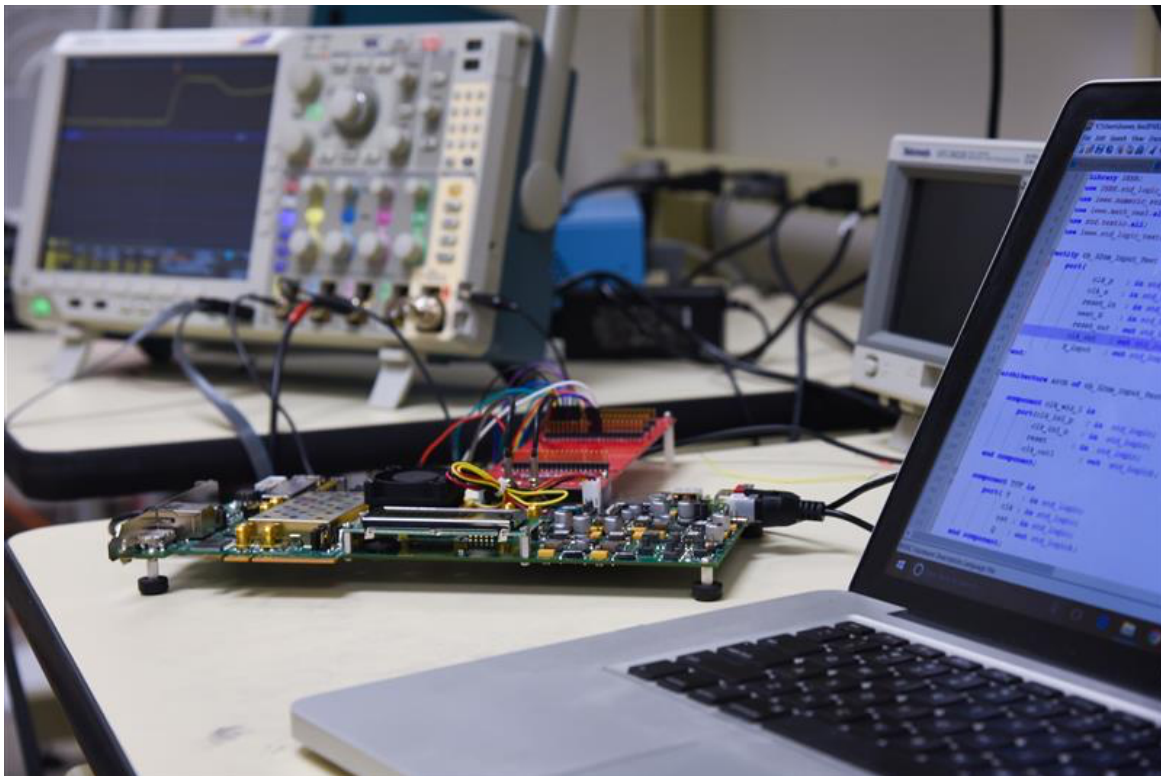


EECS Undergraduate Handbook

2025-2026

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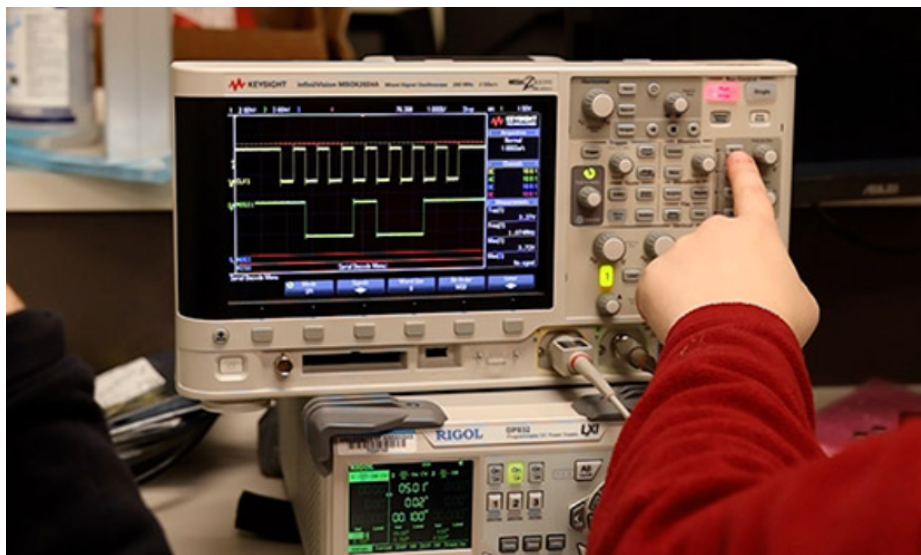
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Department Overview

Welcome to the Department of Electrical Engineering and Computer Science (EECS) that resides in the College of Engineering at the University of Arkansas. The EECS department offers high quality undergraduate and graduate computer science, computer engineering, and electrical engineering degree programs, and is dedicated to developing the next generation of electronics and computing hardware and software professionals. Our academic programs are growing rapidly to meet our state's and society's needs for talented professionals in electrical and computing technology in both hardware and software. All of our undergraduate B.S. programs in electrical engineering, computer engineering, and computer science are accredited by ABET, <https://www.abet.org>.

What is Electrical Engineering?

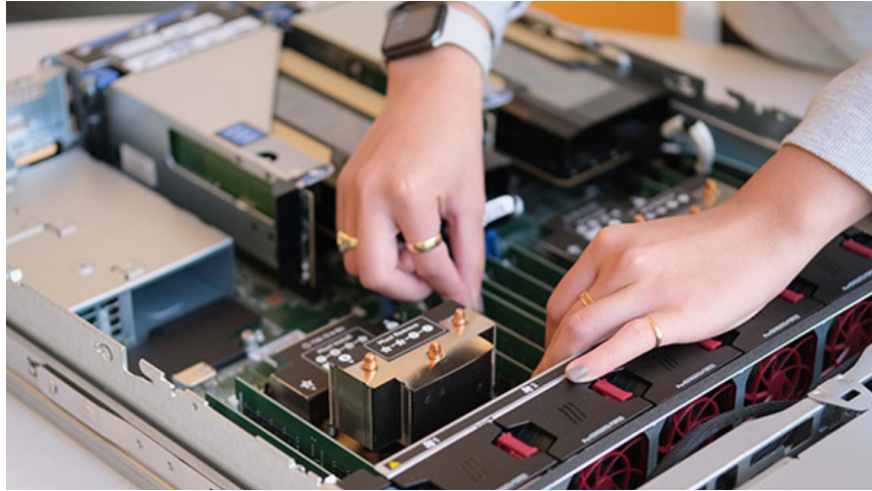
Electrical engineering is a professional engineering discipline that in its broader sense covers the study and application of electricity, electronics, and electromagnetism. Electrical engineers are in charge of designing and utilizing electrical components, integrated circuits, integrated chips, computer chips, and electronic assemblies to benefit mankind. Fields of electrical engineering include analog and mixed-signal circuit design/test, biomedical, communications, computer hardware and digital circuit design, control systems, pattern recognition, electronic packaging, embedded systems design, microwave and radar engineering, nanotechnology/microelectronics/optoelectronics, nanophotonics, power electronics, and renewable energy and power.



Electrical Engineering graduates find employment with local and national companies in renewable and clean energy, electric vehicles (land, ocean, space), robotics and automation, smart phones and communication networks, and smart grid nanotechnology and optoelectronics.

What is Computer Engineering?

Computer engineers engage in the design of embedded systems such as cell phones, avionics, communications networks, and digital radios, through Internet computing systems such as set top gaming boxes, and to more general-purpose systems such as desktop and laptop computers, and next generation supercomputers.



