

Montana Technological University  
**Bachelor of Science in SOFTWARE ENGINEERING**

with

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

Choose One Focus Area Sophomore Year

- |   |   |
|---|---|
| <input type="checkbox"/> Electronic Control Systems | <input type="checkbox"/> Game Development |
| <input type="checkbox"/> Entrepreneurship           | <input type="checkbox"/> Custom           |
| <input type="checkbox"/> Data Science               |   |

**2021 - 2022 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	_____	_____
--	--	<i>Social Science Elective**</i>	--	--	--
			3	_____	_____
--	--	<i>Humanities Elective**</i>	--	--	--
			3	_____	_____
<b>Total Credits</b>			<b>16</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	_____	_____
--	--	<i>Humanities Elective**</i>	--	--	--
			3	_____	_____
<b>Total Credits</b>			<b>18</b>	_____	_____

**SOPHOMORE YEAR**

CSCI	232	Data Struct & Algorithms	3	_____	_____
CSCI	246	Discrete Structures	3	_____	_____
CSCI	443	User Interface Design	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	_____	_____
CSCI	210	Web Programming	3	_____	_____
<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	_____	_____
--	--	<i>Professional Elective***</i>	--	--	--
			3	_____	_____
<b>Total Credits</b>			<b>15</b>	_____	_____

CSCI	361	Computer Architecture	3	_____	_____
ESOF	476	Engr. Secure Software	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	_____	_____
--	--	<i>Free Elective</i>	--	--	--
			2	_____	_____
--	--	<i>Professional Elective***</i>	--	--	--
			3	_____	_____
<b>Total Credits</b>			<b>16</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	_____	_____
--	--	<i>Professional Elective***</i>	--	--	--
			3	_____	_____
<b>Total Credits</b>			<b>15</b>	_____	_____

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

Total Credits on Sheet:	128
Credits Completed:	0

\* COMX 111 Intr to 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.

## SOFTWARE ENGINEERING DEGREE FOCUS AREAS

Professional Electives --- Junior and Senior Years

9 Credits for Each Focus Area

<b>Entrepreneurship</b>					
	<i>Junior Year</i>		<u>Fall</u>	<u>Spring</u>	<u>Sem/Gr</u>
*	ACTG 201	Principles of Financial Accounting	3	3	
*	ACTG 202	Principles of Managerial Accounting	3	3	
<b>Senior Year</b>					
*	BGEN 235	Business Law	3		
*	BFIN 322	Business Finance	3		
*	BMKT 325W	Principles of Marketing	3	3	
*	BMGT 335W	Management and Organization	3	3	
*	BMKT 342	Marketing Research		3	
*	BMGT 448W	Entrepreneurship	3		
<i>* Select 6 credits from listed courses</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		
	Phys. 3036	Electronics (prereq Phys. 2086 and 2106)	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	
<b>Senior Year</b>					
*	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>Game Development</b>					
	<i>Junior Year</i>		<u>Fall</u>	<u>Spring</u>	<u>Sem/Gr</u>
	CAPP 163	Introduction to Game Design	3		
	CSCI 441	Computer Graphics (prereq CSCI 332, M 333)		3	
<b>Senior</b>					
	CSCI 446	Artificial Intelligence (prereq CSCI 332)	3		
	CSCI 447	Machine Learning (prereq CSCI 332)		3	
	CSCI 477	Computational Modeling and Simulation (prereq CSCI 135, M 273 and STAT 332)	3		
<i>Select 9 credits from listed courses</i>					
<b>Data Science</b>					
	<i>Junior Year</i>		<u>Fall</u>	<u>Spring</u>	<u>Sem/Gr</u>
	CSCI 347	Data Mining (prereq CSCI 135 and BMIS 375)	3		
	CSCI 411	Data Visualization (prereq CSCI 135)		3	

STAT	432	Regression and Model Building (prereq STAT 332)			3	
<b>Senior</b>						
CSCI	446	Artificial Intelligence (prereq CSCI 332)			3	
CSCI	447	Machine Learning (prereq CSCI 332)			3	
STAT	435	Statistical Computing and EDA (prereq STAT 332)			3	
STAT	453	Statistical Learning and Data Science I (prereq STAT 432)		3		
STAT	454	Statistical Learning and Data Science II (prereq STAT 453)			3	
<i>Select 9 credits from listed courses</i>						
<b>Custom</b>						
<b>Junior Year</b>						
PGM	Number	Title			<u>Fall</u>	<u>Spring</u> <u>Sem/Gr</u>
					3	
<b>Senior</b>						
PGM	Number	Title			3	
PGM	Number	Title				3
<i>Work with your advisor to select 9 credits of courses</i>						