# ELECTRICAL ENGINEERING

## SEMESTER CURRICULUM

**YEAR ONE – FALL SEMESTER**
- EE 1014 Intro to Electrical Engin. (F,S) 4
- MATH 2301 Calculus I (F,S) 4
- CS 2400 Intro to Computer Sc. I (F,S) 4
- Tier 1E First Year Composition 3

**YEAR ONE – SPRING SEMESTER**
- EE 1024 Intro to Computer Engin. (F,S) 4
- MATH 2302 Calculus II (F,S) 4
- CHEM 1510 Fund. of Chemistry I (F,S) 4
- Tier 2CP 2

**YEAR TWO – FALL SEMESTER**
- EE 2213 Instrumentation Laboratory (F,S) 3
- EE 2104 Electric Circuits I (F,S) 4
- EE 2324 Analytical Foundations of EE (F,S) 4
- Programming Elective 4
- Tier 2HL 2

**YEAR TWO – SPRING SEMESTER**
- EE 2114 Electric Circuits II (F,S) 4
- PHYS 2051 General Physics I (F,S) 5
- MATH 3300 Calculus-III (F,S) 4
- Science Elective (with Lab) 4

**YEAR THREE – FALL SEMESTER**
- EE 3334 Linear Signals & Systems (F) 4
- EE 3343 Electronics I (F,S) 3
- EE 3713 Applied Prob. & Stat. for EE (F,S) 3
- ET 2200 Statics (F,S) 3
- ISE 3300 Engineering Economy (F,S) 2
- Tier 2FA 2

**YEAR THREE – SPRING SEMESTER**
- EE 3954 Microcontrollers (F,S) 4
- EE 3513 Digital Signal Processing (F,S) 3
- EE 3214 Emag and Materials I (F,S) 4
- EE 3963 Electrical Machines (F,S) 3
- Tier 1J Junior Composition (F,S) 3

**YEAR FOUR – FALL SEMESTER**
- EE 4953 EE&CpE CapStne Design-I (F) 3
- EE 3223 Emag and Materials II (F) 3
- Tier 2SS 2
- Senior Elective #1 3
- Tech Elective #1 3

**YEAR FOUR – SPRING SEMESTER**
- EE 4963 EE&CpE CapStone Design-II(S) 3
- EE 3973 Electronics II (S) 3
- Engineering Elective 3
- Senior Elective #2 3
- Tech Elective #2 3

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Total Credit Hours: 29+34+34+29 = 126
Computer Engineering Under Semesters

1. Foundations in Electrical and Computer Engineering – 16 Required Courses - 54 semester hours
   - EE 1014: Introduction to Electrical Engineering
   - EE 1024: Introduction to Computer Engineering
   - EE 2104: Circuits I
   - EE 2114: Circuits II
   - EE 2213: Instrumentation Laboratory
   - EE 3214: Electromagnetics and Materials I
   - EE 3343: Electronics I
   - EE 3513: Digital Signals and Systems
   - EE 3613 Computer Organization
   - EE 3753 Intro to Computer Networks
   - EE 3954: Microprocessors and Microcontrollers
   - EE 4673: Embedded Systems
   - EE 4683: Computer Architecture
   - EE 4953: Electrical & Computer Engineering
   - EE 4963: Electrical & Computer Engineering Capstone Design I
   - EE 4963: Electrical & Computer Engineering Capstone Design II
   - CS 4420: Operating Systems (3.0)

