

# Bachelor of Science in Software Engineering



Catalog Year: 2017

Total Degree Credit hours: 125

## General Education Requirements (See KSU Catalog for prerequisites)

A-1	<b>ENGL 1101</b> Composition I	3	
	<b>ENGL 1102</b> Composition II	3	
A-2	<b>MATH 1190</b> Calculus I	4	

### Area A: Essential Skills (10 credit hours)

Must complete this area within first 30 credit hours.  
Must have C or better in all Area A courses.

B-1	<b>ECON 1000</b> Contemporary Economic Issues	2	
B-2	<b>COM 1100</b> Human Communication	3	

### Area B: Institutional Options (5 credit hours)

C-1	<b>ENGL 2000-level</b> Approved Literature	3	
C-2	<b>ART/DANC/MUSI/TPS 1107</b> Arts and Culture of the World	3	

### Area C: Humanities/Arts (6 credit hours)

Choose one course from both groups.

D-1	<b>MATH 2202</b> Calculus II	4	
D-2	<b>CHEM 1211/L, PHYS 2211/L or BIOL 1107/L</b>	8	
	<b>CHEM 1212/L, PHYS 2212/L or BIOL 1108/L</b>		

### Area D: Science, Math & Technology (12 credit hours)

Must complete a science sequence (this sequence can come from a course in D and the science elective from Major Courses Section – see back of this sheet)  
“L” denotes accompanying lab course.  
*Chem 1211/L is a pre/corequisite of BIOL 1107/L.*

E-1	<b>POLS 1101</b> American Government	3	
E-2	<b>HIST 2111/2112</b> US History	3	
E-3	<b>HIST 1100/1111/1112</b> World History	3	
E-4	<b>STS 1101</b> Science, Technology and Society	3	

### Area E: Social Sciences (12 credit hours)

Choose one course from each group for requirements E-2 and E-3.

	<b>KSU 1101</b> First Year Seminar	3	
--	------------------------------------	---	--

Students who transfer in with 30+ credit hours do not need to complete a First Year Seminar course.

Students must have a C or better in any course that is a prerequisite.

## Area F Lower Division Major Requirements

### Prerequisites

F-1	<b>CS / CSE 1301</b> Programming and Problem Solving I	No Prerequisite	4	
F-2	<b>CS / CSE 1302</b> Programming and Problem Solving II	CS/CSE 1301	4	
F-3	<b>CSE 2300</b> Discrete Structures OR <b>MATH 2345</b> Discrete Math **	CS/CSE 1301 & MATH 1113	3	
F-4	<b>TCOM 2010</b> Technical Writing	ENGL 1102	3	
F-5	<b>MATH 2332</b> Intro to Probability and Data Analysis	MATH 1190	3	
+1 Carry over from extra from Area D				

Students should begin CS/CSE 1301 within their first or second semester in the major.

CSE 2300 as prerequisite of CS/CSE 1301 & MATH 1113. MATH 2345 has prerequisite of just MATH 1113.

Note: Students must have a C or better in all courses that are in Area F.

## Upper Division Major Courses

	Prerequisites		
<b>Math/Science Electives</b> (Math at the level of Calculus 1 or higher; Science at the level of Area D or above ***)	Varies	6	
<b>PHYS 2211/L or Area D science *</b>	Varies	4	
<b>CSE 3153</b> Database Systems	CS/CSE 1302	3	
<b>CSE 3801</b> Professional Practices and Ethics	CS/CSE 1302	2	
<b>CS 3501</b> Computer Organization & Architecture	CS/CSE 1302	4	
<b>CS 3304</b> Data Structures	CS/CSE 1302 & (MATH 2345 or CSE 2300)	4	
<b>CS 3502</b> Operating Systems	CS 3501 & CS 3304	3	
<b>SWE 3313</b> Introduction to Software Engineering	CS/CSE 1302	3	
<b>SWE 3623</b> Software Systems Requirements	SWE 3313 & CSE 2300/MATH 2345	3	
<b>SWE 3633</b> Software Architecture & Design	SWE 3313	3	
<b>SWE 3643</b> Software Testing and Quality Assurance	SWE 3313	3	
<b>SWE 4324</b> User-Centered Design	CS/CSE 1302	4	
<b>SWE 4663</b> Software Project Management	SWE 3313 & MATH 2332	3	
<b>SWE 4713</b> SWE Application Domain	1	3	
<b>SWE 4724</b> Software Engineering Project	2	4	
<b>SWE Upper Level Electives (See Below)</b>	Varies	6	
<b>Free Electives</b> (Excludes: Math 1111, PHYS 111K and PHYS 1112K)	Varies	5	

\*\*\* Please check with an advisor to verify the science courses that can be taken

\*If you do not take the PHYS 2211/L & PHYS 2212/L sequence in Area D, you must take PHYS 2211/L in upper division major science requirement.

<sup>1</sup> Three of these four: SWE 3623, SWE 3633, SWE 3643, SWE 4663

<sup>2</sup> TCOM 2010 & COM 1100 & three of these four: SWE 3623, SWE 3633, SWE 3643, SWE 4663

Students must have a C or better in all courses that are in Upper Division Major Requirements and UL Electives

### SWE Upper Level Electives

Choose 2 courses from the following; **at least one must be an SWE course**

**CSE 4983 CSE Internship** course may be used as your ONE "non-SWE" elective, even if it is a Software Engineering internship.

#### Software Engineering (Pick 1 or 2)

	Prerequisites		
<b>SWE 3683</b> Embedded Systems Analysis & Design	CS 3304	3	
<b>SWE 3843</b> Embedded Systems Construction and Testing	CS 3502	3	
<b>SWE 4633</b> Component-Based Software Development	CS 3304	3	
<b>SWE 4743</b> Object-Oriented Development	CS 3304	3	
<b>SWE 4783</b> User Interaction Engineering	SWE 3313 or SWE 4324	3	

#### Computer Science (Pick 0 or 1)

	Prerequisites		
<b>CS 4504</b> Distributed Computing	CS 3502	3	
<b>CS 4512</b> Systems Programming	CS 3502		
<b>CS 4622</b> Computer Networks	CS 3501	3	
<b>CS 4514</b> Real-Time Systems	CS 3502	3	
<b>CS 4523</b> Prog. Mass. Parallel. Pro.	CS 3502		
<b>CS 4622</b> Computer Networks	CS 3501		
<b>CS 4722</b> Computer Graphics and Multimedia	CS 3304	3	
<b>CS 4242</b> Artificial Intelligence	CS 3304	3	
<b>CS 4732</b> Digital Image Processing	CS 3304	3	

#### Computer Game Development and Design (Pick 0 or 1)

	Prerequisites		
<b>CGDD 4003</b> Digital Media and Interaction	CGDD 3103, CS 3304 & SWE 3643	3	
<b>CGDD 4203</b> Mobile and Casual Game Development	CGDD 4003	3	

CGDD 3103 will be used as free elective credit unless free elective requirement has already been completed with other courses.

#### Information Technology (Pick 0 or 1)

	Prerequisites		
<b>IT 4123</b> Electronic Commerce	CSE 3153 and IT 3203	3	
<b>IT 4823</b> Information Security Administration & Privacy	CSE 3153, (MATH 2345 or CSE 2300) & CS 3501	3	
<b>IT 4833</b> Wireless Security	CS 3502	3	
<b>IT 4843</b> Ethical Hacking for Effective Defense	IT 4323 or ECET 3400 or CS 4622	3	

IT 3203 or IT 4323/ECET 3400/CS 4622 will be used as free elective credit unless free elective requirement has already been completed with other courses.