The Bachelor of Science in Computer Engineering provides a solid foundation in topics across the hardware-software boundary ranging from physical component structures to operating systems and programming languages to provide students with the ability to integrate physical and abstract components into working systems. Computer Engineering graduates find employment with local and national companies in hardware design, communications, cybersecurity, and defense.

What is Computer Science?

Computer scientists seek approaches and methods to efficiently automate everyday jobs, create and interpret new information, and seek new applications for technology to enhance the human experience. The Bachelor of Science in Computer Science prepares students through a solid core of study in the theoretical foundations of information and computation, as well as the practical techniques in the areas of programming languages, software engineering, databases, operating systems, cybersecurity, and artificial intelligence for implementing software applications.



The Computer Science degree provides the flexibility to allow students to combine their skills with a wide variety of interdisciplinary interests in other fields, such as computational biology, chemistry, and art. Computer Science graduates find employment with local and national companies in healthcare, e-commerce, cybersecurity, information technology, and financial services.

Degree Requirements

Bachelor of Science in Electrical Engineering – 8 Semester Plan and Flowchart

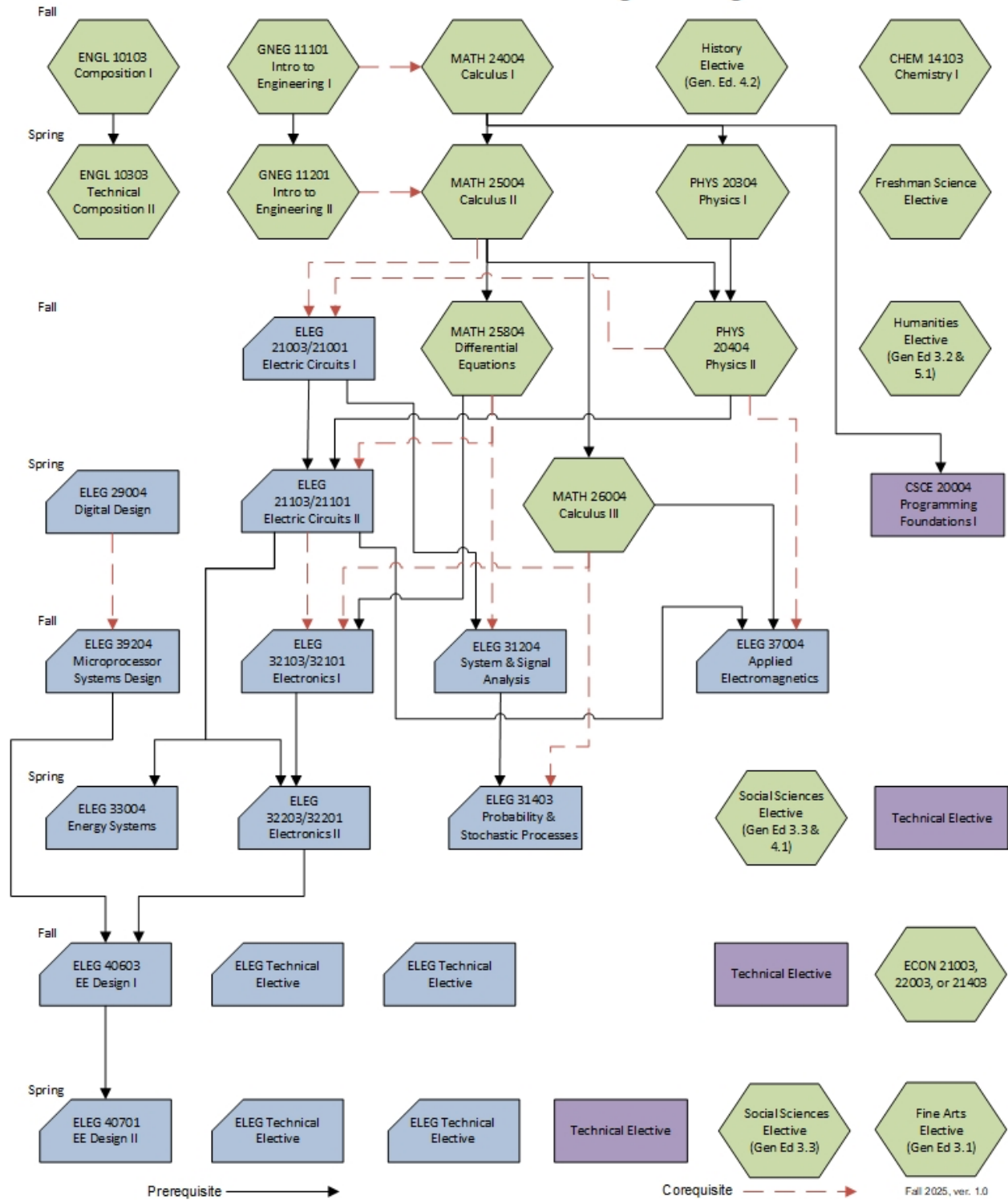
Fall Semester Year 1 1 GNEG 11101 Introduction to Engineering I 3 ENGL 10103 Composition I 4 MATH 24004 Calculus I ¹ 3 CHEM 14103 University Chemistry I 3 History Elective ⁹ 14 Semester hours	Spring Semester Year 1 1 GNEG 11201 Intro to Engineering II 3 ENGL 10303 Technical Composition II 4 MATH 25004 Calculus II 4 PHYS 20304 University Physics I 4 Freshman Science Elective ² 16 Semester hours
Fall Semester Year 2 3 ELEG 21003 Electric Circuits I 1 ELEG 21001 Electric Circuits I Lab 4 MATH 25804 Elementary Differential Equations 4 PHYS 20404 University Physics II 3 Humanities Elective ³ 15 Semester hours	Spring Semester Year 2 3 ELEG 21103 Electric Circuits II 1 ELEG 21101 Electric Circuits II Lab 4 CSCE 20004 Programming Foundations I 4 MATH 26004 Calculus III 4 ELEG 29004 Digital Design with lab 16 Semester hours
Fall Semester Year 3 4 ELEG 31204 Systems & Signals Analysis with lab 3 ELEG 32103 Electronics I 1 ELEG 32101 Electronics I Lab 4 ELEG 39204 Microprocessor System Design 4 ELEG 37004 Applied Electromagnetics w/Lab 16 Semester hours	Spring Semester Year 3 3 ELEG 31403 Probability & Stochastic Processes 3 ELEG 32203 Electronics II 1 ELEG 32201 Electronics II Lab 4 ELEG 33004 Energy Systems with lab 3 Social Science Elective ⁴ 3 Technical Elective ⁵ 17 Semester hours
Fall Semester Year 4 3 Technical Elective ⁵ 3 ELEG Technical Elective ⁶ 3 ELEG Technical Elective ⁶ 3 ELEG 40603 Electrical Engineering Design I 3 Economics Elective ¹⁰ 15 Semester hours	Spring Semester Year 4 3 Technical Elective ⁵ 3 ELEG Technical Elective ⁶ 3 ELEG Technical Elective ⁶ 1 ELEG 40701 Electrical Engineering Design II 3 Social Science Elective ⁷ 3 Fine Arts Elective ⁸ 16 Semester hours

125 Total hours

Notes:

