ENGINEERING, B.S.E.

Course Requirements

- General Education Course

🏲 - Milestone course: a key success marker for your major. See your advisor to discuss the importance of this course in your plan of study.

The Core Curriculum is designed to foster critical thinking skills and introduce students to basic domains of thinking that transcend disciplines. The Core applies to all majors. Information on specific classes in the Core can be found at https://www.marshall.edu/gened/.

Core 1: Critical Thinking FYS 100 First Yr Sem Critical Thinking 3 MTH 229 Calculus/Analytic Geom I (CT) 5 SFT 235 Intro to Occup Safety (CT) 3 Core 2 ENG 101 Beginning Composition 3 ENG 201 Advanced Composition 3 ENG 201 Advanced Composition 3 MTH 229 Calculus/Analytic Geom I (CT) 5 CHM 211 Principles of Chemistry I 3 CHM 217 Principles of Chem Lab I 2 Core II Humanities Core II Fine Arts Additional University Requirements ENGR 451 Intro to Proj Management 3 ENGR 473 Capstone Senior Design (Writing Intensive) 3 SFT 235 Intro to Occup Safety (CT) (Multicultural or International) ENGR 473 Capstone Senior Design (Capstone) 3 Major-Specific MTH 230 Calculus/Analytic Geom I (CT) 5 MTH 230 Calculus/Analytic Geom II 4 MTH 231 Calculus/Analytic Geom II 4 MTH 231 Calculus/Analytic Geom II 4 MTH 231 Principles of Chem Lab I 2 PHY 211 University Physics I 4 PHY 202 General Physics I Laboratory 1 Select one of the following: BSC 120 Principles of Biology I (and 120L) or BSC 120HPrinciples of Biology Honors CHM 212 Principles Chemistry II (and CHM 218) MTH 300 Intro to Higher Math MTH 329 Elementary Linear Algebra	Code	Title	Credit Hours		
MTH 229 Calculus/Analytic Geom I (CT) 5 SFT 235 Intro to Occup Safety (CT) 3 Core 2 ENG 101 Beginning Composition 3 ENG 201 Advanced Composition 3 ENG 201 Advanced Composition 3 CMM 103 Fund Speech-Communication 3 MTH 229 Calculus/Analytic Geom I (CT) 5 CHM 211 Principles of Chemistry I 3 CHM 217 Principles of Chem Lab I 2 Core II Humanities Core II Social Science Core II Social Science Core II Fine Arts Additional University Requirements ENGR 451 Intro to Proj Management 3 ENGR 473 Capstone Senior Design (Writing Intensive) 3 SFT 235 Intro to Occup Safety (CT) (Multicultural or International) ENGR 473 Capstone Senior Design (Capstone) 3 Major-Specific MTH 229 Calculus/Analytic Geom I (CT) 5 MTH 230 Calculus/Analytic Geom II 4 MTH 231 Calculus/Analytic Geom II 4 MTH 232 Principles of Chem Lab I 2 PHY 211 Principles of Chemistry I 3 CHM 212 Principles of Biology I (and 120L) or BSC 120 Principles of Biology I (and 120L) or BSC 120 Principles of Biology Honors CHM 212 Principles Chemistry II (and CHM 218) MTH 300 Intro to Higher Math	Core 1: Critical	Core 1: Critical Thinking			
SFT 235 Intro to Occup Safety (CT) Core 2 ENG 101 Beginning Composition 3 ENG 201 Advanced Composition 3 ENG 201 Advanced Composition 3 MTH 229 Calculus/Analytic Geom I (CT) 5 CHM 211 Principles of Chemistry I 2 Core II Humanities Core II Social Science Core II Fine Arts Additional University Requirements ENGR 451 Intro to Proj Management ENGR 473 Capstone Senior Design (Writing Intensive) 3 SFT 235 Intro to Occup Safety (CT) (Multicultural or International) ENGR 473 Capstone Senior Design (Capstone) 3 Major-Specific MTH 229 Calculus/Analytic Geom I (CT) MTH 230 Calculus/Analytic Geom II MTH 231 Calculus/Analytic Geom III MTH 335 Ordinary Diff Equations STA 345 Applied Prob and Stat CHM 211 Principles of Chemistry I 3 CHM 211 Principles of Chem Lab I 2 PHY 211 University Physics I 4 PHY 202 General Physics I Laboratory 1 Select one of the following: BSC 120 Principles of Biology I (and 120L) or BSC 120HPrinciples of Biology Honors CHM 212 Principles of Biology Honors CHM 212 Principles Chemistry II (and CHM 218) MTH 300 Intro to Higher Math	FYS 100	First Yr Sem Critical Thinking	3		
