

## Bachelor of Science in SOFTWARE ENGINEERING

with

Name: \_\_\_\_\_

**Choose One Option Sophomore Year**

- Business Applications Option
- Electronic Control Systems Option
- Engineering Applications Option

- Statistical Applications Option
- Technical Communications Option
- Health Care Informatics Option
- Game Development Option

### 2016 - 2017 Catalog

#### Fall Semester

#### FRESHMAN YEAR

			Credits	Sem	Grade
ESOF	194	CS&SE Freshman Seminar	1	_____	_____
CSCI	135	Fund. of Computer Science I	3	_____	_____
M	171	Calculus I	3	_____	_____
WRIT	101	College Writing I****	3	_____	_____
CHMY	141	College Chemistry I*	3	_____	_____
CHMY	142	College Chemistry I Lab *	1	_____	_____
--	--	<i>Humanities Elective**</i>	--	--	--
			<b>Total Credits</b>	<b>17</b>	

#### Spring Semester

			Credits	Sem	Grade
CSCI	136	Fund. of Computer Science II	3	_____	_____
COMX	230	Presenting Technical Information*	3	_____	_____
M	172	Calculus II	3	_____	_____
PHSX	234	General Physics - Mechanics	3	_____	_____
--	--	<i>Humanities Elective**</i>	--	--	--
			<b>Total Credits</b>	<b>18</b>	

#### SOPHOMORE YEAR

CSCI	232	Data Struct & Algorithms	3	_____	_____
CSCI	246	Discrete Structures	3	_____	_____
CSCI	255	Intro. To Embedded Systems	3	_____	_____
M	273	Multivariable Calculus	4	_____	_____
PHSX	235	General Physics - H, S, & O	3	_____	_____
PHSX	236	General Physics-H, S, & O Lab	1	_____	_____
			<b>Total Credits</b>	<b>17</b>	

CSCI	332	Design and Analysis of Algor.	3	_____	_____
CSCI	340	Database Design	3	_____	_____
ECNS	203	Principles of Micro and Macro	3	_____	_____
M	274	Intro to Differential Equations	3	_____	_____
PHSX	237	General Phys - Elect, Mag, & Wave	3	_____	_____
PHSX	238	General Phys-Elect, Mag, & Wave Lab	1	_____	_____
			<b>Total Credits</b>	<b>16</b>	

#### JUNIOR YEAR

CSCI	305	Concepts of Programming Lang	3	_____	_____
COMX	338	Usability Testing	3	_____	_____
ESOF	322	Software Engineering	3	_____	_____
★STAT	332	Statistics for Scientists & Engin	3	_____	_____
--	--	<i>Professional Elective***</i>	--	--	--
			<b>Total Credits</b>	<b>15</b>	

CSCI	361	Computer Architecture	3	_____	_____
ESOF	326	Software Maintenance	2	_____	_____
ESOF	328	Requirements & Specifications	3	_____	_____
WRIT	321W	Adv. Technical Writing****	3	_____	_____
--	--	<i>Professional Elective***</i>	--	--	--
			<b>Total Credits</b>	<b>14</b>	

#### SENIOR YEAR

CSCI	466	Networks	3	_____	_____
EGEN	325	Engr. Economic Analysis	3	_____	_____
ESOF	427	Software Design & Architecture	3	_____	_____
ESOF	486	Software Eng. Design Project I	3	_____	_____
--	--	<i>Professional Elective***</i>	--	--	--
			<b>Total Credits</b>	<b>15</b>	

CSCI	460	Operating Systems	3	_____	_____
CSCI	470	Web Science	3	_____	_____
ESOF	411	Software Verification & Validation	3	_____	_____
ESOF	487	Software Eng. Design Project II	3	_____	_____
ESOF	494	Senior Seminar	1	_____	_____
--	--	<i>Professional Elective***</i>	--	--	--
			<b>Total Credits</b>	<b>16</b>	

*Minimum credits for B.S. degree in Software Engineering = 128*

\* BIOB 101 (Discover Biology) and BIOB 102 (Discover Biology Lab) or GEO 101 (Intro to Physical Geology) may be substituted for CHMY 141/142.

COMX 111 Intr to Public Speaking or COMX 211 Adv Public Speaking can replace COMX 230.

\*\*Electives must be chosen to meet GER (3 credits in Social Sciences & 6 credits in Humanities).

\*\*\* Professional electives are the classes that meet the Software Engineering degree options. (Professional electives on other side.)

\*\*\*\*WRIT 121 Intro to Technical Writing can replace WRIT 101 College Writing I. WRIT 325W Writing in the Sciences, WRIT 322W Advanced Business Writing can replace WRIT 321W.

★ Students in the Statistics Option need to take STAT 332 before beginning the courses in the option.