- Students have demonstrated successful completion of the learning indicators identified for learning outcome 2.1 by meeting the prerequisites for MATH 24004.
- CHEM 14203/CHEM 14201 or BIOL 10103/BIOL 10101 or BIOL 24103/BIOL 24001, or PHYS 20504 or GEOL 11103/GEOL 11101
- Humanities Elective courses satisfying General Education Outcomes 3.2 and 5.1 include: CLST 10003, CLST 100H3, CLST 10103, HUMN 112H4, PHIL 20003, PHIL 200H3, PHIL 21003.
- Social Sciences Elective courses satisfying General Education Outcomes 3.3 and 4.1 include: ANTH 10203, COMM 10203, HDFS 14003, HDFS 24103, HIST 11193, HIST 111H3, HIST 112H3, HIST 112H3, HIST 20903, HUMN 111H4, HUMN 211H4, INST 28103, INST 281H3, PLSC 20103, PLSC 28103, PLSC 281H3, RESM 28503, SOCI 10103, SOCI 201H3, or SOCI 20103.
- Technical Elective is defined as any 20000-level or higher engineering, science, or math course. (BIOL 10103 lecture and BIOL 10101 lab), (BIOL 101H3 lecture and BIOL 101H1 lab), (CHEM 14203 lecture and CHEM 14201 lab), or (CHEM 142H3 lecture and CHEM 142H1 lab) can also be used. Courses not eligible for Technical Elective credit include ELEG 39003, ELEG 39903 and any history courses in math and the sciences (e.g., MATH 31303). ELEG 4880V or ELEG 5880V can count as a Technical Elective.
- Electrical Engineering Technical Elective is defined as any ELEG 40000-level or higher course not required for the degree except for ELEG 4880V and ELEG 5880V.
- Social Sciences Elective courses satisfying General Education Outcome 3.3 include: AGECE 11003, AGECE 21003, ANTH 10203, COMM 10203, ECON 21003, ECON 22003, ECON 21403, EDST 20003, HDFS 14003, HDFS 24103, HDFS 26003, HIST 11193, HIST 111H3, HIST 11293, HIST 112H3, HIST 20003, HIST 20103, HIST 20903, HUMN 111H4, HUMN 211H4, INST 2013, INST 28103, INST 281H3, PLSC 20003, PLSC 20103, PLSC 21003, PLSC 28103, PLSC 281H3, PSYC 20003, RESM 28503, SOCI 10103, SOCI 201H3, SOCI 20103. Note, courses cannot be counted twice in degree requirements.
- Fine Arts Elective courses satisfying General Education Outcome 3.1 include: ARCH 10003, ARHS 10003, COMM 10003, DANC 10003, LARC 10003, MUSC 10003, MUSC 100H3, MUSC 10103, MUSC 101H3, MUSC 13303, THTR 10003, THTR 10103, or THTR 101H3.
- History Elective courses satisfying General Education Outcome 4.2 include: HIST 20003 (ACTS Equivalency = HIST 2113), HIST 20103 (ACTS Equivalency = HIST 2123), and PLSC 20003 (ACTS Equivalency = PLSC 2003).
- Economics Electives include: ECON 21003 (ACTS Equivalency = ECON 2103), ECON 22003 (ACTS Equivalency = ECON 2203), and ECON 21403.

B.S. in Electrical Engineering



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Bachelor of Science in Computer Engineering – 8 Semester Plan and Flowchart

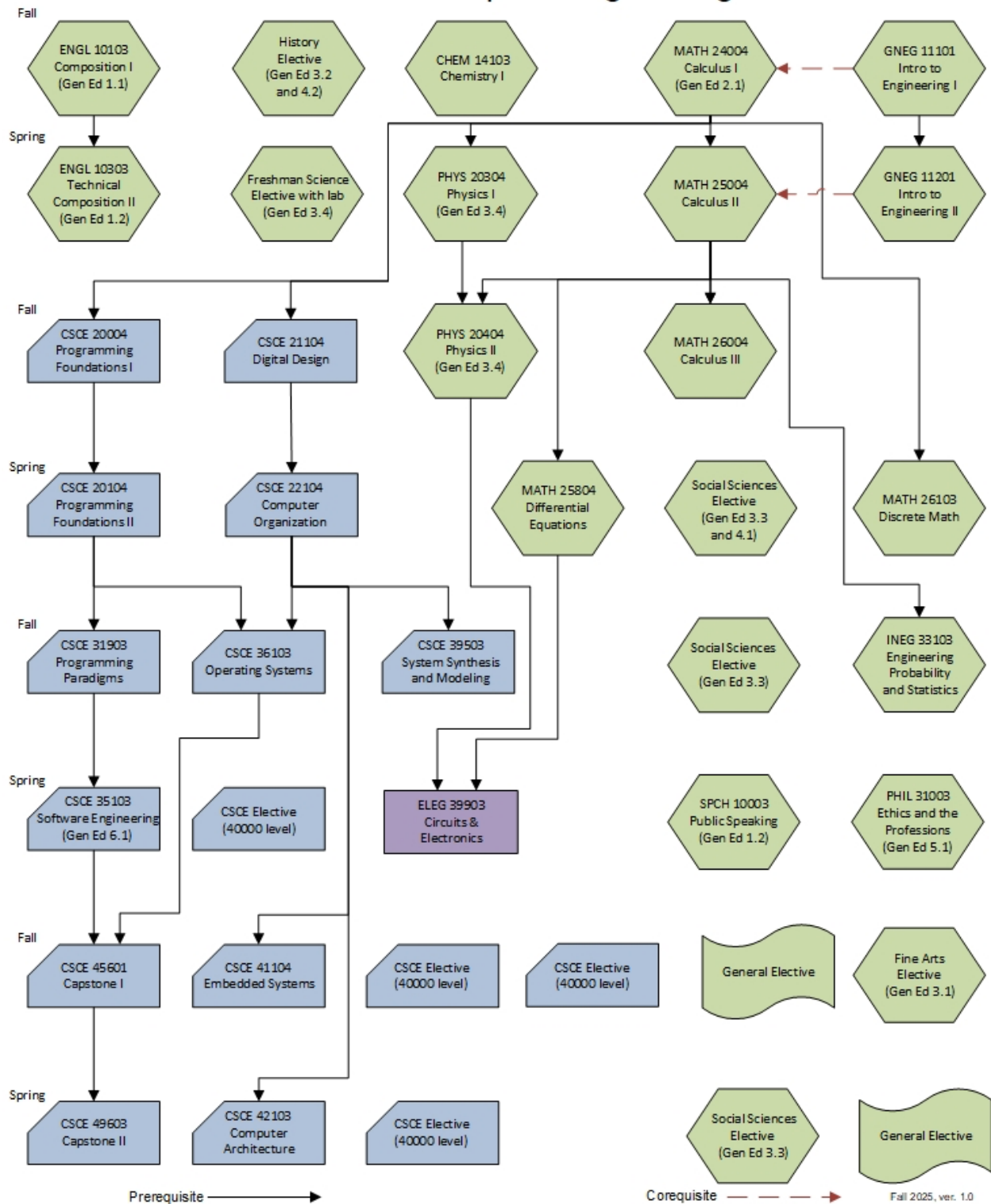
Fall Semester Year 1 1 GNEG 11101 Introduction to Engineering I 4 MATH 24004 Calculus I ¹ 3 CHEM 14103 University Chemistry I 3 ENGL 10103 Composition I 3 History Elective ⁷ 14 Semester hours	Spring Semester Year 1 1 GNEG 11201 Intro to Engineering II 4 MATH 25004 Calculus II 4 PHYS 20304 University Physics I 4 Freshman Science Elective with Lab ⁵ 3 ENGL 10303 Technical Composition II 16 Semester hours
Fall Semester Year 2 4 CSCE 20004 Programming Foundations I 4 CSCE 21104 Digital Design 4 MATH 26004 Calculus III 4 PHYS 20404 University Physics II 16 Semester hours	Spring Semester Year 2 4 CSCE 20104 Programming Foundations II 4 CSCE 22104 Computer Organization 4 MATH 25804 Elementary Differential Equations 3 MATH 26103 Discrete Mathematics 3 Social Sciences Elective ² 18 Semester hours
Fall Semester Year 3 3 CSCE 31903 Programming Paradigms 3 CSCE 36103 Operating Systems 3 CSCE 39503 System Synthesis and Modeling 3 Social Sciences Elective ³ 3 INEG 33103 Engineering Probability and Statistics ⁴ 15 Semester hours	Spring Semester Year 3 3 CSCE 35103 Software Engineering 3 CSCE Elective (40000-level) 3 ELEG 39903 Circuits & Electronics 3 PHIL 31003 Ethics and the Professions 3 SPCH 10003 Public Speaking 15 Semester hours
Fall Semester Year 4 1 CSCE 45601 Capstone I 4 CSCE 41104 Embedded Systems 3 CSCE Elective (40000-level) 3 CSCE Elective (40000-level) 3 Fine Arts Elective ⁶ 3 General Elective ⁸ 17 Semester hours	Spring Semester Year 4 3 CSCE 42103 Computer Architecture 3 CSCE 49603 Capstone II 3 CSCE Elective (40000-level) 3 Social Sciences Elective ³ 3 General Elective ⁸ 15 Semester hours

