

CIVIL 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 Sem Crit Thinking	3	_____
MTH 229	Calculus I	5	_____
_____	Critical Thinking Course	3	_____
Additional University Requirements			
_____	Writing Intensive	3	_____
_____	Writing Intensive	3	_____
_____	Multicultural or International	3	_____
CE 453	Capstone Senior Design	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	Core II Physical/Natural Science	5	_____
_____	Core II Humanities	3	_____
_____	Core II Social Science	3	_____
_____	Core II Fine Arts	3	_____

MAJOR-SPECIFIC

All Civil 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 318	Fluid Mechanics	3	_____
MTH 230	Calculus II	4	_____	ENGR 451	Project Management	3	_____
MTH 231	Calculus III	4	_____	CE 102	Introduction to CAD	2	_____
MTH 335	Differential Equations	3	_____	CE 241	Geomatics	3	_____
STA 345	Applied Prob. & Statistics	3	_____	CE 312	Structural Analysis	3	_____
CHM 211	Chemistry I	3	_____	CE 319	Civil Engr. Fluid Mech Lab	1	_____
CHM 217	Chemistry I Lab	2	_____	CE 321	Civil Engineering Materials	4	_____
CHM 212	Chemistry II	3	_____	CE 322	Geotechnical Engineering	4	_____
CHM 218	Chemistry II Lab	2	_____	CE 331	Hydraulic Engineering	3	_____
PHY 211	University Physics I	4	_____	CE 342	Transportation Engineering	3	_____
PHY 202	General Physics I Lab	2	_____	CE 351	Environmental Engineering	3	_____
ENGR 103	Freshman Engineering Seminar	1	_____	CE 452	Senior Seminar for CE	1	_____
ENGR 104	Engineering Profession	1	_____	CE 453	Capstone Senior Design	3	_____
ENGR 111	Engineering Computations	3	_____	_____	CE Design Elective	3	_____
ENGR 213	Statics	3	_____	_____	CE Design Elective	3	_____
ENGR 214	Dynamics	3	_____	_____	CE Elective	3	_____
ENGR 216	Mech. of Deformable Bod	3	_____	_____	CE Elective	3	_____
ENGR 217	Co-Op Prep	3	_____	_____	Technical Elective	3	_____
ENGR 222	Engineering Cost Analysis	3	_____				

MAJOR INFORMATION

- To be eligible to take Senior Seminar for Civil Engineers (CE 452), students must have completed either CE 312 (Structural Analysis) or CE 331 (Hydraulic Engineering).
- To be eligible to take Senior Capstone Design (CE 453), students must have completed Introduction to Project Management (ENGR 451) and at least one CE Design Elective.
- CE Design Electives: At least two CE design electives must be taken from the following courses: CE 413 or CE 414, CE 425, CE 434, CE 438 or CE 443.
- CE Electives: At least two CE electives must be taken from the following list of courses, excluding courses that are taken to satisfy the CE Design Electives: CE 341, CE 413, CE 414, CE 425, CE 433, CE 434, CE 443, or any 300-level or higher CE course not taken to satisfy a CE Design Elective.
- Technical Elective: One technical elective that satisfies one of these criteria must be taken: Any 300-level or higher CE course not taken to satisfy a CE Design Elective or CE Elective, or any 200-level or higher ENGR, ME or EE course, with advance approval from the student's advisor and chair.
- Course offerings and course attributes are subject to change each semester. Please consult each semester's schedule of courses for availability and attributes.
- Students are required to know and track their degree requirements for graduation or for entrance to a professional school.
- The Civil Engineering degree program requires a minimum of 124 credit hours of coursework for graduation.

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.

CIVIL ENGINEERING

Civil engineers apply fundamental mathematics and physics to develop solutions to problems that affect the daily lives of citizens. They are multi-skilled and are able to design and conduct experiments, as well as to analyze and interpret complex data. Engineers can design a system, component, or process to meet desired needs within realistic constraints. They can function on multidisciplinary teams and have a solid understanding of professional and ethical responsibility.

