2024 - 2025 Major Map

Computer Systems Engineering, BSE

School/College: Ira A. Fulton Schools of Engineering
ESCSEBSE

Term 1 0 - 15 Credit Hours Critical course signified by ⬥	Hours	Minimum Grade	Notes
⬥ CSE 110: Principles of Programming (QTRS OR CS)	3	C	• ASU 101 or college-specific equivalent First-Year Seminar required of all first-year students and should be taken in the first semester. • If ENG 105 is taken, a three (3) semester hour elective must also be taken prior to graduation. • Prep for success using the First-Year Student Guide. • Join a Fulton community. • Explore engineering and technical professions.
ASU 101-CAI: The ASU Experience	1		
ENG 101 or ENG 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107 or ENG 108: First-Year Composition	3	C	
FSE 100: Introduction to Engineering	2	C	
MAT 265: Calculus for Engineers I (MATH OR MA)	3	C	
Humanities, Arts and Design (HUAD)	3		
⬥ Complete Mathematics (MATH) requirement.			
⬥ Minimum 2.00 GPA ASU Cumulative.			
Term hours subtotal:	15		

Term 2 15 - 31 Credit Hours Critical course signified by ⬥	Hours	Minimum Grade	Notes
⬥ CSE 205: Object-Oriented Programming and Data Structures (QTRS OR CS)	3	C	• Create a Handshake profile. • Get involved with EPICS, the Generator Labs, and the Fulton Start-Up Center.
ENG 101 or ENG 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107 or ENG 108: First-Year Composition	3	C	
MAT 266: Calculus for Engineers II (MATH OR MA)	3	C	
Biology or Chemistry Course	4		
Humanities, Arts and Design (HUAD)	3		
⬥ Complete ENG 101 OR ENG 105 OR ENG 107 course(s).			
⬥ Complete MAT 170 OR MAT 171 OR MAT 265 OR MAT 270 course(s).			
⬥ Minimum 2.00 GPA ASU Cumulative.			
Term hours subtotal:	16		

Term 3 31 - 47 Credit Hours Critical course signified by ⬥	Hours	Minimum Grade	Notes
⬥ EEE 120: Digital Design Fundamentals	3	C	• Prep for success using the Sophomore Guide.
⬥ MAT 243: Discrete Mathematical Structures	3	C	
MAT 267: Calculus for Engineers III (MATH OR MA)	3	C	
PHY 121: University Physics I: Mechanics (SCIT OR SQ) AND PHY 122: University Physics Laboratory I (SCIT OR SQ)	4	C	
Social and Behavioral Sciences (SOBE)	3		
⬥ Complete MAT 266 OR MAT 271 course(s).			
⬥ Minimum 2.00 GPA ASU Cumulative.			

Complete Mathematics (MATH) requirement.

	Term hours subtotal:	16

Term 4 47 - 63 Credit Hours Critical course signified by ❗	Hours	Minimum Grade	Notes
❗ CSE 220: Programming for Computer Engineering	3	C	• Pursue an undergraduate research experience. • Apply for internships. • Attend career fairs and events.
❗ CSE 230: Computer Organization and Assembly Language Programming	3	C	
IEE 380: Probability and Statistics for Engineering Problem Solving (QTRS OR CS)	3	C	
PHY 131: University Physics II: Electricity and Magnetism (SCIT OR SQ) AND PHY 132: University Physics Laboratory II (SCIT OR SQ)	4	C	
Global Communities, Societies and Individuals (GCSI)	3		
❗ Complete MAT 267 OR MAT 272 course(s).			

	Term hours subtotal:	16

Term 5 63 - 78 Credit Hours Necessary course signified by ⭐	Hours	Minimum Grade	Notes
⭐ CSE 310: Data Structures and Algorithms	3	C	• Plan for success using the Junior Guide. • Network at student organization competitions or professional societies.
CSE 301: Computing Ethics	1	C	
CSE 302: Circuits for Computer Engineers	3	C	
CSE 320: Design and Synthesis of Digital Hardware	3	C	
MAT 343: Applied Linear Algebra	3	C	
Elective	2		

