

ENGINEERING INDUSTRIAL AND SYSTEMS ENGINEERING

REQUIREMENTS

CORE CURRICULUM 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 marshall.edu/gened.

CORE 1: CRITICAL THINKING

CODE	COURSE NAME	HRS	GRADE
FYS 100	First Year Seminar	3	_____
MTH 229	Critical Thinking Course I	5	_____
SFT 235	Critical Thinking Course	3	_____
Additional University Requirements			
_____	Writing Intensive	3	_____
_____	Writing Intensive	3	_____
SFT 235	Multicultural or International	3	_____
ENGR 473	Capstone	3	_____

CORE 2:

CODE	COURSE NAME	HRS	GRADE
ENG 101	Beginning Composition	3	_____
ENG 201	Advanced Composition	3	_____
CMM 103	Fund Speech-Communication	3	_____
MTH 229	Calculus I	5	_____
CHM 211/217	Principles of Chemistry I/Lab	5	_____
_____	Core II Humanities	3	_____
_____	Core II Social Science	3	_____
_____	Core II Fine Arts	3	_____

MAJOR-SPECIFIC

All Industrial and Systems Engineering majors are required to take the following courses:

CODE	COURSE NAME	HRS	GRADE	CODE	COURSE NAME	HRS	GRADE
MTH 229	Calculus I	5	_____	ENGR 222	Engineering Cost Analysis & Economy	3	_____
MTH 230	Calculus II	4	_____	ENGR 318	Fluid Mechanics	3	_____
MTH 231	Calculus III	4	_____	ENGR 319	Fluid Mechanics Laboratory	1	_____
MTH 335	Differential Equations	3	_____	ENGR 451	Intro to Proj Management	3	_____
STA 345	Applied Prob and Stat	3	_____	ENGR 335	Adv Engineering Analysis	3	_____
CHM 211	Chemistry I	3	_____	ENGR 473	Capstone Senior Design	3	_____
CHM 217	Principles of Chem Lab I	2	_____	ME 245	Circuits and Instrumentation	3	_____
PHY 211	University Physics I	4	_____	ME 330	Manufacturing Methods/Design	3	_____
PHY 202	General Physics I Lab	1	_____	SFT 235	Intro to Occup Safety (CT)	3	_____
_____	Math/Science Elective	3-5	_____	_____	Engineering Elective Course	3-4	_____
ENGR 103	First-Year Engineering Semin	1	_____	IE 303	Work Design	3	_____
ENGR 104	Engineering Profession	1	_____	IE 305	Systems Engineering	3	_____
_____	CAD Course	2	_____	IE 401	Modeling & Quan Analysis	3	_____
_____	Computations Course	3	_____	IE 404	Quality Control	3	_____
ENGR 213	Statics	3	_____	MKT 350	Supply Chain Logistics	3	_____
ENGR 214	Dynamics	3	_____	SFT 373	Prin Ergonomics & Hum Factors	3	_____
ENGR 215	Engineering Materials	3	_____	SFT 373L	Prin Ergonomics Lab	1	_____
ENGR 216	Mech of Deformable Bodies	3	_____	_____	IE Elective 1	3	_____
ENGR 217	Engineering Career Prep	1	_____	_____	IE Elective 2	3	_____
ENGR 219	Engineering Thermodynamics	3	_____				

● General Education Requirement
 ■ College Requirement
 ◆ Major Requirement
 ◆ Area of Emphasis

MAJOR INFORMATION

- Students are required to know and track their degree requirements for graduation or for entrance to a professional school.
- The Engineering degree program requires a minimum of 124 credit hours of coursework for graduation.
- Course offerings and course attributes are subject to change each semester. Please consult each semester's schedule of courses for availability and attributes.
- Math/Science Elective Option: Select one of the following: BSC 120/120L, BSC 120H/120L, CHM 212/218, MTH 300, MTH 329, PHY 213/204, STA 445.
- CAD Course: Select one of the following: CE 102 or ENGR 102.
- Computations Course: Select one of the following: CS 110, ENGR 111, or ME 111.
- IE Elective Option: Any 300-level or higher IE course not taken to satisfy other degree requirements or area of emphasis requirements.

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

ENGINEERING INDUSTRIAL AND SYSTEMS ENGINEERING

Industrial and Systems engineers use scientific, mathematical, and statistical techniques to optimize processes involving materials, information, and people. They improve systems and processes to provide solutions to production.