2. Senior EE/CS Electives – Choose 2 Courses – (minimum of 6 hours)
   - EE 4053: Physical and Power Electronics
   - EE 4143: Design of Digital Circuits
   - EE 4183: Micro and Nano Fabrication
   - EE 4213: Feedback Control Theory
   - EE 4313: Optoelectronics and Photonics
   - EE 4403: Microwave Theory and Devices
   - EE 4523: Intro to Electric Power System Engineering & Analysis
   - EE 4713: Communication Engineering
   - EE 4853: Electronic Navigation Systems
   - EE 4913: Programmable Logic Controllers
   - CS 3560: Software Engineering Tools & Practices (3.0)
   - CS 4000: Intro to Distributed, Parallel, & Web-Centric Computing (3.0)
   - CS 4040: Design & Analysis of Algorithms (3.0)
   - CS 4060: Computation Theory (3.0)
   - CS 4100: Introduction to Formal Languages and Compilers (3.0)
   - CS 4160: Problem Solving with Bioinf. Tools (3.0)
   - CS 4170: Programming for Bioinformatics (3.0)
   - CS 4250: Interactive Computer Graphics (3.0)
   - CS 4440: Data Communications (3.0)
   - CS 4500: Advanced Object Oriented Design & GUI Techniques (3.0)
   - CS 4580: Operating Systems II (3.0)
   - CS 4620: Database Systems (3.0)
   - CS 4750: Internet Engineering (4.0)
   - CS 4800: Artificial Intelligence (3.0)

3. Technical Electives – Choose 2 Courses – (minimum of 6 hours)
   - Any EE 4XXX,
   - Any CS 4XXX,
   - Any MATH 4XXX,
   - MGT 2020;
   - ME 3510 (CAD);
   - CE 3400 (Fluid Mech);
   - ET 2240 (Dynamics);
   - ET 3200 (Thermo);
   - ET 2300 (Materials);
   - ET 2220 (Strength)

4. Math and Basic Science – 8 Courses (minimum 32 semester hours; Accreditation Requirement)
   - MATH 2301: Calculus I (4.0)
   - MATH 2302: Calculus II (4.0)
   - CS 3000: Intro to Discrete Structures (4.0)
   - CHEM 1510: Fundamentals of Chemistry I (4.0)
   - PHYS 2051: Gen. Phys (5.0)
   - EE 3713: Applied Probability & Statistics for EE
   - EE 2254: Analytical Foundations of EE
   - Science Elective with Lab (4.0) (restrictions apply)

5. Additional Requirements – (15 semester hours General Engineering+14 hours of General Education)
   - CS 2400: Introduction to Computer Science - I (4.0)
   - CS 2401: Introduction to Computer Science - II (4.0)
   - CS 3560: Software Engineering Tools and Practices (3.0)
   - CS 3610: Data Structures (4.0)
   - Fulfill University General Education Requirements (14.0 hours) (1E:1J;2CP;2HL;2FA;2SS)

Minimum Hours needed for graduation = 127
Computer Science Under Semesters

1. **Foundations in Computing – 15 Required Courses**
   
   (49 semester hours; 12 Computer Science and 3 Electrical Engineering Courses)
   
   - CS 2400: Intro to Computer Science I (4.0)
   - CS 2401: Intro to Computer Science II (4.0)
   - CS 2650: Professional and Ethical Aspects of Computing (2.0)
   - CS 3200: Organization of Programming Languages (3.0)
   - CS 3610: Data Structures (4.0)
   - CS 3560: Software Engineering Tools & Practices (3.0)
   - CS 4000: Introduction to Distributed, Parallel, and Web-Centric Computing (3.0)
   - CS 4040: Design & Analysis of Algorithms (3.0)
   - CS 4100: Intro to Formal Languages & Compilers (3.0)
   - CS 4420: Operating Systems (3.0)
   - CS 4560: Software Design & Development I (3.0)
   - CS 4561: Software Design & Development II (3.0)
   - EE 1024: Intro to Computer Engineering (4.0)
   - EE 3954: Microprocessors/ Microcontrollers (4.0)
   - EE 3613: Computer Organization (3.0)

2. **Technical Electives – 3 Courses**
   
   (9 semester hours; 3 additional courses in Computer Science or related areas of Electrical Engineering)
   