126 Total hours

Notes:

- Students have demonstrated successful completion of the learning indicators identified for learning outcome 2.1 by meeting the prerequisites for MATH 24004.
- Social Sciences Elective courses satisfying General Education Outcomes 3.3 and 4.1 include: ANTH 10203, COMM 10203, HDFS 14003, HDFS 24103, HIST 11193, HIST 111H3, HIST 11293, HIST 112H3, HIST 20903, HUMN 111H4, HUMN 211H4, INST 28103, INST 281H3, PLSC 20103, PLSC 28103, PLSC 281H3, RESM 28503, RESM 285H3, SOCI 10103, SOCI 101H3, SOCI 20103.
- Social Sciences Elective courses satisfying General Education Outcome 3.3 include: AGECE 11003, AGECE 21003, ANTH 10203, COMM 10203, ECON 21003, ECON 22003, ECON 21403, EDST 20003, HDFS 14003, HDFS 24103, HDFS 26003, HIST 11193, HIST 111H3, HIST 11293, HIST 112H3, HIST 20003, HIST 20103, HIST 20903, HUMN 111H4, HUMN 211H4, INST 28103, INST 281H3, PLSC 20003, PLSC 20103, PLSC 21003, PLSC 28103, PLSC 281H3, PSYC 20003, RESM 28503, SOCI 10103, SOCI 101H3, SOCI 20103. Note: courses cannot be counted twice in degree requirements.
- Students may petition to take the two-course sequence, STAT 30133 and STAT 31133, instead of INEG 33103.
- Freshman Science Elective courses satisfying General Education Outcome 3.4 include: BIOL 10103/10101, CHEM 14203/14201, GEOS 11103/11101. Students must take the lab associated with their course.
- Fine Arts Elective courses satisfying General Education Outcome 3.1 include: ARCH 10003, ARHS 10003, COMM 10003, DANC 10003, LARC 10003, MUSC 10003, MUSC 100H3, MUSC 10103, MUSC 101H3, MUSC 13303, THTR 10003, THTR 10103, THTR 101H3.
- History Elective courses satisfying General Education Outcomes 3.2 and 4.2 include: HIST 20003 (ACTS Equivalency = HIST 2113) and HIST 20103 (ACTS Equivalency = HIST 2123).
- General Elective courses can be any course except the following: MATH 11003, MATH 11103, MATH 12003, MATH 13004, GNEG 15104, GNEG 15105, or equivalent remedial math classes.

B.S. in Computer Engineering



Bachelor of Science in Computer Science – 8 Semester Plan and Flowchart

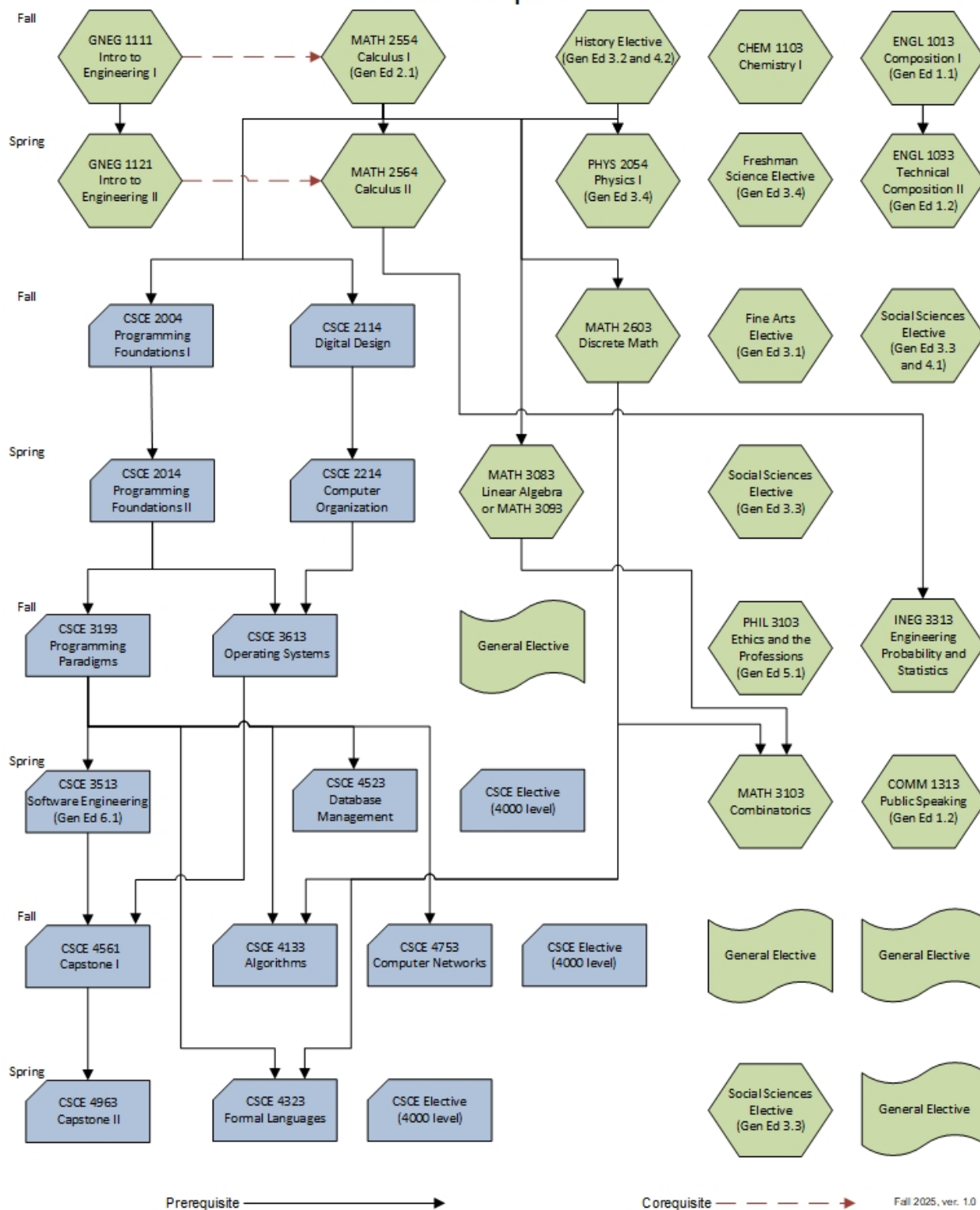
Fall Semester Year 1 1 GNEG 11101 Introduction to Engineering I 3 ENGL 10103 Composition I 3 CHEM 14103 University Chemistry I 4 MATH 24004 Calculus I ¹ 3 History Elective ⁶ 14 Semester hours	Spring Semester Year 1 1 GNEG 11201 Intro to Engineering II 4 MATH 25004 Calculus II 4 PHYS 20304 University Physics I 4 Freshman Science Elective with Lab ⁷ 3 ENGL 10303 Technical Composition II 16 Semester hours
Fall Semester Year 2 4 CSCE 20004 Programming Foundations I 4 CSCE 21104 Digital Design 3 MATH 26103 Discrete Mathematics 3 Fine Arts Elective ² 3 Social Sciences Elective ³ 17 Semester hours	Spring Semester Year 2 4 CSCE 20104 Programming Foundations II 4 CSCE 22104 Computer Organization 3 MATH 30803 Linear Algebra 3 Social Sciences Elective ⁴ 14 Semester hours
Fall Semester Year 3 3 CSCE 31903 Programming Paradigms 3 CSCE 36103 Operating Systems 3 INEG 33103 Engineering Probability and Statistics ⁵ 3 PHIL 31003 Ethics and the Professions 3 General Elective ⁸ 15 Semester hours	Spring Semester Year 3 3 CSCE 35103 Software Engineering 3 CSCE 45203 Database Management Systems 3 CSCE Elective (40000-level) 3 MATH 31003 Combinatorics 3 SPCH 10003 Public Speaking 15 Semester hours
Fall Semester Year 4 1 CSCE 45601 Capstone I 3 CSCE 41303 Algorithms 3 CSCE 47503 Computer Networks 3 CSCE Elective (40000-level) 3 General Elective ⁸ 3 General Elective ⁸ 16 Semester hours	Spring Semester Year 4 3 CSCE 49603 Capstone II 3 CSCE 43203 Formal Languages and Computability 3 CSCE Elective (40000-level) 3 General Elective ⁸ 3 Social Sciences Elective ⁴ 15 Semester hours