	FALL SEMESTER				SPRING SEMESTER			
	CODE	COURSE NAME	HRS	GRADE	CODE	COURSE NAME	HRS	GRADE
YEAR ONE	CMM 103	Fund Speech Communication	● 3	_____	_____	CAD Course	◆ 2	_____
	ENG 101	Beginning Composition	● 3	_____	_____	Computations Course	◆ 3	_____
	ENGR 103	First-Year Engineering Semin	◆ 1	_____	MTH 230	Calculus II	◆ 4	_____
	ENGR 104	Engineering Profession	◆ 1	_____	PHY 211	University Physics I	◆ 4	_____
	FYS 100	First Year Sem Crit Thinking	● 3	_____	PHY 202	General Physics I Lab	◆ 1	_____
	MTH 229	Calculus I (CT)	● ◆ 5	_____	ENG 201	Advanced Composition	● 3	_____
	UNI 100	Freshman First Class	1	_____				
	TOTAL HOURS		17		TOTAL HOURS		17	
Summer Term (optional):								
YEAR TWO	FALL SEMESTER				SPRING SEMESTER			
	CODE	COURSE NAME	HRS	GRADE	CODE	COURSE NAME	HRS	GRADE
	CHM 211	Principles of Chemistry I	● ◆ 3	_____	ENGR 214	Dynamics	◆ 3	_____
	CHM 217	Principles of Chem Lab I	● ◆ 2	_____	ENGR 216	Mech of Deformable Bodies	◆ 3	_____
	ENGR 213	Statics	◆ 3	_____	ENGR 217	Engineering Career Prep	◆ 1	_____
	MTH 231	Calculus III	◆ 4	_____	ENGR 222	Engineering Cost Analysis & Economy	◆ 3	_____
	SFT 235	Intro to Occup Safety (CT)	● ◆ 3	_____	MTH 335	Differential Equations	◆ 3	_____
					IE 303	Work Design	◆ 3	_____
TOTAL HOURS		15		TOTAL HOURS		16		
Summer Term (optional):								
YEAR THREE	FALL SEMESTER				SPRING SEMESTER			
	CODE	COURSE NAME	HRS	GRADE	CODE	COURSE NAME	HRS	GRADE
	ENGR 215	Engineering Materials	◆ 3	_____	ENGR 219	Engr. Thermodynamics	◆ 3	_____
	ENGR 318	Fluid Mechanics	◆ 3	_____	ME 245	Circuits and Instrumentation	◆ 3	_____
	ENGR 319	Fluid Mechanics Laboratory	◆ 1	_____	ME 330	Manufacturing Methods/Design	◆ 3	_____
	STA 345	Applied Prob and Stat	◆ 3	_____	_____	Math/Science Elective	◆ 3-5	_____
	IE 305	Systems Engineering	◆ 3	_____	SFT 373	Prin Ergonomics & Hum Factors	◆ 3	_____
	MKT 350	Supply Chain Logistics	◆ 3	_____	SFT 373L	Prin Ergonomics Lab	◆ 1	_____
TOTAL HOURS		16		TOTAL HOURS		16-18		
Summer Term (optional):								
YEAR FOUR	FALL SEMESTER				SPRING SEMESTER			
	CODE	COURSE NAME	HRS	GRADE	CODE	COURSE NAME	HRS	GRADE
	ENGR 451	Intro to Proj Management	◆ 3	_____	ENGR 473	Capstone Senior Design	● ◆ 3	_____
	_____	Engineering Elective Course	◆ 3-4	_____	IE 404	Quality Control	◆ 3	_____
	IE 401	Modeling & Quan Analysis	◆ 3	_____	_____	IE Elective 2	◆ 3	_____
	_____	IE Elective 1	◆ 3	_____	_____	Core II Humanities (WI, CT)	● 3	_____
	_____	Core II Social Science (WI)	● 3	_____	_____	Core II Fine Arts	● 3	_____
TOTAL HOURS		15-16		TOTAL HOURS		15		
Summer Term (optional):								

◆ Area of Emphasis

◆ Major Requirement

■ College Requirement

● General Education Requirement

◆ Milestone Course: This is a key success marker for your major. See your advisor to discuss the importance of this course in your plan of study.