











2020 - 2021 Major Map

Software Engineering, BS



School/College: [Ira A. Fulton Schools of Engineering](#)
TSSERBS

Some accelerated combinations are not available to ASU Online students. Interested students should contact their academic advisor for more information.

Term 1 - A 0 - 6 Credit Hours	Hours	Minimum Grade	Notes
ASU 101-UC: The ASU Experience	1		<ul style="list-style-type: none"> An SAT, ACT, Accuplacer, IELTS, or TOEFL score determines placement into first-year composition courses. If ENG 105 is taken, a three credit hour elective course must also be taken prior to graduation. ASU 101 is only required of new first-year students transferring in fewer than 24 hours to ASU.
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	
Term hours subtotal:	6		
Term 1 - B 6 - 12 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 CSE 110: Principles of Programming (CS)	3	C	<ul style="list-style-type: none"> View ASU Online first-year student registration information here. Prep for success using the First-Year Student Guide. Join a Fulton community. Explore engineering and technical professions.
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	
Term hours subtotal:	6		
Term 2 - A 12 - 18 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 CSE 205: Object-Oriented Programming and Data Structures (CS)	3	C	<ul style="list-style-type: none"> Mathematics Placement Assessment score or transfer math courses determine placement into the first mathematics course at ASU.
 MAT 265: Calculus for Engineers I (MA)	3	C	
Term hours subtotal:	6		
Term 2 - B 18 - 24 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 SER 232: Computer Systems Fundamentals (CS)	3	C	<ul style="list-style-type: none"> Create a Handshake profile. Get involved with EPICS, the Generator Labs, and the Fulton Start-Up Center.
MAT 266: Calculus for Engineers II (MA)	3	C	
 Complete ENG 101 OR ENG 105 OR ENG 107 course(s).			
Term hours subtotal:	6		



Term 3 - A 24 - 30 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 MAT 243: Discrete Mathematical Structures	3	C	
CSE 230: Computer Organization and Assembly Language Programming	3	C	
Term hours subtotal:	6		

Term 3 - B 30 - 36 Credit Hours	Hours	Minimum Grade	Notes
CSE 240: Introduction to Programming Languages	3	C	<ul style="list-style-type: none"> Prep for success using the Sophomore Guide.
MAT 267: Calculus for Engineers III (MA) OR MAT 275: Modern Differential Equations (MA)	3	C	
Complete Mathematics (MA) requirement.			
Term hours subtotal:	6		

Term 4 - A 36 - 42 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 SER 222: Design and Analysis of Data Structures and Algorithms	3	C	
EGR 104: Critical Inquiry in Engineering (L)	3	C	
Term hours subtotal:	6		

Term 4 - B 42 - 48 Credit Hours	Hours	Minimum Grade	Notes
EGR 280: Engineering Statistics (CS)	3	C	<ul style="list-style-type: none"> Pursue an undergraduate research experience. Apply for internships. Attend career fairs and events.
SER 216: Software Enterprise: Personal Process and Quality	3	C	
Term hours subtotal:	6		

Term 5 - A 48 - 54 Credit Hours	Hours	Minimum Grade	Notes
MAT 343: Applied Linear Algebra	3	C	
SER 315: Software Enterprise: Design and Process	3	C	
Term hours subtotal:	6		

Term 5 - B 54 - 61 Credit Hours Necessary course signified by 	Hours	Minimum Grade	Notes
 SER 334: Operating Systems and System Programming	3	C	<ul style="list-style-type: none"> In addition to PHY 121 and PHY 122, students must complete 8 semester hours (2 courses) of lab science from the following: BIO 181, BIO 182, BIO 201, BIO 202, CHM 113,
PHY 121: University Physics I: Mechanics (SQ)	3	C	
PHY 122: University Physics Laboratory I (SQ)	1	C	

Term hours subtotal: 7

CHM 116, GLG 101/103, GLG 102/104, PHY 131/132.

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

Term 6 - A 61 - 67 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
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★ SER 321: Principles of Distributed Software Systems	3	C
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Social-Behavioral Sciences (SB) AND Global Awareness (G)	3	
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Term hours subtotal: 6

- During the junior year of the program, students should contact an academic advisor to identify course options.