   - CS 4060: Computation Theory (3.0)
   - CS 4120: Parallel Computing I (3.0)
   - CS 4160: Problem Solving with Bioinformatics Tools (3.0)
   - CS 4170: Programming for Bioinformatics (3.0)
   - CS 4250: Interactive Computer Graphics (3.0)
   - CS 4580: Operating Systems II (3.0)
   - CS 4620: Database Systems (3.0)
   - CS 4750: Internet Engineering (4.0)
   - CS 4800: Artificial Intelligence (3.0)
   - CS 4440: Data Communications (3.0)
   - EE 4673: Embedded Systems (3.0)
   - EE 4683: Computer Architecture (3.0)

3. **Mathematical Foundations – 5 Courses (18 semester hours; mathematics related to computing)**
   
   - MATH 2301: Calculus I (4.0) (2AS)
   - MATH 2302: Calculus II (4.0) (2AS)
   - EE 3713: Applied Probability and Statistics for Electrical Engineers (3.0)
   - CS 3000: Introduction to Discrete Structures (4.0)
   - Linear Algebra: MATH 3200, Applied Linear Algebra (3.0) or MATH 3210: Linear Algebra (3.0)

4. **Additional Requirements** - (15 semester hours science and mathematics + 14 hours of General Education + 15 hours of free electives)
   
   - Laboratory Science sequence. Choose from: (PHYS 2051 + 2052) or (CHEM 1510 + 1520) or (BIOS 1700 + 1705 + 1710 + 1715) or (PBIO 1140 + 1150) (at least 8 hours),
   - One additional laboratory science course (some restrictions apply) (4 hours),
   - One additional mathematics or science elective (3 hours),
   - Fulfill University general education requirements (14 semester hours), (1E; 1J; 2CP; 2HL; 2FA; 2SS)
   - Free Electives (minimum 15 semester hours)

   Minimum Hours needed for graduation = 120
## COMPUTER SCIENCE

### SEMESTER CURRICULUM

**SEPTEMBER 2011 - 120 CREDIT HOURS - SAMPLE PROGRAMM**

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<tr>
<th>YEAR ONE - FALL SEMESTER</th>
<th>YEAR ONE - SPRING SEMESTER</th>
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<tr>
<td>CS 2400 Intro to Computer Science I (F,S)</td>
<td>CS 2401 Intro to Computer Science II (F,S)</td>
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<td>Tier 1E First Year Composition</td>
<td>EE 1024 Intro to Computer Engineering (F,S)</td>
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<td>MATH 2301 Calculus I (F,S)</td>
<td>MATH 2302 Calculus II (F,S)</td>
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<td>CS 2650 Prof &amp; Ethical Computing (F,S)</td>
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<tr>
<td>CS 3000 Intro to Discrete Systems (F,S)</td>
<td>CS 3200 Organ. of Profess. Languages (S)</td>
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<td>CS 3560 Soft Engineering Tools (F,S)</td>
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<td>MATH 3200/3210 Linear Algebra (F,S)</td>
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<tr>
<td>CS 4040 Design&amp;Analysis of Algorithms(F)</td>
<td>CS 4100 Formal Lang. &amp; Compilers (S)</td>
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<td>EE 3613 Computer Organization (F)</td>
<td>EE 3954 Microcontrollers (F,S)</td>
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<td>CS 4420 Operating Systems (F,S)</td>
<td>CS 4561 Soft. Design &amp; Development II (S)</td>
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### Electrical Engineering Under Semesters

1. **Foundations in Electrical Engineering – 15 Required Courses - 52 semester hours**
   - EE 1014: Introduction to Electrical Engineering
   - EE 1024: Introduction to Computer Engineering
   - EE 2104: Circuits I
   - EE 2114: Circuits II
   - EE 2213: Instrumentation Laboratory
   - EE 3214: Electromagnetics and Materials I
   - EE 3235: Electromagnetics and Materials II
   - EE 3334: Linear Signals and Systems
   - EE 3343: Electronics I
   - EE 3513: Digital Signals and Systems
   - EE 3954: Microprocessors and Microcontrollers
   - EE 3963: Electric Machines
   - EE 3973: Electronics II
   - EE 4953: EE and CPE Capstone Design I
   - EE 4963: EE and CPE Capstone Design I

