Bachelor of Science in Software Engineering

 KENNESAW STATE UNIVERSITY

Updated 6/9/2023

Catalog Year: 2023   Total Degree Credit Hours: 120

General Education Requirements (See Degreeworks for Prerequisites)

A-1	**ENGL 1101** Composition I	3	
	ENGL 1102 Composition II	3	
A-2	**MATH 1190** Calculus I	4	

Area A: Essential Skills (10 credit hours)
All Area A courses must be completed within the first 30 credit hours with a grade of C or higher.

B-1	**ECON 1000** Contemporary Economic Issues	2	
B-2	**BLCK/AADS/AMST/ASIA/GWST/LALS/PAX/RELS 1102, COM 1100, FL 1002, LDRS 2300, PERS 2700,** *or* **POLS 2401**	3	

Area B: Institutional Options (5 credit hours)
Choose 1 course from B-2. COM 1100 is recommended.

C-1	**ENGL 2110, 2120, 2130, 2140,** *or* **PHIL 2010**	3	
C-2	**ART 1107, MUSI 1107, DANC 1107,** *or* **TPS 1107**	3	

Area C: Humanities, Fine Arts, and Ethics (6 cr hrs)
Choose one course from each area.

D-1	**MATH 2202** Calculus II	4	
D-2	**BIOL 1107/L, BIOL 1108/L, CHEM 1211/L, CHEM 1212/L, PHYS 1111/L, PHYS 1112/L, PHYS 2211/L, PHYS 2212/L**	4	
		4	

Area D: Science, Math, and Technology (12 cr hrs)
Choose any two 4 credit hour science courses. A sequence is not necessary. "L" denotes the corresponding Lab course. Students **may not** take both PHYS 1111/L & PHYS 2211/L nor PHYS 1112/L & PHYS 2212/L. PHYS 2211/L and 2212/L are recommended.

E-1	**POLS 1101** American Government	3	
E-2	**HIST 2111** *or* **2112** US History	3	
E-3	**HIST 1100, 1111,** *or* **1112** World History	3	
E-4	**CRJU 1101, GEOG 1101, PSYC 1101, SOCI 1101, STS 1101, ANTH 1102,** *or* **ECON 2100**	3	

Online SWE Majors: You can take CHEM 2211K, CHEM 2212K, PHYS 2211K & PHYS 2212K through eCore. These are the only courses that you can use to satisfy Area D & the Math/Science Electives in the Major Requirements that are online.

Area E: Social Sciences (12 credit hours)
Choose one course from each area for E-2, E-3, & E-4.

Area F Lower Division Major Requirements

	Prerequisites			
CSE 1321/L Programming & Problem Solving I	Lecture and Lab must be taken together	4		CSE 1321/L and CSE 1322/L must have a minimum grade of 'B.'
CSE 1322/L Programming & Problem Solving II	Minimum grade of 'B' in CSE 1321/L & (MATH 1113 or 1190 or 2202)*	4		
MATH 2345 Discrete Mathematics *or* **CSE 2300** Discrete Structures for Computing	MATH 1113 or 1190	3		* - can be taken before or at the same time
	(MATH 1113 or 1190) & Minimum grade of 'B' in CSE 1321/L			
TCOM 2010 Technical Writing	ENGL 1102	3		
STAT 2332 Probability and Data Analysis	MATH 1190	3		
Carryover credit hour from MATH 1190	MATH 1113	*1*		

Free Electives (5 credit hours)

CSE 1300 is <u>highly recommended</u> for students who are new to programming and have available free elective credits to complete.

Upper Division Major Requirements

	Prerequisites			
Math/Science Electives (8 hours total) Make an appointment with a CCSE Academic Advisor to discuss the course options for this requirement	Varies	4		All major courses must have a minimum grade of 'C,' except for MTRE 2610, CPE 3000, CSE 1321/L and CSE 1322/L, which must have a minimum grade of 'B.'
	Varies	4		
CSE 3153 Database Systems	CSE 1322/L	3		
CSE 3801 Professional Practices and Ethics	CSE 1322/L	2		
CS 3305 Data Structures	(MATH 2345 or CSE 2300) & (CSE 1322/L or MTRE 2610 or CPE 3000)	3		
CS 3503 Computer Organization & Architecture	CSE 1322/L	3		
CS 3502 Operating Systems	CS 3503 & CS 3305	3		(MATH 2345/CSE 2300) denotes either course will complete the 2nd part of the prerequisite requirement.
SWE 3313 Intro to Software Engineering	CSE 1322/L	3		
SWE 3623 Software Systems Requirements	CPE 3000 or (SWE 3313 & (MATH 2345 or CSE 2300))	3		
SWE 3633 Software Architecture and Design	SWE 3313 or CPE 3000	3		
SWE 3643 Software Testing & Quality Assurance	SWE 3313 or CPE 3000	3		
SWE 4324 User-Centered Design	SWE 3313	3		© = concurrent permitted
SWE 4663 Software Project Management	SWE 3313 & STAT 2332	3		
SWE 4713 SWE Application Domain	SWE 3623, SWE 3643© & SWE 4663©	3		
SWE 4724 Software Engineering Capstone Project	SWE 3623, SWE 3643© & SWE 4663©	4		
+ 1 hour carried over from MATH 2202	MATH 1190	1		
+ 1 hour carried over from 2nd science lab in Area D-2	Varies	1		

Upper Level Electives for On Campus Students (Choose 2 courses, one from List 1 and one from List 1 or 2)

List 1 (Choose 1 or 2 courses)

	Prerequisites			
SWE 3683 Embedded Systems Analysis & Design	CS 3305	3		Each SWE-prefix elective will be offered at least once every 2 years, including summer (online and F2f)
SWE 4633 Cloud Software Development	CS 3305	3		
SWE 4723 Undergraduate Research Methods	SWE 3313 or instructor permission	3		
SWE 4743 Object-Oriented Development	CS 3305	3		
SWE 4783 User Interaction Engineering	SWE 3313 or SWE 4324	3		^ = Offered Fall and Spring Semesters Online
SWE 4490 Special Topics	Varies	3		
SWE 4803 Independent Study	Varies	3		
CS 4720 Internet Programming	CS 3305 & (CS 3410 or CSE 3153)	3		CS 4720 will need a registration override if you took CSE 3153.
CS 4524 Cloud Computing	CS 4504	3		
CS 4514 Real-Time Systems	CS 3502	3		
CS 4612 Software Security	CS 3502 & CS 3626	3		
CS 4632 Modeling & Simulation	CS 3305	3		
CS 4712 User Interface Engineering	CSE 1322/L	3		
CS 4308 Concepts of Programming Languages ^	CS 3305 & CS 3503	3		
CSE 4983 CSE Computing Science Internship	Department Permission	3		

List 2 (Choose 0 or 1 courses)

	Prerequisites			
CS 4504 Parallel & Distributed Computing ^	CS 3305 & 3503, CS 3502 ©	3		© = concurrent permitted
CS 4523 Programming Massively Parallel Processors	CS 3305 & CS 3502	3		
CS 4622 Computer Networks	CS 3503 & CS 3622	3		
CS 4722 Computer Graphics and Multimedia	CS 3305	3		
CS 4732 Machine Vision	CS 3642	3		
IT 4823 Info Security Admin & Privacy ^	(CSE 2300 or MATH 2345) and (CS 3503 or IT 3123)	3		
IT, CS, CGDD 4000 level course	Program Coordinator Approval	3		