122 Total hours

Notes:

- Students have demonstrated successful completion of the learning indicators identified for learning outcome 2.1 by meeting the prerequisites for MATH 24004.
- Fine Arts Elective courses satisfying General Education Outcome 3.1 include: ARCH 10003, ARHS 10003, COMM 10003, DANC 10003, LARC 10003, MUSC 10003, MUSC 100H3, MUSC 10103, MUSC 101H3, MUSC 13303, THTR 10003, THTR 10103, THTR 101H3.
- Social Sciences Elective courses satisfying General Education Outcomes 3.3 and 4.1 include: ANTH 10203, COMM 10203, HDFS 14003, HDFS 24103, HIST 11193, HIST 111H3, HIST 11293, HIST 112H3, HIST 20903, HUMN 111H4, HUMN 211H4, INST 28103, INST 281H3, PLSC 20103, PLSC 28103, PLSC 281H3, RESM 28503, SOCI 10103, SOCI 101H3, SOCI 20103.
- Social Sciences Elective courses satisfying General Education Outcome 3.3 include: AGEC 11003, AGEC 21003, ANTH 10203, COMM 10203, ECON 21003, ECON 22003, ECON 21403, EDST 20003, HDFS 14003, HDFS 24103, HDFS 26003, HIST 11193, HIST 111H3, HIST 11293, HIST 112H3, HIST 20003, HIST 20103, HIST 20903, HUMN 111H4, HUMN 211H4, INST 28103, INST 281H3, PLSC 20003, PLSC 20103, PLSC 21003, PLSC 28103, PLSC 281H3, PSYC 20003, RESM 28503, SOCI 10103, SOCI 101H3, SOCI 20103. Note: courses cannot be counted twice in degree requirements.
- Students may petition to take the two-course sequence, STAT 30133 and STAT 31133, instead of INEG 33103.
- History Elective courses satisfying General Education Outcomes 3.2 and 4.2 include: HIST 20003 (ACTS Equivalency = HIST 2113) and HIST 20103 (ACTS Equivalency = HIST 2123).
- Freshman Science Elective courses satisfying General Education Outcome 3.4 include: BIOL 10103/10101, CHEM 14203/14201, GEOS 11103/11101, PHYS 20404 (must have prior credit for PHYS 20304). Students must take the lab associated with their course.
- General Elective courses can be any course except the following: MATH 11003, MATH 11103, MATH 12003, MATH 13004, GNEG 15104, GNEG 15105, or equivalent remedial math classes.

B.S. in Computer Science



Fall 2025, ver. 1.0

Bachelor of Arts in Computer Science – 8 Semester Plan and Flowchart

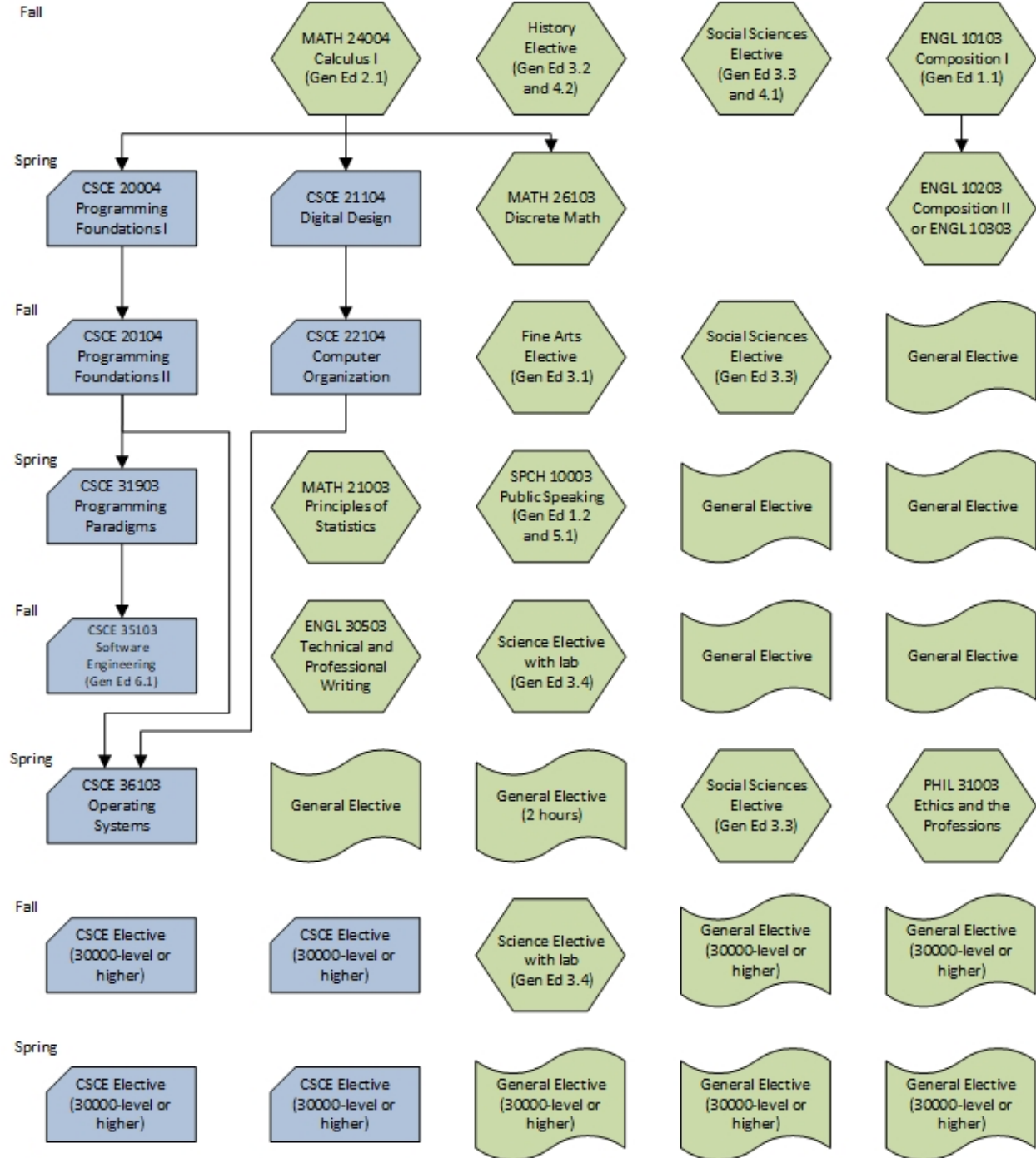
Fall Semester Year 1 3 ENGL 10103 Composition I 4 MATH 24004 Calculus I ¹ 3 Social Sciences Elective ² 3 History Elective ⁷ 13 Semester hours	Spring Semester Year 1 4 CSCE 20004 Programming Foundations I 4 CSCE 21104 Digital Design 3 ENGL 10203 Composition II or ENGL 10303 Technical Composition II 3 MATH 26103 Discrete Mathematics 14 Semester hours
Fall Semester Year 2 4 CSCE 20104 Programming Foundations II 4 CSCE 22104 Computer Organization 3 Fine Arts Elective ³ 3 Social Sciences Elective ⁴ 3 General Elective 17 Semester hours	Spring Semester Year 2 3 CSCE 31903 Programming Paradigms 3 SPCH 10003 Public Speaking 3 MATH 21003 Principles of Statistics 3 General Elective ⁸ 3 General Elective ⁸ 15 Semester hours
Fall Semester Year 3 3 CSCE 35103 Software Engineering 3 ENGL 30503 Technical and Professional Writing 4 Science Elective with lab ⁹ 3 General Elective ⁸ 3 General Elective ⁸ 16 Semester hours	Spring Semester Year 3 3 PHIL 31003 Ethics and the Professions ⁵ 3 CSCE 36103 Operating Systems 3 Social Sciences Elective ⁴ 3 General Elective ⁸ 2 General Elective ⁸ 14 Semester hours
Fall Semester Year 4 3 CSCE Elective (30000-level or higher) 3 CSCE Elective (30000-level or higher) 4 Science Elective with lab ⁹ 3 General Elective (30000-level or higher) 3 General Elective (30000-level or higher) 16 Semester hours	Spring Semester Year 4 3 CSCE Elective (30000-level or higher) 3 CSCE Elective (30000-level or higher) 3 General Elective (30000-level or higher) 3 General Elective (30000-level or higher) 3 General Elective (30000-level or higher) 15 Semester hours