Core 2 ENG 101 Beginning Composition 3 ENG 201 Advanced Composition 3 CMM 103 Fund Speech-Communication 3 MTH 229 Calculus/Analytic Geom I (CT) 5 CHM 211 Principles of Chemistry I 2 Core II Humanities Core II Fine Arts Additional University Requirements ENGR 451 Intro to Proj Management 3 ENGR 473 Capstone Senior Design (Writing Intensive) 3 SFT 235 Intro to Occup Safety (CT) (Multicultural or International) ENGR 473 Capstone Senior Design (Capstone) 3 Major-Specific MTH 229 Calculus/Analytic Geom I (CT) 5 MTH 230 Calculus/Analytic Geom II 4 MTH 231 Calculus/Analytic Geom III 4 MTH 335 Ordinary Diff Equations 3 STA 345 Applied Prob and Stat 3 CHM 211 Principles of Chemistry I 3 CHM 217 Principles of Chem Lab I 2 PHY 211 University Physics I 4 PHY 202 General Physics I Laboratory 1 Select one of the following: BSC 120 Principles of Biology I (and 120L) or BSC 120HPrinciples of Biology Honors CHM 212 Principles of Biology Honors OTH 212 Principles Chemistry II (and CHM 218) MTH 300 Intro to Higher Math	MTH 229 💎	Calculus/Analytic Geom I (CT)	5		
ENG 101 Advanced Composition ENG 201 Advanced Composition CMM 103 Fund Speech-Communication MTH 229 Calculus/Analytic Geom I (CT) CHM 211 Principles of Chemistry I CORE II Humanities Core II Humanities Core II Social Science Core II Fine Arts Additional University Requirements ENGR 451 Intro to Proj Management ENGR 473 Capstone Senior Design (Writing Intensive) SFT 235 Intro to Occup Safety (CT) (Multicultural or International) ENGR 473 Capstone Senior Design (Capstone) 3 Major-Specific MTH 229 Calculus/Analytic Geom I (CT) MTH 230 Calculus/Analytic Geom II MTH 231 Calculus/Analytic Geom III MTH 335 Ordinary Diff Equations STA 345 Applied Prob and Stat CHM 211 Principles of Chem Lab I PHY 211 University Physics I PHY 202 General Physics I Laboratory SELOT Principles of Biology I (and 120L) or BSC 120 Principles of Biology I (and 120L) or BSC 120 Principles of Biology Honors CHM 212 Principles Chemistry II (and CHM 218) MTH 300 Intro to Higher Math	SFT 235 💎	Intro to Occup Safety (CT)	3		
ENG 201 Advanced Composition 3 CMM 103 Fund Speech-Communication 3 MTH 229 Calculus/Analytic Geom I (CT) 5 CHM 211 Principles of Chemistry I 3 CHM 217 Principles of Chem Lab I 2 Core II Humanities Core II Social Science Core II Fine Arts Additional University Requirements ENGR 451 Intro to Proj Management 3 ENGR 473 Capstone Senior Design (Writing Intensive) 3 SFT 235 Intro to Occup Safety (CT) (Multicultural or International) ENGR 473 Capstone Senior Design (Capstone) 3 Major-Specific MTH 229 Calculus/Analytic Geom I (CT) 5 MTH 230 Calculus/Analytic Geom II 4 MTH 335 Ordinary Diff Equations 3 STA 345 Applied Prob and Stat 3 CHM 211 Principles of Chemistry I 3 CHM 217 Principles of Chem Lab I 2 PHY 211 University Physics I 4 PHY 202 General Physics I Laboratory 1 Select one of the following: BSC 120 Principles of Biology I (and 120L) or BSC 120HPrinciples of Biology Honors CHM 212 Principles Chemistry II (and CHM 218) MTH 300 Intro to Higher Math	Core 2				