	Term hours subtotal:	15

Term 6 78 - 93 Credit Hours Necessary course signified by ⭐	Hours	Minimum Grade	Notes
⭐ CSE 325: Embedded Microprocessor Systems	3	C	• Research and prepare for graduate school. • Apply for an engineering 4+1 program. • Develop a professional profile online.
CSE 330: Operating Systems	3	C	
CSE 360: Introduction to Software Engineering	3	C	
American Institutions (AMIT)	3		
Sustainability (SUST)	3		

	Term hours subtotal:	15

Term 7 93 - 108 Credit Hours Necessary course signified by ⭐	Hours	Minimum Grade	Notes
⭐ CSE 423: Systems Capstone Project I (L)	3	C	• Please see course lists below for CSE Technical Electives. Contact SCAI Advising or visit the SCAI website for additional information. Maximum 6 hours at the 300-level. • Plan for success using the Senior Guide. • Use Handshake to apply for full-time positions. • Complete an in person or virtual practice interview.
CSE 434: Computer Networks	3	C	
Complete 2 courses: Upper Division CSE Technical Elective	6	C	
Governance and Civic Engagement (CIVI)	3		

	Term hours subtotal:	15

Term 8 108 - 120 Credit Hours Necessary course signified by ⭐	Hours	Minimum Grade	Notes
⭐ CSE 424: Systems Capstone Project II (L)	3	C	• Please see course lists below for CSE Technical Electives. Contact SCAI Advising or visit the SCAI website for additional information. Maximum 6 hours at the 300-level.
CSE 420: Computer Architecture I	3	C	
Complete 2 courses: 4** (400-Level) CSE Technical Elective	6	C	

Term hours subtotal: 12

- - Maximum three hours of FSE 301 or FSE 404 can be applied towards major requirements.
    - Maximum six hours of CSE 484, CSE 492, CSE 493, CSE 499, FSE 301, and FSE 404 can be applied towards major requirements.
    - CSE 475 or DAT 402 can be applied towards major requirements but not both.
    - Technical Electives may require additional prerequisites.
    - For additional information on major curriculum, please visit theÂComputer Systems Engineering Degree Requirements website.

Hide Course List(s)/Track Group(s)

Biology or Chemistry Courses	Upper Division CSE Technical Electives
BIO 181: General Biology I (SCIT OR SQ)	BME 494: Applied Computational Behavioral Science
BIO 182: General Biology II (SCIT OR SG)	CPI 350: Evaluation of Informatics Systems
CHM 113: General Chemistry I (SCIT OR SQ)	CPI 411: Graphics for Games
CHM 114: General Chemistry for Engineers (SCIT OR SQ)	CSE 335: Principles of Mobile Application Development
CHM 116: General Chemistry II (SCIT OR SQ)	CSE 340: Principles of Programming Languages
	CSE 355: Introduction to Theoretical Computer Science
	CSE 365: Information Assurance
	CSE 4** Elective
	DAT 300: Mathematical Tools for Data Science
	DAT 301: Exploring Data in R and Python
	DAT 401: Statistical Modeling and Inference for Data Science
	DAT 402: Machine Learning for Data Science
	EEE 304: Signals and Systems II
	EEE 335: Analog and Digital Circuits
	EEE 350: Random Signal Analysis
	EEE 404: Real-Time DSP Systems
	EEE 407: Digital Signal Processing
	EEE 425: Digital Systems and Circuits
	EEE 455: Communication Systems
	EEE 480: Feedback Systems
	EEE 481: Computer-Controlled Systems
	FSE 301: Entrepreneurship and Value Creation
	FSE 394: Engineering for Humanity

FSE 404: EPICS Gold: EPICS in Action

IEE 385: Engineering Statistics: Probability

MAT 416: Graph Theory

MAT 421: Applied Computational Methods
(MATH OR CS)

MAT 447: Cryptography I

MAT 448: Cryptography II

PHY 302: Mathematical Methods in Physics
II

PHY 333: Electronic Circuits and
Measurements

PHY 441: Statistical and Thermal Physics

SER 416: Software Enterprise: Project and
Process Management

- **Total Hours:** 120
- **Upper Division Hours:** 45 minimum
- University Undergraduate Graduation Requirements

Notes:

Mathematics Placement Assessment score determines placement in first mathematics course.

General Studies designations listed next to courses on the major map were valid for the 2024 - 2025 academic year. Please refer to the course catalog for current General Studies designations at time of class registration. General Studies credit is applied according to the designation the course carries at the time the class is taken.