graduation.

Required courses:

- ECE 81 Principles of Electrical Engineering (4 credit hours)
 - Or ECE 83 and ECE 162 plus departmental approval
- ECE 108 Signals and Systems (4 credit hours)
- ECE 121 Electrical Circuits Laboratory (2 credit hours)
- ECE 123 Electronic Circuits (3 credit hours)

One of the following Electrical and Computer Engineering options:

- ECE 33 Introduction to Computer Engineering
- ECE 125 Circuits and Systems
- ECE 126 Fundamentals of Semiconductor Devices
- ECE 136 Electromechanics
- ECE 339 Graphical Signal Processing
- ECE 341 Fundamentals of Wireless Communications
- ECE 343 Digital Signal Processing
- ECE 371 Optical Information Processing
- ECE 372 Optical Networks

ECE Department Catalog Changes – November, 2008

Proposed Course Change (Add to catalog)

1. Current course number and course description (from course catalog):

ECE 83. Introduction to Electrical Engineering (3) spring

Circuit elements and laws. Behavior of simple linear networks. Characteristics of electronic circuits and modeling. Introduction to functional circuits, such as operational amplifiers, instrumentation amplifiers, and power systems. Introduction to basic filters and data converters. May not be taken with ECE 81 for credit. Prerequisites: Math 22, Phys 21.

2. Proposed course number and course description (as it will appear in course catalog):

ECE 83. Introduction to Electrical Engineering (3) spring

Circuit elements and laws. Behavior of simple linear networks. Characteristics of electronic circuits and modeling. Introduction to functional circuits, such as operational amplifiers, instrumentation amplifiers, and power systems. Introduction to basic filters and data converters. May not be taken with ECE 81 for credit. Prerequisite: Math 22, Corequisite: Phys 21.

3. Description of proposed change(s):

We are changing the prerequisite for PHY21 for this course to a corequisite for PHY21.

4. Rationale for proposed change(s):

We are changing the prerequisites for this course to a corequisite for PHY21 so that students wishing to take this course sequence instead of ECE81 will encounter the same prerequisite/corequisite requirements.

5. Impact Statement:

There is no impact for our students. They would take these courses in any event.,

6. Resource Impact:

There is no impact on resources.

ECE Department Catalog Changes – November, 2008

Proposed Course Change (Add to catalog)

1. Current course number and course description (from course catalog):

ECE 121. Electronic Circuits Laboratory (2) fall

One lecture and one laboratory per week. Experiments illustrating the principles of operation of electronic devices and their circuit applications. Basic electronics instrumentation and measurement techniques. Co-rerequisite: ECE82

ECE 123. Electronic Circuits (3) fall

Methods for analyzing and designing circuits containing electronic devices. Topics include device models, basic amplifier configurations, operating point stabilization, frequency response analysis, and computer aided analysis of active circuits. Prerequisite: ECE108

2. Proposed course number and course description (as it will appear in course catalog):

ECE 121. Electronic Circuits Laboratory (2) fall

One lecture and one laboratory per week. Experiments illustrating the principles of operation of electronic devices and their circuit applications. Basic electronics instrumentation and measurement techniques. Prerequisite: ECE81

ECE 123. Electronic Circuits (3) fall

Methods for analyzing and designing circuits containing electronic devices. Topics include device models, basic amplifier configurations, operating point stabilization, frequency response analysis, and computer aided analysis of active circuits. Prerequisite: ECE81

3. Description of proposed change(s):

We are changing the prerequisites for these courses to ECE81.

4. Rationale for proposed change(s):

We are changing the prerequisites for these courses to ECE81 because we feel that ECE81 is sufficient preparation for them. In fact, they only require an understanding of basic circuits principles as taught in ECE81.

5. Impact Statement:

There is no impact for our students. They would take these courses in any event.,

6. Resource Impact:

There is no impact on resources.