CMM 103 Fund Speech-Communication 3 MTH 229 Calculus/Analytic Geom I (CT) 5 CHM 211 Principles of Chemistry I 3 CHM 217 Principles of Chem Lab I 2 Core II Humanities Core II Social Science Core II Fine Arts Additional University Requirements ENGR 451 Intro to Proj Management 3 ENGR 473 Capstone Senior Design (Writing Intensive) 3 SFT 235 Intro to Occup Safety (CT) (Multicultural or International) ENGR 473 Capstone Senior Design (Capstone) 3 Major-Specific MTH 229 Calculus/Analytic Geom I (CT) 5 MTH 230 Calculus/Analytic Geom II 4 MTH 231 Calculus/Analytic Geom III 4 MTH 335 Ordinary Diff Equations 3 STA 345 Applied Prob and Stat 3 CHM 211 Principles of Chem Lab I 2 PHY 211 University Physics I 4 PHY 202 General Physics I Laboratory 1 Select one of the following: BSC 120 Principles of Biology I (and 120L) or BSC 120HPrinciples of Biology Honors CHM 212 Principles Chemistry II (and CHM 218) MTH 300 Intro to Higher Math	ENG 101 💎	Beginning Composition	3		
MTH 229 Calculus/Analytic Geom I (CT) 5 CHM 211 Principles of Chemistry I 2 Core II Humanities Core II Social Science Core II Fine Arts Additional University Requirements ENGR 451 Intro to Proj Management 3 ENGR 473 Capstone Senior Design (Writing Intensive) 3 SFT 235 Intro to Occup Safety (CT) (Multicultural or International) ENGR 473 Capstone Senior Design (Capstone) 3 Major-Specific MTH 229 Calculus/Analytic Geom I (CT) 5 MTH 230 Calculus/Analytic Geom II 4 MTH 231 Calculus/Analytic Geom III 4 MTH 335 Ordinary Diff Equations 3 STA 345 Applied Prob and Stat 3 CHM 211 Principles of Chem Lab I 2 PHY 211 University Physics I 4 PHY 202 General Physics I Laboratory 1 Select one of the following: BSC 120 Principles of Biology I (and 120L) or BSC 120HPrinciples of Biology Honors CHM 212 Principles Chemistry II (and CHM 218) MTH 300 Intro to Higher Math	ENG 201 💎	Advanced Composition	3		
CHM 211 Principles of Chemistry I 2 CHM 217 Principles of Chem Lab I 2 Core II Humanities Core II Social Science Core II Fine Arts Additional University Requirements ENGR 451 Intro to Proj Management 3 ENGR 473 Capstone Senior Design (Writing Intensive) 3 SFT 235 Intro to Occup Safety (CT) (Multicultural or International) ENGR 473 Capstone Senior Design (Capstone) 3 Major-Specific MTH 229 Calculus/Analytic Geom I (CT) 5 MTH 230 Calculus/Analytic Geom II 4 MTH 231 Calculus/Analytic Geom III 4 MTH 335 Ordinary Diff Equations 3 STA 345 Applied Prob and Stat 3 CHM 211 Principles of Chemistry I 3 CHM 211 Principles of Chem Lab I 2 PHY 211 University Physics I 4 PHY 202 General Physics I Laboratory 1 Select one of the following: BSC 120 Principles of Biology I (and 120L) or BSC 120HPrinciples of Biology Honors CHM 212 Principles Chemistry II (and CHM 218) MTH 300 Intro to Higher Math	CMM 103 💎	Fund Speech-Communication	3		
CHM 217 Principles of Chem Lab I 2 Core II Humanities Core II Social Science Core II Fine Arts Additional University Requirements ENGR 451 Intro to Proj Management 3 ENGR 473 Capstone Senior Design (Writing Intensive) 3 SFT 235 Intro to Occup Safety (CT) (Multicultural or International) ENGR 473 Capstone Senior Design (Capstone) 3 Major-Specific MTH 229 Calculus/Analytic Geom I (CT) 5 MTH 230 Calculus/Analytic Geom II 4 MTH 335 Ordinary Diff Equations 3 STA 345 Applied Prob and Stat 3 CHM 211 Principles of Chem Lab I 2 PHY 211 University Physics I 4 PHY 202 General Physics I Laboratory 1 Select one of the following: BSC 120 Principles of Biology I (and 120L) or BSC 120HPrinciples of Biology Honors CHM 212 Principles Chemistry II (and CHM 218) MTH 300 Intro to Higher Math	MTH 229 💎	Calculus/Analytic Geom I (CT)	5		
