

Montana Tech of the University of Montana  
**Bachelor of Science in SOFTWARE ENGINEERING**

with

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

Choose One Focus Area Sophomore Year

- |   |  |
|---|--|
| <input type="checkbox"/> Business Applications<br><input type="checkbox"/> Electronic Control Systems Option<br><input type="checkbox"/> Engineering Applications | <input type="checkbox"/> Statistical Applications<br><input type="checkbox"/> Technical Communications Option<br><input type="checkbox"/> Game Development |
|---|--|

**2020 - 2021 Catalog**

Fall Semester

Spring Semester

**FRESHMAN YEAR**

			Credits	Sem	Grade
CSCI	194	Freshman Seminar	1	_____	_____
CSCI	135	Fund. of Computer Science I	3	_____	_____
M	171	Calculus I	3	_____	_____
WRIT	121	Intro to Technical Writing****	3	_____	_____
CHMY	141	College Chemistry I*	3	_____	_____
CHMY	142	College Chemistry I Lab *	1	_____	_____
--	--	Humanities Elective**	--	--	--
<b>Total Credits</b>			<b>17</b>		

			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	_____	_____
CSCI	255	Intro. To Embedded Systems	3	_____	_____
--	--	Humanities Elective**	--	--	--
<b>Total Credits</b>			<b>18</b>		

**SOPHOMORE YEAR**

CSCI	232	Data Struct & Algorithms	3	_____	_____
CSCI	246	Discrete Structures	3	_____	_____
COMX	338	Usability Testing	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	_____	_____
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	_____	_____
--	--	Social Science Elective**	--	--	--
<b>Total Credits</b>			<b>16</b>		

**JUNIOR YEAR**

CSCI	305	Concepts of Programming Lang	3	_____	_____
BMIS	375	Data Analytics	3	_____	_____
ESOF	322	Software Engineering	3	_____	_____
★STAT	332	Statistics for Scientists & Engin	3	_____	_____
--	--	Professional Elective***	--	--	--
<b>Total Credits</b>			<b>15</b>		

CSCI	361	Computer Architecture	3	_____	_____
ESOF	326	Software Maintenance	3	_____	_____
ESOF	328	Requirements & Specifications	3	_____	_____
WRIT	321W	Adv. Technical Writing****	3	_____	_____
CSCI	440	Advanced Database	3	_____	_____
<b>Total Credits</b>			<b>15</b>		

**SENIOR YEAR**

CSCI	466	Networks	3	_____	_____
EGEN	325	Engr. Economic Analysis	3	_____	_____
ESOF	427	Software Design & Architecture	3	_____	_____
ESOF	486	Senior Design Project I	2	_____	_____
--	--	Free Elective	--	--	--
<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	Senior Design Project II	2	_____	_____
CSCI	494	Senior Seminar	1	_____	_____
--	--	Professional Elective***	--	--	--
<b>Total Credits</b>			<b>15</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 focus areas (Professional electives on other side.)

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

★ Students in the Statistics Focus Area need to take STAT 332 before beginning the courses in the focus area.

# SOFTWARE ENGINEERING DEGREE FOCUS AREAS

Professional Electives --- Junior and Senior Years  
9 Credits for Each Focus Area

<b>Business Applications</b>					
	<i>Junior Year</i>		<u>Fall</u>	<u>Spring</u>	<u>Sem/Gr</u>
	ACTG 201	Principles of Financial Accounting	3		
	ACTG 202	Principles of Managerial Accounting		3	
	<i>Senior Year</i>				
*	BMKT 325W	Principles of Marketing		3	
*	BGEN 235	Business Law	3		
*	BMGT 335W	Management and Organization		3	
*	BFIN 322	Business Finance	3		
<i>* select 1 course out of 4</i>					
<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, 238)		3	
*	EELE 203	Circuits II for Engineering (prereq EELE 201, 202 & M 274)	4		
*	EELE 320	Process Instrumentation and Control (prereq EELE 201 & 202)	4		
*	EELE 317	Electronics (prereq EELE 203)		3	
*	Geop 446	Applied Linear Systems (prereq M274)		3	
<i>* select 2 or more courses to reach a minimum of 9 elective credits within the focus area</i>					
<b>Engineering Applications</b>					
	<i>Junior Year</i>		<u>Fall</u>	<u>Spring</u>	<u>Sem/Gr</u>
	EGEN 101	Introduction Engineering Calculations & Problem Solving	3		
	EGEN 201	Statics (prereq PHSX 234)		3	
*	EMEC 215	Intro to Modeling for Mechanical Engineers (prereq M172, EGEN 101)		1	
	<i>Senior Year</i>				
*	EGEN 202	Dynamics (prereq EGEN 201 & M 172)	3		
*	EGEN 305	Mechanics of Materials (prereq EGEN 201 & M 172)	3		
*	EGEN 306	Mechanics of Materials Lab (co-req EGEN 305)	1		
*	EGEN 318	Computer Applications for Engineering(prereq EMEC 215, coreq EGEN 305)		2	
<i>* select 1 or more courses to reach a minimum of 9 elective credits within the focus area</i>					

<b>Statistical Applications</b>					
	<i>Junior Year</i>		<u>Fall</u>	<u>Spring</u>	<u>Sem/Gr</u>

	STAT 421	Probability Theory (every other year, prereq STAT 332)	3		
*	STAT 422	Mathematical Statistics (every other year, prereq STAT 421)		3	
*	STAT 441	Experimental Design (prereq STAT 332)	3		
*	STAT 432	Regression and Model Building (prereq STAT 332)		3	
<b>Senior Year</b>					
*	STAT 435	Statistical Computing & EDA (prereq STAT 332)		3	
*	STAT 453	Statistical Learning and Data Science I (every other year, prereq STAT 432)	3		
*	STAT 454	Statistical Learning and Data Science II (every other year, prereq STAT 453)		3	

\* select 2 courses out of 6

### Technical Communication

			<u>Fall</u>	<u>Spring</u>	<u>Sem/Gr</u>
<b>Junior Year</b>					
*	PTC 3156	Digital Video Productions	3		
	MART 310W	New Media I	3		
+	WRIT 321W	Advanced Technical Writing		3	
+	WRIT 322W	Advanced Business Writing		3	
<b>Senior Year</b>					
*	CSCI 311	Data Driven Web Applications (prereq CSCI 135, or 110, or 114, or 112, or 117)		3	
*	COMX 442	History, Technology, & Communication		3	
+	WRIT 325W	Writing in the Sciences	3		
*	WRIT 350W	Technical Editing (prereq WRIT 321W, or 322W, or 325W)		3	
*	PTC 4406	New Media II		3	

+ in addition to GenEd 300-level writing requirement.

\* select 2 courses out of 8

### Game Development

			<u>Fall</u>	<u>Spring</u>	<u>Sem/Gr</u>
<b>Junior Year</b>					
	PTC 330	Introduction to Game Design	3		
	MART 310W	New Media I	3		
	CSCI 441	Computer Graphics (prereq CSCI 332, M333)		3	
<b>Senior</b>					
	PTC 4406W	New Media II		3	
	CSCI 446	Artificial Intelligence (prereq CSCI 332)	3		
	CSCI 491	Special Topics - Computer Game Development		3	
	CSCI 492	Independent Study - Computer Game Development Project *	3		

Select 9 credits from listed courses; \*Project must be approved by CS faculty