Term 6 - B 67 - 73 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
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SER 316: Software Enterprise: Construction and Transition	3	C
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SER 335: Engineering Secure Software Systems	3	C
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★ Complete Cultural Diversity in the U.S. (C) AND Global Awareness (G) AND Historical Awareness (H) course(s).		
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Term hours subtotal: 6

- Research and prepare for [graduate school](#).
- Apply for an [engineering 4+1 program](#).
- Develop a [professional profile online](#).

Term 7 - A 73 - 79 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
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★ SER 415: Software Enterprise: Inception and Elaboration (L)	3	C
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SER 322: Principles of Database Management	3	C
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Term hours subtotal: 6

Term 7 - B 79 - 86 Credit Hours	Hours	Minimum Grade	Notes
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Lab Science Sequence AND Natural Science - General (SG) OR Natural Science - Quantitative (SQ)	4	
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SER 4** Elective	3	C
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Term hours subtotal: 7

- During the junior year of the program, students should contact an academic advisor to identify course options/selection.
- In addition to PHY 121 and PHY 122, students must complete 8 semester hours (2 courses) of lab science from the following: BIO 181, BIO 182, BIO 201, BIO 202, CHM 113, CHM 116, GLG 101/103, GLG 102/104, PHY 131/132.
- 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 - A 86 - 93 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ SER 416: Software Enterprise: Project and Process Management	3	C	<ul style="list-style-type: none"> In addition to PHY 121 and PHY 122, students must complete 8 semester hours (2 courses) of lab science from the following: BIO 181, BIO 182, BIO 201, BIO 202, CHM 113, CHM 116, GLG 101/103, GLG 102/104, PHY 131/132.
Lab Science Sequence AND Natural Science - General (SG) OR Natural Science - Quantitative (SQ)	4		
Term hours subtotal:	7		

Term 8 - B 93 - 99 Credit Hours	Hours	Minimum Grade	Notes
Complete 2 courses: SER 4** Elective	6	C	<ul style="list-style-type: none"> During the junior year of the program, students should contact an academic advisor to identify course options/selection.
Term hours subtotal:	6		

Term 9 - A 99 - 105 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ SER 401: Computing Capstone Project I	3	C	
Humanities, Arts and Design (HU) OR Social-Behavioral Sciences (SB)	3		
Term hours subtotal:	6		

Term 9 - B 105 - 114 Credit Hours	Hours	Minimum Grade	Notes
Technical Elective	3	C	
Upper Division Social-Behavioral Sciences (SB) (HST 318 recommended)	3		
Humanities, Arts and Design (HU) AND Cultural Diversity in the U.S. (C)	3		
Term hours subtotal:	9		

Term 10 - A 114 - 120 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ SER 402: Computing Capstone Project II	3	C	
Humanities, Arts and Design (HU) AND Historical Awareness (H)	3		
Term hours subtotal:	6		

Lab Science Sequence	Technical Elective
BIO 181: General Biology I (SQ) AND BIO 182: General Biology II (SG)	CPI Upper Division Elective
BIO 201: Human Anatomy and Physiology I (SG) AND BIO 202: Human Anatomy and Physiology II (SG)	CSE Upper Division Elective
CHM 113: General Chemistry I (SQ) AND CHM 116: General Chemistry II (SQ)	EEE Upper Division Elective
GLG 101: Introduction to Geology I (Physical) (SQ) AND GLG 103: Introduction to Geology I-Laboratory (SQ)	IEE Upper Division Elective
GLG 102: Introduction to Geology II (Historical) (SG & H) AND GLG 104: Introduction to Geology II-Laboratory (SG)	IFT Upper Division Elective
PHY 131: University Physics II: Electricity and Magnetism (SQ) AND PHY 132: University Physics Laboratory II (SQ)	SER Upper Division Elective
<p>Note: Students who want to take PHY 121/122 and PHY 131/132 for their Lab Science Sequence will need to select a different lab science course (4 hours) from the list.</p>	

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 2020 - 2021 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.