Core II Humanities Core II Social Science Core II Fine Arts Additional University Requirements ENGR 451 Intro to Proj Management 3 ENGR 473 Capstone Senior Design (Writing Intensive) 3 SFT 235 Intro to Occup Safety (CT) (Multicultural or International) ENGR 473 Capstone Senior Design (Capstone) 3 Major-Specific MTH 229 Calculus/Analytic Geom I (CT) 5 MTH 230 Calculus/Analytic Geom II 4 MTH 231 Calculus/Analytic Geom III 4 MTH 335 Ordinary Diff Equations 3 STA 345 Applied Prob and Stat 3 CHM 211 Principles of Chemistry I 3 CHM 217 Principles of Chem Lab I 2 PHY 211 University Physics I 4 PHY 202 General Physics I Laboratory 1 Select one of the following: BSC 120 Principles of Biology I (and 120L) or BSC 120HPrinciples of Biology Honors CHM 212 Principles Chemistry II (and CHM 218) MTH 300 Intro to Higher Math	CHM 211 💎	Principles of Chemistry I	3		
Core II Social Science Core II Fine Arts Additional University Requirements ENGR 451 Intro to Proj Management 3 ENGR 473 Capstone Senior Design (Writing Intensive) 3 SFT 235 Intro to Occup Safety (CT) (Multicultural or International) ENGR 473 Capstone Senior Design (Capstone) 3 Major-Specific MTH 229 Calculus/Analytic Geom I (CT) 5 MTH 230 Calculus/Analytic Geom II 4 MTH 231 Calculus/Analytic Geom III 4 MTH 335 Ordinary Diff Equations 3 STA 345 Applied Prob and Stat 3 CHM 211 Principles of Chem Lab I 2 PHY 211 University Physics I 4 PHY 202 General Physics I Laboratory 1 Select one of the following: BSC 120 Principles of Biology I (and 120L) or BSC 120HPrinciples of Biology Honors CHM 212 Principles Chemistry II (and CHM 218) MTH 300 Intro to Higher Math	CHM 217 💎	Principles of Chem Lab I	2		
Core II Fine Arts Additional University Requirements ENGR 451	Core II Humanit	ies			
Additional University Requirements ENGR 451	Core II Social Sci	ience			
ENGR 451 Intro to Proj Management 3 ENGR 473 Capstone Senior Design (Writing Intensive) 3 SFT 235 Intro to Occup Safety (CT) (Multicultural or International) 5 ENGR 473 Capstone Senior Design (Capstone) 3 Major-Specific	Core II Fine Arts				
ENGR 473 Capstone Senior Design (Writing Intensive) SFT 235 Intro to Occup Safety (CT) (Multicultural or International) ENGR 473 Capstone Senior Design (Capstone) 3 Major-Specific MTH 229 Calculus/Analytic Geom I (CT) MTH 230 Calculus/Analytic Geom II MTH 231 Calculus/Analytic Geom III MTH 335 Ordinary Diff Equations STA 345 Applied Prob and Stat CHM 211 Principles of Chemistry I CHM 217 Principles of Chem Lab I PHY 202 General Physics I PHY 202 General Physics I Laboratory Select one of the following: BSC 120 Principles of Biology I (and 120L) or BSC 120HPrinciples of Biology Honors CHM 212 Principles Chemistry II (and CHM 218) MTH 300 Intro to Higher Math	Additional Univ	versity Requirements			
SFT 235 Intro to Occup Safety (CT) (Multicultural or International) ENGR 473 Capstone Senior Design (Capstone) Major-Specific MTH 229 Calculus/Analytic Geom I (CT) MTH 230 Calculus/Analytic Geom II MTH 231 Calculus/Analytic Geom III MTH 335 Ordinary Diff Equations STA 345 Applied Prob and Stat CHM 211 Principles of Chemistry I CHM 217 Principles of Chem Lab I PHY 201 General Physics I PHY 202 General Physics I Laboratory Select one of the following: BSC 120 Principles of Biology I (and 120L) or BSC 120HPrinciples of Biology Honors CHM 212 Principles Chemistry II (and CHM 218) MTH 300 Intro to Higher Math	ENGR 451	Intro to Proj Management	3		
