BSCoE in Computer Engineering

Degree Program Description

The computer engineering degree offers a balanced approach to both hardware and software, as well as other areas of engineering. Focused areas of work in additional hardware or software, communications, discrete and integrated electronics, and robotics are offered by the department.

Major Program Requirements

The computer engineering degree offers a balanced approach to both hardware and software, as well as other areas of engineering. Focused areas of work in additional hardware or software, communications, discrete and integrated electronics, and robotics are offered by the department. (Focus areas are not listed on transcripts or diplomas.)

Students must complete all university requirements, including general education(http://catalog.missouri.edu/academicdegreerequirements/generaleducationrequirements), and Department Level Requirements(http://catalog.missouri.edu/undergraduategraduate/collegeofengineering/#undergraduatetext), in addition to the degree requirements below.

Major core requirements

Constitutional Elective
Select one of the following:

- HIST 1100 Survey of American History to 1865
- HIST 1200 Survey of American History Since 1865
- HIST 1400 American History
- HIST 2210 Twentieth Century America
- HIST 2440 History of Missouri
- HIST 4000 Age of Jefferson
- HIST 4220 U.S. Society Between the Wars 1918-1945
- HIST 4230 Our Times: United States Since 1945
- POL_SC 1100 American Government
- POL_SC 2100 State Government

Humanities/Fine Arts courses

- 9

Social Science/Behavioral Science courses

- 6

Other major core requirement courses:

- MATH 1500 Analytic Geometry and Calculus I
- MATH 1700 Calculus II
- MATH 2300 Calculus III
- MATH 2320 Discrete Mathematical Structures
- MATH 4100 Differential Equations
- STAT 4710 Introduction to Mathematical Statistics
- PHYSICS 2750 University Physics I
- PHYSICS 2760 University Physics II
- CHEM 1320 College Chemistry I
- ENGLISH 1000 Exposition and Argumentation
- ENGINR 1200 Statics and Elementary Strength of Materials
- or ENGINR 2300 Engineering Thermodynamics
- or IMSE 2710 Engineering Economic Analysis
- ENGINR 1000 Introduction to Engineering
- CMP_SC 1050 Algorithm Design and Programming I
- CMP_SC 2050 Algorithm Design and Programming II
- ECE 2100 Circuit Theory I
- ECE 2210 Introduction to Logic Systems
- ECE 3280 Computer Organization and Assembly Language
- ECE 3810 Circuit Theory II
- ECE 3830 Signals and Linear Systems
- ECE 3410 Electronic Circuits and Signals I
- ECE 3110 Electrical and Computer Engineering Projects
- ECE 3220 Software Design in C and C++
- ECE 4220 Real Time Embedded Computing
- ECE 4250 VHDL and Programmable Logic Devices
- ECE 4270 Computer Organization
- ECE 4970 Senior Capstone Design

Electives

- 3000+ ECE or CMP_SC Elective
- 6

Any Elective

- 1

Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year

Fall |
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CR |
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CMP_SC 1050 | 4 |
ECE 2210 | 3 |

Spring |
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CR |
--- |
MATH 1500 | 5 |
ENGLSH 1000 | 3 |
Humanities/Fine Arts Elective | 3 |


Second Year

Fall |
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CR |
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ECE 2100 | 4 |
ECE 3280 | 3 |
MATH 2300 | 3 |

Spring |
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CR |
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MATH 4100 | 3 |
PHYSCS 2750 | 5 |


Third Year

Fall |
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CR |
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ECE 3220 | 3 |
ECE 3810 | 4 |
ECE 3410 | 4 |

Spring |
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CR |
--- |
ECE 4220 | 3 |
STAT 4710 | 3 |
ENGINR 1200, 2300, or IMSE | 3 |


Fourth Year

Fall |
--- |
CR |
--- |
ECE 3110 | 3 |
ECE 4270 | 4 |
ECE 4000+ Technical Elective | 3 |

Spring |
--- |
CR |
--- |
ECE 4970 (WI) | 3 |
Flexible Technical Elective | 3 |
Humanities/Fine Arts Elective | 3 |
Many students in the EECS department combine the BS in Electrical Engineering with the BS in Computer Engineering in a special 138-credit program. These students receive both the BS EE and BS CoE degrees.

**Major Program Requirements**

**Constitutional Elective**
Select one of the following:

- HIST 1100: Survey of American History to 1865 (3 credits)
- HIST 1200: Survey of American History Since 1865 (3 credits)
- HIST 1400: American History (3 credits)
- HIST 2210: Twentieth Century America (3 credits)
- HIST 2440: History of Missouri (3 credits)
- POL_SC 1100: American Government (3 credits)
- POL_SC 2100: State Government (3 credits)

**Humanities/Fine Arts courses** (9 credits)

**Social Science/Behavioral Science courses** (3 credits)

Select two of the following:

- ENGINR 1200: Statics and Elementary Strength of Materials (3 credits)
- ENGINR 2300: Engineering Thermodynamics (3 credits)
- IMSE 2710: Engineering Economic Analysis (3 credits)

**Other major core requirement courses:**

- MATH 1500: Analytic Geometry and Calculus I (5 credits)
- MATH 1700: Calculus II (5 credits)
- MATH 2300: Calculus III (3 credits)
- MATH 2320: Discrete Mathematical Structures (3 credits)
- MATH 4100: Differential Equations (3 credits)
- STAT 4710: Introduction to Mathematical Statistics (3 credits)
- PHYSCS 2750: University Physics I (5 credits)
- PHYSCS 2760: University Physics II (5 credits)
- CHEM 1320: College Chemistry I (4 credits)
- ENGLISH 1000: Exposition and Argumentation (3 credits)
- ECONOM 1014: Principles of Microeconomics (3 credits)
- or ECONOM 1015: Principles of Macroeconomics (3 credits)
- or ECONOM 1024: Fundamentals of Microeconomics (3 credits)
- CMP_SC 1050: Algorithm Design and Programming I (4 credits)
- CMP_SC 2050: Algorithm Design and Programming II (4 credits)
- ECE 1000: Introduction to Electrical and Computer Engineering (2 credits)
- ECE 2210: Introduction to Logic Systems (3 credits)
- ECE 2100: Circuit Theory I (4 credits)
- ECE 3210: Microprocessor Engineering for Electrical Engineers (4 credits)
- ECE 3810: Circuit Theory II (4 credits)
- ECE 3220: Software Design in C and C++ (3 credits)
- ECE 3830: Signals and Linear Systems (3 credits)
- ECE 3510: Electromagnetic Fields (3 credits)
- ECE 3410: Electronic Circuits and Signals I (4 credits)
- ECE 3610: Semiconductors and Devices (3 credits)
- ECE 3110: Electrical and Computer Engineering Projects (3 credits)
- ECE 4220: Real Time Embedded Computing (3 credits)
- ECE 4250: VHDL and Programmable Logic Devices (4 credits)
- ECE 4270: Computer Organization (4 credits)
- ECE 4970: Senior Capstone Design (3 credits)
- 3000+ ECE or CMP_SC Elective (12 credits)
- ECE 4000+ Technical Elective (6 credits)
- ECE 4000-level Senior Lecture/Lab (4 credits)
- Any Elective (1 credit)

Below is a sample plan of study, semester by semester. A student’s actual plan may vary based on course choices where options are available.

**First Year**

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<th>Fall</th>
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<td>Humanities/Fine Arts Elective</td>
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**Second Year**

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**Third Year**

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**Fourth Year**

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**Fifth Year**

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Total Credits: 142