

## Computer Engineering Degree Standard Schedule of Coursework

Fall Semester

Spring Semester

### Freshman Year

	Credits		Credits
ECE102 Digital Circuit Logic	4	CS160 – Found. in Programming	4
MATH160 Calculus for Physical Scientists I	4	ECE103 DC Circuit Analysis	3
CO150 College Composition	3	MATH161 Calculus for Physical Scientists II	4
Univ. Core (Historical Perspectives)	<u>3</u>	PH141 Physics for Scientists and Engineers I	<u>5</u>
<b>Total</b>	<b>14</b>		<b>16</b>

### Sophomore Year

CS161 Object Oriented Problem Solving	4	CS200 Algorithms & Data Structures	4
ECE251 Intro. to Microprocessors	4	ECE202 Circuit Theory Application	4
MATH261 Calculus for Physical Scientists III	4	MATH340 Intro to Ordinary Differential Equations or MATH345 Differential Equations <i>(a)</i>	4
PH142 Physics for Scientists and Engineers II	<u>5</u>	Univ. Core (Arts & Humanities)	<u>3</u>
<b>Total</b>	<b>17</b>		<b>15</b>

### Junior Year (CO150 must be passed before the Junior Year)

CS253 Problem Solving with C++	4	CS370 System Architecture	4
ECE311 Linear Systems Analysis I	3	ECE312 Linear Systems Analysis II	3
ECE331 Electronics Principles I	4	ECE332 Electronics Principles <i>(b)</i> OR	
ECE450 Digital Systems Design Lab	1	CS301 Foundation of Computer Science <i>(c)</i>	3
ECE451 Digital Systems Design	<u>3</u>	ECE452 Computer Organization & Architecture	3
		ECON202 Microeconomics	<u>3</u>
<b>Total</b>	<b>15</b>		<b>17</b>

### Senior Year

ECE/STAT303 Intro to Communications Principles	3	ECE402 Senior Design Project II	3
ECE401 Senior Design Project I (must be a Computer Engr topic)	3	ECE456 Computer Networks	4
Technical Electives <i>(d)</i>	8	Technical Electives <i>(d)</i>	3
Univ. Core (Arts & Humanities)	<u>3</u>	CO301B Writing in the Disciplines-Sci.	OR
		JTC300 Prof. & Technical Comm.	3
		Univ. Core (Global & Cultural Awareness)	<u>3</u>
<b>Total</b>	<b>17</b>		<b>16</b>

### Grand Total Credits

**127**

(a) Students taking MATH345 MUST take the prerequisite, MATH 229.

(b) ECE332 is recommended for students interested in specializing in VLSI.

(c) CS301 (followed by CS453 in the Senior Year) is recommended for students interested in specializing in computer system design. Students choosing to take CS301 must take MATH229 BEFORE registering for CS301.

(d) CS453, Intro to Compiler Construction, is recommended as one of the electives for students interested in specializing in computer system design. For other options see Technical Elective lists on Program Requirements page

## THE SIX ACADEMIC REQUIREMENTS

### 1. Required Total Credits

Computer Engineering Degree – 127 credits

### 2. Grade Requirements

University -- 2.00 GPA (p. 94)

College -- 2.00 GPA in all required engineering, math, chemistry and physics courses (p. 182)

Department -- every 100-, 200-, and 300-level required ECE course must be passed with a minimum grade of C. Students receiving a grade below C will not be allowed to take any ECE course for which that course is a prerequisite until such time as the C or above grade requirement is met. 2.00 ECE GPA (in all ECE courses taken)

Courses taken outside the ECE Department. Students must meet all grade minimums set by other Departments for prerequisite courses.