International) ENGR 473 Capstone Senior Design (Capstone) Major-Specific MTH 229 Calculus/Analytic Geom I (CT) MTH 230 Calculus/Analytic Geom II MTH 231 Calculus/Analytic Geom III MTH 335 Ordinary Diff Equations STA 345 Applied Prob and Stat CHM 211 Principles of Chemistry I CHM 217 Principles of Chem Lab I PHY 211 University Physics I PHY 202 General Physics I Laboratory Select one of the following: BSC 120 Principles of Biology I (and 120L) or BSC 120HPrinciples of Biology Honors CHM 212 Principles Chemistry II (and CHM 218) MTH 300 Intro to Higher Math	ENGR 473 💎	Capstone Senior Design (Writing Intensive)	3		
Major-Specific MTH 229 Calculus/Analytic Geom I (CT) 5 MTH 230 Calculus/Analytic Geom II 4 MTH 231 Calculus/Analytic Geom III 4 MTH 335 Ordinary Diff Equations 3 STA 345 Applied Prob and Stat 3 CHM 211 Principles of Chemistry I 3 CHM 217 Principles of Chem Lab I 2 PHY 211 University Physics I 4 PHY 202 General Physics I Laboratory 1 Select one of the following: BSC 120 Principles of Biology I (and 120L) or BSC 120HPrinciples of Biology Honors CHM 212 Principles Chemistry II (and CHM 218) MTH 300 Intro to Higher Math	SFT 235 💎		3		
MTH 229 Calculus/Analytic Geom I (CT) MTH 230 Calculus/Analytic Geom II MTH 231 Calculus/Analytic Geom III MTH 335 Ordinary Diff Equations STA 345 Applied Prob and Stat CHM 211 Principles of Chemistry I CHM 217 Principles of Chem Lab I PHY 211 University Physics I PHY 202 General Physics I Laboratory Select one of the following: BSC 120 Principles of Biology I (and 120L) or BSC 120HPrinciples of Biology Honors CHM 212 Principles Chemistry II (and CHM 218) MTH 300 Intro to Higher Math	ENGR 473 💎	Capstone Senior Design (Capstone)	3		
MTH 230 Calculus/Analytic Geom II 4 MTH 231 Calculus/Analytic Geom III 4 MTH 335 Ordinary Diff Equations 3 STA 345 Applied Prob and Stat 3 CHM 211 Principles of Chemistry I 3 CHM 217 Principles of Chem Lab I 2 PHY 211 University Physics I 4 PHY 202 General Physics I Laboratory 1 Select one of the following: BSC 120 Principles of Biology I (and 120L) or BSC 120HPrinciples of Biology Honors CHM 212 Principles Chemistry II (and CHM 218) MTH 300 Intro to Higher Math	Major-Specific				
MTH 231 Calculus/Analytic Geom III 4 MTH 335 Ordinary Diff Equations 3 STA 345 Applied Prob and Stat 3 CHM 211 Principles of Chemistry I 3 CHM 217 Principles of Chem Lab I 2 PHY 211 University Physics I 4 PHY 202 General Physics I Laboratory 1 Select one of the following: BSC 120 Principles of Biology I (and 120L) or BSC 120HPrinciples of Biology Honors CHM 212 Principles Chemistry II (and CHM 218) MTH 300 Intro to Higher Math	MTH 229 💎	Calculus/Analytic Geom I (CT)	5		
MTH 335 Ordinary Diff Equations 3 STA 345 Applied Prob and Stat 3 CHM 211 Principles of Chemistry I 3 CHM 217 Principles of Chem Lab I 2 PHY 211 University Physics I 4 PHY 202 General Physics I Laboratory 1 Select one of the following: BSC 120 Principles of Biology I (and 120L) or BSC 120HPrinciples of Biology Honors CHM 212 Principles Chemistry II (and CHM 218) MTH 300 Intro to Higher Math	MTH 230 💎	Calculus/Analytic Geom II	4		
STA 345 Applied Prob and Stat 3 CHM 211 Principles of Chemistry I 3 CHM 217 Principles of Chem Lab I 2 PHY 211 University Physics I 4 PHY 202 General Physics I Laboratory 1 Select one of the following: BSC 120 Principles of Biology I (and 120L) or BSC 120HPrinciples of Biology Honors CHM 212 Principles Chemistry II (and CHM 218) MTH 300 Intro to Higher Math	MTH 231 💎	Calculus/Analytic Geom III	4		