120 Total hours

Notes:

- Students have demonstrated successful completion of the learning indicators identified for learning outcome 2.1 by meeting the prerequisites for MATH 24004.
- Social Sciences Elective courses satisfying General Education Outcomes 3.3 and 4.1 include: ANTH 10203, COMM 10203, HDFS 14003, HDFS 24103, HIST 11193, HIST 111H3, HIST 11293, HIST 112H3, HIST 20903, HUMN 111H4, HUMN 211H4, INST 28103, INST 281H3, PLSC 20103, PLSC 28103, PLSC 281H3, RESM 28503, SOCI 10103, SOCI 101H3, SOCI 20103.
- Fine Arts Elective courses satisfying General Education Outcome 3.1 include: ARCH 10003, ARHS 10003, COMM 10003, DANC 10003, LARC 10003, MUSC 10003, MUSC 100H3, MUSC 10103, MUSC 101H3, MUSC 13303, THTR 10003, THTR 10103, THTR 101H3.
- Social Sciences Elective courses satisfying General Education Outcome 3.3 include: AGEC 11003, AGEC 21003, ANTH 10203, COMM 10203, ECON 21003, ECON 22003, ECON 21403, EDST 20003, HDFS 14003, HDFS 24103, HDFS 26003, HIST 11193, HIST 111H3, HIST 11293, HIST 112H3, HIST 20003, HIST 20103, HIST 20903, HUMN 111H4, HUMN 211H4, INST 28103, INST 281H3, PLSC 20003, PLSC 20103, PLSC 21003, PLSC 28103, PLSC 281H3, PSYC 20003, RESM 28503, SOCI 10103, SOCI 101H3, SOCI 20103. Note, courses cannot be counted twice in degree requirements.
- PHIL 31003 meets Humanities Elective for State Minimum Core and General Education Outcomes 3.2 and 5.1.
- Scholarship students may need to take additional 1-hour General Electives for 15 semester hours.
- History Elective courses satisfying General Education Outcomes 3.2 and 4.2 include: HIST 20003 (ACTS Equivalency = HIST 2113), HIST 20103 (ACTS Equivalency = HIST 2123).
- General Elective courses can be any course except the following: MATH 11003, MATH 11103, MATH 12003, MATH 13004, GNEG 15104, GNEG 15105, or equivalent remedial math classes.
- Science Elective courses satisfying the State Minimum Core and General Education Outcome 3.4 include: BIOL 10103/10101, CHEM 14103/14101, CHEM 14203/14201, GEOS 11103/11101, PHYS 20304, PHYS 20404, and other courses listed in the university catalog. Students must take the lab associated with their course.

B.A. in Computer Science



Prerequisite →

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Bachelor of Science in Computer Engineering with Cybersecurity Concentration

The requirements for the B.S. in Computer Engineering with Cybersecurity Concentration include completing the B.S. in Computer Engineering degree requirements and three courses (9 credit hours) from the list of CSCE Cybersecurity Electives below.

- CSCE 44303 Cryptography
- CSCE 47503 Computer Networks
- CSCE 47803 Cloud Computing and Security
- CSCE 48503 Information Security

Note: These three classes can be counted as CSCE 40000-Level Electives or General Electives in the B.S. in Computer Engineering degree requirements.

Bachelor of Science in Computer Science with Cybersecurity Concentration

Requirements for the B.S. in Computer Science with Cybersecurity Concentration include completing the B.S. in Computer Science degree requirements and three courses (9 credit hours) from the list of CSCE Cybersecurity Electives below.

- CSCE 44303 Cryptography
- CSCE 47803 Cloud Computing and Security
- CSCE 48503 Information Security

Note: These three classes can be counted as CSCE 40000-Level Electives or General Electives in the B.S. in Computer Science degree requirements.

EECS Emphasis Areas

The EECS department offers a wide range of technical electives covering topics that correspond to the department's primary research areas. Students who wish to gain specialized knowledge may wish to take two or more classes in one emphasis area. Students who wish to have more breadth may take classes in several emphasis areas.

Artificial Intelligence and Applications – If you did well and enjoyed what you learned in CSCE 41303 Algorithms, you might consider technical electives that support this emphasis area.

- CSCE 41403 Data Mining
- CSCE 45503 Information Retrieval
- CSCE 46103 Artificial Intelligence
- CSCE 48103 Computer Graphics

Big Data – If you did well and enjoyed what you learned in CSCE 45203 Database Management Systems, you might consider technical electives that support this emphasis area.

- CSCE 42603 Advanced Data Structures
- CSCE 42703 Big Data Analytics and Management
- CSCE 46403 Graphics Processing Units Programming
- CSCE 47803 Cloud Computing and Security

Cybersecurity – If you did well and enjoyed what you learned in CSCE 36103 Operating Systems, MATH 26103 Discrete Math, and/or CSCE 47503 Computer Networks, you might consider technical electives that support this emphasis area.

- CSCE 44303 Cryptography
- CSCE 47503 Computer Networks
- CSCE 47803 Cloud Computing and Security
- CSCE 48503 Information Security

Embedded Systems – If you did well and enjoyed what you learned in CSCE 22104 Computer Organization, ELEG 39204/392H4 Microprocessor Systems Design and/or CSCE 41104 Embedded Systems, you might consider technical electives that support this emphasis area.

- CSCE 44803 Wearable and Ubiquitous Computing
- CSCE 46203 Mobile Programming
- ELEG 45803 Programming for Power Electronics: DSPs
- ELEG 45903 Programming for Power Electronics: FPGA

Integrated Circuit Design and Packaging – If you did well and enjoyed what you learned in CSCE 39503 System Synthesis and Modeling and/or ELEG 32203/32201 Electronics II, you might consider technical electives that support this emphasis area.