Proposed Program Changes (EE and CompE)

1. Name and summary of current program:

Items to be changed are made bold

BS in Electrical Engineering

sophomore year, second semester (18 credit hours)

<u>Spring</u>	ECE 82	Sophomore Lab (1)
	ECE 108	Signals and Systems (4)
	ECE 126	Fundamentals of Semiconductor Conductor Devices (3)
	Math 205	Linear Methods (3)
	ECO 1	Principles of Economics (4)
		HSS elective (3)

junior year, first semester (17-18 credit hours)

Fall	ECE 121	Electronic Circuits Laboratory (2)
	ECE 123	Electronic Circuits (3)
	ECE 202	Introduction to Electromagnetics (3)
	Math 208	Complex Variables (3)
		HSS elective (3-4)
		free elective (3)

BS in Computer Engineering (Senior year)

sophomore year, second semester (18 credit hours)

<u>Spring</u>	ECE 82	Sophomore Lab (1)
	ECE 108	Signals and Systems (4)
	CSE 17	Structured Programming and Data Structures (3)
	Math 205	Linear Methods (3)
	ECO 1	Principles of Economics (4)
		HSS elective (3)

junior year, first semester (18 credit hours)

Fall	ECE 121	Electronic Circuits Laboratory (2)
	ECE 123	Electronic Circuits (3)
	CSE 109	Systems Programming (3)
	Math 231	Probability and Statistics (3) or
	Math 309	Theory of Probability (3)
		Approved technical elective (3)
		free elective (3)

2. Proposed program changes (as they will appear in the catalog):

Changes indicated with *** following the line

BS in Electrical Engineering

sophomore year, second semester (18 credit hours)

<u>Spring</u>	ECE 121	Electronic Circuits Laboratory (2)
	ECE 123	Electronic Circuits (3)
	ECE 126	Fundamentals of Semiconductor Conductor Devices (3)
	Math 205	Linear Methods (3)
	ECO 1	Principles of Economics (4)
		HSS elective (3)

junior year, first semester (17-18 credit hours)

Fall	ECE 82	Junior Lab (1)
	ECE 108	Signals and Systems (4)
	ECE 202	Introduction to Electromagnetics (3)
	Math 208	Complex Variables (3)
		HSS elective (3-4)
		free elective (3)

BS in Computer Engineering (Senior year)

sophomore year, second semester (18 credit hours)

<u>Spring</u>	ECE 121	Electronic Circuits Laboratory (2)
	ECE 123	Electronic Circuits (3)
	CSE 17	Structured Programming and Data Structures (3)
	Math 205	Linear Methods (3)
	ECO 1	Principles of Economics (4)
		HSS elective (3)

junior year, first semester (18 credit hours)

Fall	ECE 82	Junior Lab (1)
	ECE 108	Signals and Systems (4)
	CSE 109	Systems Programming (3)
	Math 231	Probability and Statistics (3) or
	Math 309	Theory of Probability (3)
		Approved technical elective (3)
		free elective (3)

3. Description of proposed change(s):

The Courses, ECE108 and ECE123, with associated lab courses, ECE82 and ECE121, are being switched in their ordering. Specifically, ECE108 and ECE82 are being moved to fall junior year, and the current fall junior year offerings, ECE123 and ECE121 are being moved back to the spring semester sophomore year.

4. Rationale for proposed change(s):

We wish to improve the continuity of the undergraduate core curriculum. Currently, the students get ECE123, the electronic circuits followup to ECE81, after a semester delay. In addition, they get the signals and systems course between the ECE81 and ECE123. We believe that the students would benefit from continuing the circuits introduction in ECE81 immediately with the electronic circuits course, ECE123. ECE123 does not really require the material from ECE108, but rather mainly requires the material from ECE81. Furthermore, the students will be more motivated to learn the signals and systems theory in ECE108 given the background of both ECE81 and ECE123. Finally, since the lab courses are linked to the respective main courses, one would naturally move them as well.

5. Academic Impact Statement:

a. Is this proposed program change interdisciplinary?

These changes affect the EE and CompE programs directly, but do not affect any other academic programs.

b. Identify any known effects of the proposed program change on other programs at the University.

See 5a.

c. If there are known effects, individuals in charge of the affected programs must be consulted about the proposed program change and the following information provided:

(1) Who was consulted?

Joint ECE and CSE committee on the CompE program
The ECE department
The CSE department

(2) Is the proposed program change acceptable to the affected programs?

Yes

(3) Will any changes be required in the affected programs? If so, describe.

Yes, but only in the ordering of courses. The changes are neutral in terms of credit loading in the affected semesters, and as a result also from the standpoint of overall credit requirements.

d. Identify any known effects of the proposed program change on the University's commitment to diversity.

None.

6. Resource Impact Statement:

a. Provide each of the following:

(1) Library impact statement

None. Same as before.

(2) Computer impact statement

None. Same as before.

(3) Faculty impact statement

No new courses are being offered.

(4) Facilities impact statement

Same facilities currently in use will be employed.

b. Provide a statement indicating who will assume financial responsibility for any new resources required:

The ECE department remains responsible for the same needs.