CHM 211 Principles of Chemistry I 3 CHM 217 Principles of Chem Lab I 2 PHY 211 University Physics I 4 PHY 202 General Physics I Laboratory 1 Select one of the following: BSC 120 Principles of Biology I (and 120L) or BSC 120HPrinciples of Biology Honors CHM 212 Principles Chemistry II (and CHM 218) MTH 300 Intro to Higher Math	MTH 335	Ordinary Diff Equations	3		
CHM 217 Principles of Chem Lab I 2 PHY 211 University Physics I 4 PHY 202 General Physics I Laboratory 1 Select one of the following: BSC 120 Principles of Biology I (and 120L) or BSC 120HPrinciples of Biology Honors CHM 212 Principles Chemistry II (and CHM 218) MTH 300 Intro to Higher Math	STA 345	Applied Prob and Stat	3		
PHY 211 University Physics I 4 PHY 202 General Physics I Laboratory 1 Select one of the following: BSC 120 Principles of Biology I (and 120L) or BSC 120HPrinciples of Biology Honors CHM 212 Principles Chemistry II (and CHM 218) MTH 300 Intro to Higher Math	CHM 211 💎	Principles of Chemistry I	3		
PHY 202 General Physics I Laboratory 1 Select one of the following: BSC 120 Principles of Biology I (and 120L) or BSC 120HPrinciples of Biology Honors CHM 212 Principles Chemistry II (and CHM 218) MTH 300 Intro to Higher Math	CHM 217 💎	Principles of Chem Lab I	2		
Select one of the following: BSC 120 Principles of Biology I (and 120L) or BSC 120HPrinciples of Biology Honors CHM 212 Principles Chemistry II (and CHM 218) MTH 300 Intro to Higher Math	PHY 211 💎	University Physics I	4		
BSC 120 Principles of Biology I (and 120L) or BSC 120HPrinciples of Biology Honors CHM 212 Principles Chemistry II (and CHM 218) MTH 300 Intro to Higher Math	PHY 202 💎	General Physics I Laboratory	1		
or BSC 120HPrinciples of Biology Honors CHM 212 Principles Chemistry II (and CHM 218) MTH 300 Intro to Higher Math	Select one of the	e following:			
CHM 212 Principles Chemistry II (and CHM 218) MTH 300 Intro to Higher Math	BSC 120 💎	Principles of Biology I (and 120L)			
MTH 300 Intro to Higher Math	_	HPrinciples of Biology Honors			
	CHM 212 💎	Principles Chemistry II (and CHM 218)			
MTH 329 Elementary Linear Algebra	MTH 300	Intro to Higher Math			
	MTH 329	Elementary Linear Algebra			

PHY 213 💎	University Physics II (and PHY 204)	
STA 445	Probability & Statistics I	
ENGR 103	Freshman Engineering Seminar	1
ENGR 104	The Engineering Profession	1
Select one of the	e following:	
CE 102	Introduction to CAD	
ENGR 102	Introduction to CAD	
Select one of the	e following:	
CS 110	Computer Science I	
ENGR 111	Engineering Computations	
ME 111	Mech Engineering Computations	
ENGR 213	Statics	3
ENGR 214	Dynamics	3
ENGR 215	Engineering Materials	3
ENGR 216	Mech of Deformable Bodies	3
ENGR 217	Engineering Career Preparation	1
ENGR 219	Engineering Thermodynamics	3
ENGR 222	Engr Cost Analysis & Economy	3
ENGR 318	Fluid Mechanics	3
ENGR 319	Fluid Mechanics Laboratory	1
ENGR 451	Intro to Proj Management	3
ENGR 473 💎	Capstone Senior Design	3
ME 245	Circuits and Instrumentation	3
ME 330	Manufacturing Methods/Design	3
SFT 235 💎	Intro to Occup Safety (CT)	3
Engineering Elec	ctive Option	3
	the following: Any 300-level or higher BME, CE, EE, ME course not taken to satisfy degree requirements	

ENGR, IE, or ME course not taken to satisfy degree requirements or area of emphasis requirements.

Area of Emphasis Requirements

24-33