- CSCE 42103/ELEG 49803 Computer Architecture
- CSCE 42303 Low Power Digital Systems
- CSCE 49104 Advanced Digital Design
- ELEG 42003/420H3 Semiconductor Devices
- ELEG 42303/CSCE 43303 Introduction to Integrated Circuit Design
- ELEG 42403 Analog Integrated Circuits
- ELEG 42503 Integrated Circuit Design Laboratory
- ELEG 42803 Mixed Signal Test Engineering
- ELEG 43003 Introduction to Nanomaterials and Devices

Materials and Optoelectronics – If you are interested in the materials that are used to create semiconductor devices, you might consider technical electives that support this emphasis area.

- ELEG 42003/420H3 Semiconductor Devices
- ELEG 43003 Introduction to Nanomaterials and Devices

Power Electronics, Energy and Control Systems – If you did well and enjoyed what you learned in ELEG 21103 Circuits II, ELEG 32203 Electronics II and/or ELEG 33004 Energy Systems, you might consider technical electives that support this emphasis area.

- ELEG 44003 Control Systems
- ELEG 44103 Advanced Control Systems
- ELEG 44203 Optimal Control
- ELEG 44603 Control Systems Laboratory
- ELEG 45003 Design of Advanced Electric Power Distribution Systems
- ELEG 45103 Power and Energy Systems Analysis
- ELEG 45303 Power Electronics and Motor Drives
- ELEG 45403 Introduction to Power Electronics
- ELEG 45503 Switch Mode Power Conversion
- ELEG 45803 Programming for Power Electronics: DSPs
- ELEG 45903 Programming for Power Electronics: FPGA

RF, Microwave and Terahertz – If you did well and enjoyed what you learned in ELEG 37003 Applied Electromagnetics, you might consider technical electives that support this emphasis area.

- ELEG 46203 Communication Systems
- ELEG 47003 Introduction to RF and Microwave Design
- ELEG 47803/478H3 Introduction to Antennas

Theoretical Computer Science – If you did well and enjoyed what you learned in CSCE 41303 Algorithms and/or CSCE 43203 Formal Languages and Computability, you might consider technical electives that support this emphasis area.

- CSCE 41203 Programming Challenges
- CSCE 42603 Advanced Data Structures
- CSCE 44303 Cryptography

EECS Honors Programs

The Honors program provides a structure for working more closely with faculty members and other students in a team environment. Participation in the EECS Honors Program is highly recommended for individuals planning academic or research-related careers that require considerable critical and original independent thinking, but it is also quite useful for students wishing to explore career potential in a number of areas. Admission requirements:

- Current students must have at least a 3.50 cumulative GPA at the University of Arkansas to be eligible.
- Entering first-year students who are eligible are admitted during the orientation process.
 - Must have a 3.75 high school GPA.
 - Extra weight is given for Advanced Placement, International Baccalaureate, and Dual Enrollment courses in calculating GPA, provided these courses are clearly indicated as such on the official high school transcript.
 - 28 ACT or 1310 SAT.
 - Honors admission is based on your highest composite ACT or SAT score, not on superscores.
- Entering transfer students must have a 3.50 GPA on their transfer work.
- New students not initially qualifying for the Engineering Honors Program are eligible after one term if they earn at least a 3.50 cumulative GPA.

Application for the EECS Honors Program must be made through the College of Engineering Office of Student Records in Bell Engineering 3189. The department considers the following requirements necessary to graduate with honors:

- The candidate must satisfy the requirements set forth by the College of Engineering.
- Students must obtain at least a 3.50 grade-point average in all CSCE and ELEG classes required for their degree.
- Students must submit a thesis that is accepted by their honors advisor, the department honors coordinator and the College of Engineering.
- Students must successfully complete a minimum of 12 hours of honors courses of which at least 6 of the honors credit hours must be in the student's major.
 - Computer Science and Computer Engineering majors must complete 3 hours of CSCE 491HV Honors Thesis and 3 hours of non-thesis coursework selected from the following (CSCE 319H3 Honors Programming Paradigms, CSCE 361H3 Honors Operating Systems, or any CSCE 50000-level graduate course).
 - Electrical Engineering majors must complete the following three courses (ELEG 406H3 Honors Electrical Engineering Design I, ELEG 407H1 Honors

Electrical Engineering Design II, 1 hour of ELEG 400HV Honors Thesis) and one additional ELEG honors course selected from the following (ELEG 312H4, ELEG 314H3, ELEG 321H3, ELEG 322H3, ELEG 330H4, ELEG 370H4, ELEG 392H4, ELEG 420H3, ELEG 440H3, ELEG 478H3, or any ELEG 50000-level graduate course). Students may choose to take more than 1 hour of ELEG 400HV and apply excess hours to their ELEG technical elective requirements.

Students should contact one of the EECS honors coordinators for detailed guidelines and all necessary forms for completing EECS honors.

- Prof. Morgan Ware, Electrical Engineering
- Prof. Matthew Patitz, Computer Science
- Prof. Alex Nelson, Computer Engineering

Accelerated Master's Degree

The accelerated Master's degree program is designed for high achieving EECS undergraduate students who intend to pursue graduate studies in the EECS department after completing their undergraduate degree. Contact the Electrical Engineering and Computer Science office at eeecs@uark.edu for the procedures and conditions required for the accelerated Master's degree program.

Minors

Minor in Computer Science

Students who are not majoring in computer science may obtain a minor in computer science by obtaining a grade of C or better in the following CSCE courses:

- CSCE 20004 Programming Foundations I
- CSCE 20104 Programming Foundations II
- CSCE 31903 Programming Paradigms
- Three additional CSCE courses at the 20000-level or higher (9 hours)

Minor in Mathematics

Students who are not majoring in mathematics may obtain a minor in mathematics by obtaining a grade of C or better in the following courses:

MATH 24004 Calculus II

MATH 26103 Discrete Mathematics

or MATH 28003 Transition to Advanced Mathematics

or MATH 35803 Foundations of Applied Mathematics

or MATH 44203 Introduction to Partial Differential Equations

3 courses selected from the following:

MATH 26004 Calculus III

MATH 25804 Elementary Differential Equations

STAT 30133 Introduction to Probability

Any MATH courses at the 30000-level or higher

Students who complete all of the mathematics courses required for the B.S. in Computer Engineering or B.S. Computer Science degrees need to complete one additional math class from the list above to complete the minor in mathematics. Students who complete all of the mathematics courses required for the B.S. in Electrical Engineering degree will need to complete two additional math classes from the list above to complete the minor in mathematics.

Note: Other STAT classes and INEG 33103 Engineering Probability and Statistics do not count towards the degree requirements for a minor in mathematics.

Academic Advising

The course curriculum for B.S. degrees in electrical engineering, computer engineering and computer science have been specifically designed to give students the knowledge and skills they need to succeed in their respective disciplines. All three degrees have sequences of EECS courses that must be taken in a specific order to graduate in 8 semesters. For this reason, it is important to work closely with your academic advisor select courses every semester.

All students in the EECS department are assigned an academic advisor for their final two years of enrollment in an EECS degree program to help guide students through our curriculum. Typically, this advisor will remain with the student throughout the remainder of their academic career. Students can find the name of their academic advisor in the Workday Student system in their student account.

