

2023 - 2024 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 (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 (MA)	3	C	
Social-Behavioral Sciences (SB) AND Global Awareness (G)	3		
 Complete Mathematics (MA) 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 (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 (MA)	3	C	
Biology or Chemistry Course	4		
Humanities, Arts and Design (HU) AND Cultural Diversity in the U.S. (C)	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

 CSE 120: Digital Design Fundamentals	3	C
 MAT 243: Discrete Mathematical Structures	3	C
MAT 267: Calculus for Engineers III (MA)	3	C
PHY 121: University Physics I: Mechanics (SQ) AND PHY 122: University Physics Laboratory I (SQ)	4	C
Social-Behavioral Sciences (SB) AND Historical Awareness (H)	3	
 Complete MAT 266 OR MAT 271 course(s).		
 Minimum 2.00 GPA ASU Cumulative.		
Complete Mathematics (MA) requirement.		
Term hours subtotal:	16	

- Prep for success using the [Sophomore Guide](#).

Term 4 47 - 63 Credit Hours  Critical course signified by	Hours	Minimum Grade	Notes
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 CSE 220: Programming for Computer Engineering	3	C
 CSE 230: Computer Organization and Assembly Language Programming	3	C
MAT 275: Modern Differential Equations (MA)	3	C
PHY 131: University Physics II: Electricity and Magnetism (SQ) AND PHY 132: University Physics Laboratory II (SQ)	4	C
Humanities, Arts and Design (HU)	3	
 Complete MAT 267 OR MAT 272 course(s).		
Term hours subtotal:	16	

- Pursue an [undergraduate research experience](#).
- Apply for [internships](#).
- Attend [career fairs and events](#).

Term 5 63 - 77 Credit Hours  Necessary course signified by	Hours	Minimum Grade	Notes
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 CSE 310: Data Structures and Algorithms	3	C
CSE 301: Computing Ethics	1	C
CSE 320: Design and Synthesis of Digital Hardware	3	C
EEE 202: Circuits I	4	C
IEE 380: Probability and Statistics for Engineering Problem Solving (CS)	3	C
Term hours subtotal:	14	

- Plan for success using the [Junior Guide](#).
- Network at [student organization competitions](#) or professional societies.

Term 6 77 - 93 Credit Hours  Necessary course signified by	Hours	Minimum Grade	Notes
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 CSE 325: Embedded Microprocessor Systems	3	C
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- Research and prepare for [graduate school](#).

CSE 330: Operating Systems	3	C
CSE 360: Introduction to Software Engineering	3	C
EEE 334: Circuits II	4	C
MAT 343: Applied Linear Algebra	3	C
 Complete Cultural Diversity in the U.S. (C) AND Global Awareness (G) AND Historical Awareness (H) course(s).		

Term hours subtotal: 16

- Apply for an engineering 4+1 program.
- Develop a professional profile online.

Term 7 93 - 108 Credit Hours Necessary course signified by 	Hours	Minimum Grade	Notes
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 CSE 423: Systems Capstone Project I (L)	3	C
CSE 434: Computer Networks	3	C
Complete 2 courses: Upper Division CSE Technical Elective	6	C
Upper Division Humanities, Arts and Design (HU) OR Upper Division Social-Behavioral Sciences (SB)	3	

Term hours subtotal: 15

- 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](#).

Term 8 108 - 120 Credit Hours Necessary course signified by 	Hours	Minimum Grade	Notes
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 CSE 424: Systems Capstone Project II (L)	3	C
CSE 420: Computer Architecture I	3	C
Complete 2 courses: 4** Upper Division CSE Technical Elective	6	C

Term hours subtotal: 12

- 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.

- - Maximum 3 hours of FSE 301 or FSE 404 can be applied towards major requirements.
 - Maximum 6 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 the [Computer Systems Engineering Degree Requirements website](#).

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

Biology or Chemistry Courses
BIO 181: General Biology I (SQ)
BIO 182: General Biology II (SG)
CHM 113: General Chemistry I (SQ)

Upper Division CSE Technical Electives
BME 494: Applied Computational Behavioral Science
CPI 350: Evaluation of Informatics Systems

CHM 114: General Chemistry for Engineers (SQ)	CPI 411: Graphics for Games
CHM 116: General Chemistry II (SQ)	CSE 335: Principles of Mobile Application Development
	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 (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

Notes:

- First-Year Composition: All students are placed in ENG 101 unless submission of SAT, ACT, Accuplacer, IELTS, or TOEFL score, or college-level transfer credit or test credit equivalent to ASU's first-year composition course(s), determine otherwise. Students on Polytechnic, Downtown Phoenix and West Campuses are encouraged to complete the Directed Self-Placement survey to choose the first-year composition option they believe best suits their needs. Visit: <https://cisa.asu.edu/DSP>
- Mathematics Placement Assessment score determines placement in first mathematics course.

Total Hours: 120

Upper Division Hours: 45 minimum

Major GPA: 2.00 minimum

Cumulative GPA: 2.00 minimum

Total hrs at ASU: 30 minimum

Hrs Resident Credit for

Academic Recognition: 56 minimum

Total Community College Hrs: 64 maximum

General University Requirements Legend

General Studies Core Requirements:

- Literacy and Critical Inquiry (L)
- Mathematical Studies (MA)
- Computer/Statistics/Quantitative Applications (CS)
- Humanities, Arts and Design (HU)
- Social-Behavioral Sciences (SB)
- Natural Science - Quantitative (SQ)
- Natural Science - General (SG)

General Studies Awareness Requirements:

- Cultural Diversity in the U.S. (C)
- Global Awareness (G)
- Historical Awareness (H)

First-Year Composition

General Studies designations listed next to courses on the major map were valid for the 2023 - 2024 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.