# SOFTWARE ENGINEERING DEGREE OPTIONS

Professional Electives --- Junior and Senior Years

12 Credits for Each Option

<b>Business Applications</b>					
<i>Junior Year</i>			<u>Fall</u>	<u>Spring</u>	<u>Sem/Gr</u>
ACTG 201		Principles of Fin Acct	3		
ACTG 202		Principles of Mang Acct		3	
<i>Senior Year</i>					
*	BMKT 325W	Principles of Marketing		3	
*	BGEN 235	Business Law I	3		
*	BMGT 335W	Management and Organization		3	
*	BFIN 322	Business Finance	3		
* select 2 courses out of 4					
<b>Electronic Control Systems</b>					
<i>Junior Year</i>			<u>Fall</u>	<u>Spring</u>	<u>Sem/Gr</u>
	EELE 201	Circuits I for Engineering (coreq M 172)	3		
*	EELE 202	Circuits I for Engineering Lab (coreq EELE 201)	1		
*	EELE 261	Intro. To Logic Circuits (prereq EELE 201, 202)		3	
*	EELE 465	Microcontroller Applications (prereq CSCI 255) (even years only)		3	
<i>Senior Year</i>					
*	PHSX 322	Electronics for Scientists (prereq PHSX 237)		3	
*	EELE 203	Circuits II for Engineering (prereq EELE 201, 202 & M 274)	4		
*	EELE 423	Process Instrumentation and Control (prereq EELE 201 & 202)	4		
*	EELE 317	Electronics (prereq EELE 203)		3	
*	Geop 446	Applied Linear Systems (prereq EELE 203 or M 405 or PHSX 453)		3	
* select 3 or more courses to reach a minimum of 12 elective credits within the option					
<b>Engineering Applications</b>					
<i>Junior Year</i>			<u>Fall</u>	<u>Spring</u>	<u>Sem/Gr</u>
*	EGEN 105	Introduction to General Engineering	1		
	EGEN 201	Statics (prereq Phys. 1046) (prereq PHSX 234)	3		
	EGEN 215	Introduction to Computer Aided Design & Problem Solving		2	
*	EGEN 202	Dynamics (prereq EGEN 201 & M 172)		3	
<i>Senior Year</i>					
	EGEN 305	Mechanics of Materials	3		
*	EGEN 306	Mechanics of Materials Lab	1		
*	EGEN 318	Computer Applications for Engineering Design		2	
*	ENGR 4150	Engineering Computer Applications (even years only)		3	
* select 2 or more courses to reach a minimum of 12 elective credits within the option.					

### Statistical Applications

			<u>Fall</u>	<u>Spring</u>	<u>Sem/Gr</u>
<b>Junior Year</b>					
*	STAT 441	Experimental Design (prereq STAT 332)	3		
*	STAT 432	Regression and Model Building (prereq STAT 332)		3	
<b>Senior Year</b>					
	STAT 421	Probability Theory (prereq STAT 332)	3		
*	STAT 422	Mathematical Statistics (prereq STAT 421)		3	
*	STAT 435	Statistical Computing & EDA		3	

\* select 3 courses out of 4

### Technical Communication

			<u>Fall</u>	<u>Spring</u>	<u>Sem/Gr</u>
<b>Junior Year</b>					
*	PTC 3156	Digital Video Productions	3		
	PTC 3406W	New Media Design I	3		
+*	WRIT 321W	Advanced Technical Writing		3	
+*	WRIT 322W	Advanced Business Writing		3	
<b>Senior Year</b>					
*	CSCI 311	Data Driven Web Applications		3	
*	COMX 442	History, Technology, & Communication		3	
+*	WRIT 325W	Writing in the Sciences	3		
*	WRIT 350W	Technical Editing		3	
*	WRIT 412W	Advanced Writing		3	
*	PTC 4406	New Media Design II		3	

+ only one may be used to satisfy GEN Ed 300-level writing requirement.

\* select 3 courses out of 9

### Health Care Informatics

			<u>Fall</u>	<u>Spring</u>	<u>Sem/Gr</u>
<b>Junior Year</b>					
	HIT 101	Intro to Health Care Informatics	3		
*	HIT 230	Overview of HCI Systems (prereq HIT 101)		4	
*	HIT 260	Workflow Process and Redesign (prereq HIT 101, CAPP 158)	2		
*	HCI 310	Health Care Delivery in the US I (prereq HIT 101)	3		
*	HCI 316	Health Care Delivery in the US II (prereq HIT 101)		3	
<b>Senior Year</b>					
*	HCI 312	Health Care Delivery in the US II (prereq HCI 310)		3	
*	HCI 320	Inf. Systems Security		3	
*	HCI 410	Projects and Systems Management	4		
*	HCI 420	Public Health Inf. (prereq HCI 310)	3		

\* select 3 courses of 8; student must have the approval of the student's advisor & HCI department

### Game Development

			<u>Fall</u>	<u>Spring</u>	<u>Sem/Gr</u>
<b>Junior Year</b>					
	PTC 330	Introduction to Game Design	3		
	PTC 3406W	New Media Design I	3		
	CSCI 441	Computer Graphics		3	
<b>Senior</b>					
	PTC 4406W	New Media Design II		3	
	CSCI 446	Artificial Intelligence	3		
	CSCI 491	Special Topics - Computer Game Development		3	
	CSCI 492	Independent Study - Computer Game Development Project *	3		

Select 12 credits from listed courses; \*Project must be approved by CS faculty