How to Select and Enroll in Classes

Advance registrations are held in the fall and spring semesters, allowing a currently enrolled student to register for classes prior to new students entering the university. Students must see their academic advisor prior to this registration period to review the degree progress, course plans, answer questions, and get assistance with academic problems. Advising periods are typically scheduled two to three weeks before Advance Registration begins. Enrollment is a three-step process:

- 1) Check degree audit. The University has developed an automated degree audit system for students and advisors to view progress towards the degree requirements. This degree audit system is available through the student record system. Prior to meeting their academic advisor students should review their academic progress using their degree audit and look at the recommended 8 semester plan and the prerequisite flowchart above to identify courses they need to take in the next semester.
- 2) Meet with academic advisor. Students should schedule an appointment with their advisor during their advertised advising times. Advisors will contact advisees about appointment periods. The advisor will review the course plan with the student and verify that selected courses follow the recommended course sequence and that all prerequisites have been met. The faculty advisor will remove the advising hold at the end of the advising appointment.
- 3) Enroll in classes. Students should enter their selected courses into the student record system and then register for their classes as soon as their enrollment window opens. Students are strongly encouraged to register as early as possible in their enrollment window because popular classes tend to fill up quickly and seating may be limited. Delayed enrollment may also cause courses with low enrollments to be cancelled.

A comprehensive degree audit review should be scheduled prior to registering for the first semester of the senior year with your advisor. If a student and/or their advisor have questions about any entries on the degree audit, please contact eeecs@uark.edu with any questions or concerns.

How to Use the Prerequisite Flowcharts

The prerequisite flowcharts provide an alternative representation of the 8-semester plan for completing degree requirements for all EECS degrees. All EECS courses are shown in light blue and all non-EECS courses are shown in light green.

One way to identify what classes to take in the next semester is to make a copy of the prerequisite flowchart for your degree and cross off all of the courses you have already taken or are currently enrolled in. This will let you see what EECS classes and non-EECS remain to be taken. To select EECS classes for next semester, students should take 2-3 EECS classes that directly follow your current EECS classes. For non-EECS classes, students should take classes near the top of the flowchart first, especially classes that are prerequisites to EECS classes.

Some EECS classes are only offered once per year in either the fall or spring semester. It is very important to take these classes as soon as the prerequisites are met to avoid long delays while completing the degree. Please check the official schedule of classes being offered each semester to verify that your plan is viable.

AP Credit and English Exemptions

Students who have taken the AP Computer Science A exam and received a score of 3 or above will receive credit for CSCE 20004 Programming Foundations I.

Credit by exam for CSCE 20004 is available to students who have a strong programming background that includes all the content taught in CSCE 20004. Typically, this background is obtained by taking other programming classes, or through work experience. Credit by exam is not intended as a method for students to teach themselves programming and avoid taking CSCE 20004. If you do not already have significant programming experience, you should take the course. Credit by exam is not permitted for students who have already taken CSCE 20004 and scored a D or F in the course. Only one attempt to test out will be allowed. Email your name and student ID to eeecs@uark.edu to seek permission for credit by exam. The department will review these requests on a case-by-case basis.

You can reference the web link below to learn more about the University's general guidelines regarding possible honors credit according to your AP scores.

<https://catalog.uark.edu/undergraduatecatalog/academicregulations/advancedstandingprograms/#advancedplacementtext>

Note: Students who receive exemptions for ENGL 10103 and/or ENGL 10203 will not be required to take those courses but will have to take additional courses to replace the hour requirements. They should discuss this with their faculty advisor.

How to Submit a Class Override Request

Most of the time students should be able to enroll in their classes using the student record system after their advising hold and all other holds have been removed. In some cases, the system will not let a student enroll and an override must be requested by emailing eeecs@uark.edu. The two most common reasons for an override are:

- Class Full – Occasionally a class will show as full but have seating for a few more students. Students may ask the professor's permission to enroll in this class. If granted, the department will process these override requests in first-come-first-served order until the classroom is full or professor's enrollment limit is reached.
- Prerequisite or Co-Requisite – Students may be blocked from enrollment if required prerequisite or co-requisite courses are not recognized properly in Workday Student. Students should email the undergraduate coordinator at eeecs@uark.edu to resolve this issue.

This override process can also be used to swap class sections, enroll in classes with time conflicts, and when instructor or department permission is required for enrollment. Students should work with their academic advisor to complete the override process in such cases.

Course Substitutions and Petitions

The following course substitutions have been pre-approved by the EECS department for students completing computer engineering or computer science degrees.

- STAT 30133 Introduction to Probability and STAT 31133 Introduction to Mathematical Statistics, together, is a valid substitution for INEG 33103 Engineering Probability and Statistics.
- MATH 28003 Transition to Advanced Mathematics is a valid substitution for MATH 26103 Discrete Mathematics.
- MATH 30903 Abstract Linear Algebra is a valid substitution for MATH 30803 Linear Algebra.

If a student wishes to take an elective that is not on the approved list or deviate from the published curriculum in any way, the student must complete and submit the "Petition for Substitution of Departmental Requirements Form" to the Undergraduate Studies Committee for approval prior to enrolling in the class.

The petition form is available in the undergraduate academics sections of our department's website at <https://uark.sharepoint.com/teams/ENGR>. The petition form must be submitted electronically with supporting documents to eeecs@uark.edu.

How to Declare a Minor

Students in the College of Engineering may pursue an academic minor in other colleges. For requirements regarding minors, check the catalog listing for the department offering the minor. To declare a minor in any program, go to the College of Engineering Office of Student Records in Bell Engineering 3189 to complete the paperwork, or email enr-rec@uark.edu from your University of Arkansas email account with your name, student ID number, and your request.

How to Change Majors

Students wanting to switch from one EECS degree to another EECS degree should discuss this first with their faculty advisor. For the CS and CE degrees, the first two semesters of study are nearly identical, so the transfer between these degree programs is easy at that point. There are minor differences in curriculum requirements in the third and fourth semesters so changing majors at this stage is not too difficult. After the fifth and sixth semesters there are significant curriculum differences, so students changing majors at this point will need to take several EECS courses to complete their new degree requirements.

The degree requirements for EE are nearly identical to CS and CE in the first two semesters, so changing majors at this point is easy. Starting in the third and fourth semesters the curriculum requirements for EE begin to diverge significantly from CS and CE. Students who wish to change majors from EE to CS or CE or vice versa after the third or fourth semester will need to take several additional EECS courses to complete their new degree.

Completion of the forms to process the change of major should be done in the College of Engineering Office of Student Records in Bell Engineering 3189, or email enr-rec@uark.edu from your University of Arkansas email account with your name, student ID number, and your request. When you switch majors, you will be changed to the most recent version of the catalog.

Graduation Requirements

In addition to the specific departmental requirements for degree plans, students should refer to the Academic Regulations section of the Catalog of Studies for general university requirements.

The College of Engineering has these additional requirements:

1. **Grade-Point Average** – A candidate for a degree from the College of Engineering must have earned a grade-point average of no less than 2.00 on all courses in the student's major area of study.
2. **Courses That Do Not Count Toward a Degree** – The following courses, which may be required as prerequisites to other classes, do not count toward degree credit for Bachelor of Science or Bachelor of Arts degrees in the College of Engineering: MATH 11003, MATH 11103, MATH 12003, MATH 13004, GNEG 1514, GNEG 1515 or equivalent remedial math classes.
3. **"D" Rule** – No student will be allowed to graduate if the student has "D" or "PD" grades in more than 8 hours presented to meet the requirements for a degree.
4. **Transfer of Courses** – Advanced (30000- and 40000-level at the University of Arkansas) engineering courses may not normally be transferred from institutions that do not have programs accredited by the Engineering Accreditation Commission.
5. **Resident Requirements** – A candidate must earn a minimum of 20 credit hours at the 30000-level and above in the College of Engineering from the University of Arkansas.

How to Apply for Graduation

Students who plan to graduate must file an official application to do so. Applications should be filed for the term in which degree requirements will be completed. A graduation fee will be required at the time of application. To ensure that students will be certified for graduation in a timely manner, the following graduation application deadlines have been established:

Date	Description
October 1	for students graduating in fall
March 1	for students graduating in spring
July 1	for students graduating in summer

Students must apply by the established deadline for that term. A student who fails to complete the degree during the intended semester must contact the Office of the Registrar to renew the application for the term in which the degree requirements will be completed.