

**B.S. in SOFTWARE ENGINEERING**  
**Suggested Four-Year Schedule**  
**2016 - 2017 Catalog**

<b>Student:</b>	<b>Date:</b>
<b>Advisor:</b>	<b>Bear ID:</b>

The Bachelor of Science in Software Engineering degree requires a minimum of 120 hours.

A minor is required for Software Engineering degree and may not include Computer Science, Computer Information Systems, or Network and Information Systems Security minors.

Year One			Sem. Hrs.	YEAR TWO			Sem. Hrs.
<b>FALL</b>				<b>FALL</b>			
<b>BACS 180</b>	<b>Introduction to Software Engineering</b>		<b>1</b>	<b>CS 200</b>	<b>Object-Oriented Design &amp; Prog.</b>		<b>3</b>
CS 101	(LAC Elect) Intro to Computer Science		3		(LAC 3 - Arts & Humanities)		3
ENG 122	(LAC 1a) College Composition		3	PHYS 220 or	(LAC 6L) Introductory Physics I or		5
	(LAC 4 - History)		3	PHYS 240	(LAC 6L) General Physics I		
	(LAC 3 - Art & Humanities)		3		(LAC 8 - Multicultural Studies)		3
	(LAC 5 - Social Science)		3	<b>SPRING</b>			
<b>SPRING</b>				<b>BACS 200</b>	<b>Web Design &amp; Devel. for Small Bus.</b>		<b>3</b>
MATH 131	(LAC 2) Calculus I		4	<b>BACS 287</b>	<b>Graphical Interface Programming</b>		<b>3</b>
<b>CS 102</b>	<b>Structure Programming</b>		<b>3</b>	<b>CS 301</b>	<b>Algorithms and Data Structures</b>		<b>3</b>
ENG 123 or	(LAC 1b) College Research Paper or		3		(LAC 7 - International Studies)		3
SCI 291	(LAC 1b) Scientific Writing					Select Minor Course	
	(LAC 5 - Social Science)		3				
	(LAC 6 - Sciences)		3				
<b>Total</b>			<b>32</b>	<b>Total</b>			<b>29</b>

YEAR THREE			Sem. Hrs.	YEAR FOUR			Sem. Hrs.
<b>FALL</b>				<b>FALL</b>			
<b>BACS 380</b>	<b>Network &amp; Data Comm. Systems</b>		<b>3</b>	<b>BACS 485</b>	<b>Database Management Systems</b>		<b>3</b>
<b>BACS 383</b>	<b>User Interface Design &amp; Development</b>		<b>3</b>	<b>BACS 487</b>	<b>Systems Analysis &amp; Design (F)</b>		<b>3</b>
<b>BACS 350</b>	<b>Intermediate Web Development</b>		<b>3</b>		Select Minor Course		3
<b>CS 350</b>	<b>Software Engineering I</b>		<b>3</b>		Select Minor Course		3
	Select Minor Course		3		University Wide Electives/Add'l Minor Credits		4
<b>SPRING</b>				<b>SPRING</b>			
<b>BACS 300</b>	<b>Information Systems</b>		<b>3</b>	<b>BACS 488</b>	<b>Senior CIS Project or</b>		<b>3</b>
<b>BACS 385</b>	<b>Fundamentals of Project Management</b>		<b>3</b>	<b>or CS 497</b>	<b>Senior Project</b>		
	<b>SE Major Electives</b> (6 credits) Choose two of the following courses: BACS 382, BACS 387, BACS 492, CS 302, CS 442, or CS 480.		<b>3</b>	<b>CS 440</b>	<b>Operating Systems</b>		<b>3</b>
			<b>3</b>		Select Minor Course		3
	Select Minor Course		3		University Wide Electives/Add'l Minor Credits		4
<b>Total</b>			<b>30</b>	<b>Total</b>			<b>29</b>

At least 44 credit hours of the degree must be earned at UNC.  
 A student must attain a 2.0 or greater GPA in the required major and specified LAC courses.  
 Each student must attain at least a "C-" grade in each required major and specified LAC course.