2. **Senior EE/CS Electives – Choose 2 Courses – (minimum of 6 hours)**
   - EE 3613: Computer Organization
   - EE 3753: Introduction to Computer Networks
   - EE 4053: Physical and Power Electronics
   - EE 4143: Design of Digital Circuits
   - EE 4183: Micro and Nano Fabrication
   - EE 4213: Feedback Control Theory
   - EE 4313: Optoelectronics and Photonics
   - EE 4403: Microwave Theory and Devices
   - EE 4523: Power Systems Engineering/Analysis
   - EE 4673: Embedded Systems
   - EE 4683: Computer Architecture
   - EE 4713: Communication Engineering
   - EE 4853: Electronic Navigation Systems
   - EE 4913: Programmable Logic Controllers
   - CS 3560: Software Engin. Tools & Practices (3.0)
   - CS 4000: Intro to Distributed, Parallel, & Web-Centric Computing (3.0)
   - CS 4040: Design & Analysis of Algorithms (3.0)
   - CS 4060: Computation Theory (3.0)
   - CS 4100: Introduction to Formal Languages and Compilers (3.0)
   - CS 4160: Problem Solving w/ Bioinf. Tools (3.0)
   - CS 4170: Programming for Bioinformatics (3.0)
   - CS 4250: Interactive Computer Graphics (3.0)
   - CS 4420: Operating Systems (3.0)
   - CS 4440: Data Communications (3.0)
   - CS 4500: Advanced Object Oriented Design & GUI Techniques (3.0)
   - CS 4580: Operating Systems II (3.0)
   - CS 4620: Database Systems (3.0)
   - CS 4750: Internet Engineering (4.0)
   - CS 4800: Artificial Intelligence (3.0)

3. **Technical Electives – Choose 2 Courses – (minimum of 6 hours)**
   - Any EE 4XXX,
   - Any CS 4XXX,
   - Any MATH 4XXX,
   - ME 3510 (CAD),
   - ME 3510 (CAD),
   - CE 3400 (Fluid Mech),
   - ET 2240 (Dynamics),
   - ET 3200 (Thermo),
   - ET 2300 (Materials),
   - ET 2220 (Strengths)

4. **Math and Basic Science – 8 Courses (minimum 32 semester hours; Accreditation Requirement)**
   - MATH 2301: Calculus I (4.0)
   - MATH 2302: Calculus II (4.0)
   - MATH 3300: Calculus III (4.0)
   - CHEM 1510: Fundamentals of Chemistry I (4.0)
   - PHYS 2051: Gen. Phys (5.0)
   - EE 3713: Applied Probability & Statistics for EE
   - EE 2224: Analytical Foundations of EE
   - Science Elective with Lab (4.0) (restrictions apply)

5. **Additional Requirements – (16 semester hours General Engineering+14 hours of General Education)**
   - ET 2200: Statics (3.0)
   - ET 3300: Engineering Economy (2.0)
   - CS 2400: Introduction to Computer Science - I (4.0)
   - Choose One course from: CS 2500: Computer Programming in JAVA (4.0) or CS 2401: Intro to CS - II (4.0)
   - Fulfill university requirements for general education: (14 semester hours) \( (1E;1J;2CP;2HL;2FA;2SS) \)

**Minimum Hours needed for graduation = 126**
# COMPUTER ENGINEERING

## SEMESTER CURRICULUM

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<td>CS 2400 Intro to Computer Science I (F,S)</td>
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<td>EE 3513 Digital Signal Processing (F,S)</td>
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<td>EE 4963 EE&amp;CPE CapStone Design II(S)</td>
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<td>EE 4683 Computer Architecture (F,S)</td>
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