### 3. Technical Electives

15 credits chosen from the following list:

ECE Courses		CS Courses	
ECE332	Electronics Principles II	CS301	Foundations in Computer Science
ECE411	Control Systems	CS314	Software Development Methods
ECE412	Digital Control & Digital Filters	CS410	Intro. to Computer Graphics
ECE/CS460	Embedded Systems	CS414	Object Oriented Design
ECE512	Digital Signal Processing	CS420	Intro. to Analysis of Algorithms
ECE513	Digital Image Processing	CS430	Database Systems
ECE534/535	Analog Integrated Circuits/Lab	CS440	Intro to Artificial Intelligence
ECE550	Microprocessor Based Systems	CS451	Operating Systems
ECE554	Computer Architecture	CS454	Principles of Programming Languages
ECE555	Robot Motion Planning	CS453	Intro. to Compiler Construction
ECE/CS560	Reconfigurable Computing	CS475	Parallel Programming
ECE/CS561	Hardware/Software Des. of Embedded Systems	CS/ECE460	Embedded Systems
ECE562	Power Electronics I	CS/ECE561	Hardware Hardware/Software Des. of Embedded Systems
ECE563	Power Electronics II	CS510	Computer Graphics
ECE571/575	VLSI System Design/Lab	CS551	Principles of Operating Systems
		CS556	Computer Security
		CS/ECE560	Reconfigurable Computing

Courses required for the major cannot also be counted as technical elective credit. Example: Either ECE332 or CS301 is required for the major. If a student takes BOTH, ECE 332 is required and CS301 applies toward technical elective credit requirements. If only one of the two is taken, it applies to the degree requirements and cannot also be counted as technical elective credits.

This list is subject to frequent changes. Contact the Department or check the ECE Department web page for the most current listing of acceptable technical elective courses.

#### 4. All-University Core Curriculum

##### Category 1 - Basic Competencies

- A – Intermediate Writing
- B – Mathematics

CO150<sup>1</sup> 3 cr.  
MATH160 3cr.

##### Category 2 – Advanced Writing

CO301B OR  
JTC300

##### Category 3 - Foundations & Perspectives

###### A - Biological/Physical Sciences

PH141 5 cr.  
PH142 5 cr.

###### B - Arts/Humanities (6 credits)

Choose from the list available in the current General Catalog or Class Schedule. No more than 3 credits of intermediate foreign languages may be used toward this category.

###### C - Social/Behavioral Sciences

ECON202 3 cr.

###### D - Historical Perspectives (3 credits)

Choose from the list available in the current General Catalog or Class Schedule

###### E - Global & Cultural Awareness (3 credits)

Choose from the list available in the current General Catalog or Class Schedule

### BACKGROUND INFORMATION

**STUDENTS ARE ULTIMATELY RESPONSIBLE FOR KNOWING AND FULFILLING THE REQUIREMENTS FOR GRADUATION. THESE REQUIREMENTS ARE LISTED IN THE GENERAL CATALOG AND EACH SEMESTER'S COURSE SCHEDULE.**

#### 1. Required Total Credits

A minimum of 30 upper-division semester credits must be completed in residence at CSU as a major in the College of Engineering as verified by the Electrical and Computer Engineering Department. A minimum of 42 upper-division semester credits (300-400 level) is required of all students completing a bachelor's degree program. Elective credits taken at the 500 level may be used to fulfill this requirement.

#### 2. Grade Requirements

All courses must be taken for a grade. The original grade and grades earned in repeated courses are both used in calculating grade point averages, unless a student exercises Repeat/Delete policy explained in the Grading and Scholastic Standards section of the General Catalog. Only the most recent grade of a repeated course is used in calculating the ECE GPA.

#### 3. Prerequisites and Co-requisites

Meeting course prerequisites and co-requisites is the responsibility of the student. Math department policy is that module prerequisites must be satisfied on the first day of class.

#### 5. Professional Development

The College of Engineering recognizes the need for global awareness for tomorrow's engineers. To this end, the College of Engineering is providing opportunities for professional development for all students. Workshops have been designed with

Engineering students in mind – to enhance their experience here at CSU. As our profession becomes more global in orientation, the skills required to succeed go beyond the traditional classroom offerings. Space is limited, review the available workshops and RSVP to ensure admittance to any workshop. The website is: <http://www.engr.colostate.edu/pli/index.shtml>