UNC's Grade Replacement Policy may be applied to Software Engineering courses during the student's undergraduate academic career. Please see <http://www.registrar.unco.edu/records/grades/gradereplacement.html> for details.

**Note:** Some students may qualify to apply for admission to Software Engineering. These students include: Transfer students with at least 15 hours with a cumulative GPA of 2.5-2.99 and UNC students who have completed a total of 15 hours with a cumulative UNC GPA of 2.5-2.99. Students may apply for admission to Software Engineering by contacting the Department of Accounting and CIS in Kepner 2090.

**SOFTWARE ENGINEERING COURSE PREREQUISITES: 2016-2017 CATALOG**

**Students must meet course prerequisites as stated in the current UNC catalog.  
Check the catalog each semester you register to make certain you meet requirements.**

**SOFTWARE ENGINEERING REQUIRED MAJOR: 52 Credits**

**Take all courses in the following list. A grade of "C-" or better is required in each course required for this major.**

**No more than 12 of these credits may be transferred in from another institution.**

**Of the 12 credits, no more than 9 of these credits may be transferred in from other institutions at the 300-/400- level.**

Course #	Course Titles	Prerequisites	Prerequisite Course Titles/Notes
CS 102	Structured Programming	CS 101 <b>or</b> CG 120	Introduction to Computer Science <b>OR</b> Computer Programming
BACS 180	Introduction to Software Engineering	None required	
BACS 200	Web Design & Development for Small Bus.	Computer Literacy	
CS 200	Object-Oriented Analysis, Design, & Prog.	CS 102	Structured Programming
BACS 287	Graphical Interface Programming	Business Majors/Minors & SE Majors only	
BACS 300	Information Systems	BACS 101, <b>or</b> CS 101 Business Majors/Minors & SE only Juniors or above	Business Computing <b>OR</b> Introduction to Computer Science
CS 301	Algorithms and Data Structures	CS 200	Object-Oriented Analysis, Design and Programming
BACS 350	Intermediate Web Development	BACS 200 <b>or</b> Consent of Instructor	Web Design and Development for Small Business
CS 350	Software Engineering I	CS 301	Algorithms and Data Structures
BACS 380	Networking & Data Communications Systems	Business Majors/Minors & SE Majors only Juniors or above	
BACS 383	User Interface Design & Development	BACS 200 BACS 287 <b>or</b> CS 200 Junior or above	Web Design and Development for Small Business Graphical Interface Programming <b>OR</b> Object-Oriented Analysis, Design and Programming with a minimum grade of "C-"
BACS 385	Fundamentals of Project Management	Juniors or above	
CS 440	Operating Systems	CS 301	Algorithms and Data Structures
BACS 485	Database Management Systems	BACS 287 Business Majors/Minors & SE Majors only Juniors or above	Graphical Interface Programming
BACS 487	Systems Analysis & Design	BACS 287 BACS 300 CIS Major, CIS Minors & SE Majors only Juniors or above	Graphical Interface Programming Information Systems
BACS 488	Senior CIS Project	BACS 387 BACS 487 Business Majors/Minors & SE Majors only Senior or above	Object Oriented System Development Systems Analysis and Design
<b>or</b>	<b>or</b>		
CS 497	Senior Project	Senior or above	

**Software Engineering Major Electives – 6 Credit hours**

**Take two 3 credit courses from the following list.**

Course #	Course Titles	Prerequisites	Prerequisite Course Titles/Notes
CS 302	Programming Languages	CS 301	Algorithms and Data Structures
BACS 382	TCP/IP Network Security	BACS 380 <b>or</b> Consent of Instructor	Networking and Data Communications Systems
BACS 387	Object Oriented System Development	BACS 287 Business Majors/Minors & SE Majors only Juniors or above	Graphical Interface Programming
BACS 492	Internship in Computer Information Systems	Consent of Faculty Business Majors/Minors & SE Majors only Juniors or above	
CS 442	Networking	CS 440	Operating Systems
CS 480	Graphics	CS 301	Algorithms and Data Structures