YEAR ONE	FALL SEMESTER				SPRING SEMESTER			
	CODE	COURSE NAME	HRS	GRADE	CODE	COURSE NAME	HRS	GRADE
	ENGR 103	Freshman Engineering Semin	1	_____	CE 102	Introduction to CAD	2	_____
	ENGR 104	Engineering Profession	1	_____	ENGR 111	Engineering Computations	3	_____
	MTH 229	Calculus I (CT)	5	_____	MTH 230	Calculus II	4	_____
	ENGR 101	Beginning Composition	3	_____	PHY 211	University Physics I	4	_____
	CMM 103	Fund Speech-Communication	3	_____	PHY 202	General Physics I Lab	1	_____
	FYS 100	First Year Sem Crit Thinking	3	_____	ENGR 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
	ENGR 213	Statics	3	_____	ENGR 214	Dynamics	3	_____
	CE 241	Geomatics	3	_____	ENGR 216	Mech. of Deformable Bod	3	_____
	MTH 231	Calculus III	4	_____	ENGR 222	Engineering Cost Analysis	3	_____
	CHM 211	Chemistry I	3	_____	CHM 212	Chemistry II	3	_____
	CHM 217	Chemistry I Lab	2	_____	CHM 218	Chemistry II Lab	2	_____
	ENGR 217	Co-Op Prep	1	_____	MTH 335	Differential Equations	3	_____
	TOTAL HOURS		16		TOTAL HOURS		17	
	Summer Term (optional):							

YEAR THREE	FALL SEMESTER				SPRING SEMESTER			
	CODE	COURSE NAME	HRS	GRADE	CODE	COURSE NAME	HRS	GRADE
	ENGR 318	Fluid Mechanics	3	_____	CE 322	Geotechnical Engineering	4	_____
	CE 319	Civil Engr. Fluid Mech Lab	1	_____	CE 331	Hydraulic Engineering	3	_____
	CE 312	Structural Analysis	3	_____	CE 342	Transportation Engineering	3	_____
	CE 321	Civil Engr. Materials	4	_____	CE 351	Environmental Engineering	3	_____
	STA 345	Applied Prob. & Statistics	3	_____	_____	CE Design Elective	3	_____
	TOTAL HOURS		14		TOTAL HOURS		16	
	Summer Term (optional):							

YEAR FOUR	FALL SEMESTER				SPRING SEMESTER			
	CODE	COURSE NAME	HRS	GRADE	CODE	COURSE NAME	HRS	GRADE
	_____	CE Design Elective	3	_____	_____	CE Elective	3	_____
	_____	CE Elective	3	_____	CE 453	Capstone Senior Design	3	_____
	ENGR 451	Project Management	3	_____	_____	Technical Elective	3	_____
	CE 452	Senior Seminar for CE	1	_____	_____	Core II Fine Arts	3	_____
	_____	Core II Social Science (MC/I, WI)	3	_____				
	_____	Core II Humanities (WI, CT)	3	_____				
	TOTAL HOURS		16		TOTAL HOURS		12	
	Summer Term (optional):							

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.

General Education Requirement
College Requirement
Major Requirement
Area of Emphasis

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Civil Engineering Prerequisite Flow Chart

(Math/Science/Engr. Courses Only, Core Curriculum not shown)

Legend:
 Prerequisite (PR) ———▶
 Concurrent PR - - - -▶
 (Stacked courses are corequisites)

ENGR Courses (24 hrs. total):

- ENGR 103: Freshman Engr. Seminar (1 hr.)
- ENGR 104: Engr. Profession (1 hr.)
- ENGR 111: Engr. Computations (3 hrs.)
- ENGR 213: Statics (3 hrs.)
- ENGR 214: Dynamics (3 hrs.)
- ENGR 216: Mech. of Deformable Bod. (3 hrs.)
- ENGR 217: Co-Op Prep. (1 hr.)
- ENGR 222: Engineering Cost Analysis (3 hrs.)
- ENGR 318: Fluid Mechanics (3 hrs.)
- ENGR 451: Intro. to Project Management (3 hrs.)

CE Courses (30 hrs. total):

- CE 102: Intro. to CAD (2 hrs.)
- CE 241: Geomatics (3 hrs.)
- CE 319: Civil Engr. Fluid Mech. Lab (1 hr.)
- CE 321: Civil Engr. Materials (4 hrs.)
- CE 312: Structural Analysis (3 hrs.)
- CE 322: Geotechnical Engr. (4 hrs.)
- CE 331: Hydraulic Engr. (3 hrs.)
- CE 342: Transportation Engr. (3 hrs.)
- CE 351: Environmental Engr. (3 hrs.)
- CE 452: Senior Seminar for Civil Engr. (1 hr.)
- CE 453: Senior Capstone Design (3 hrs.)

Math/Science Courses (34-47 hrs.):

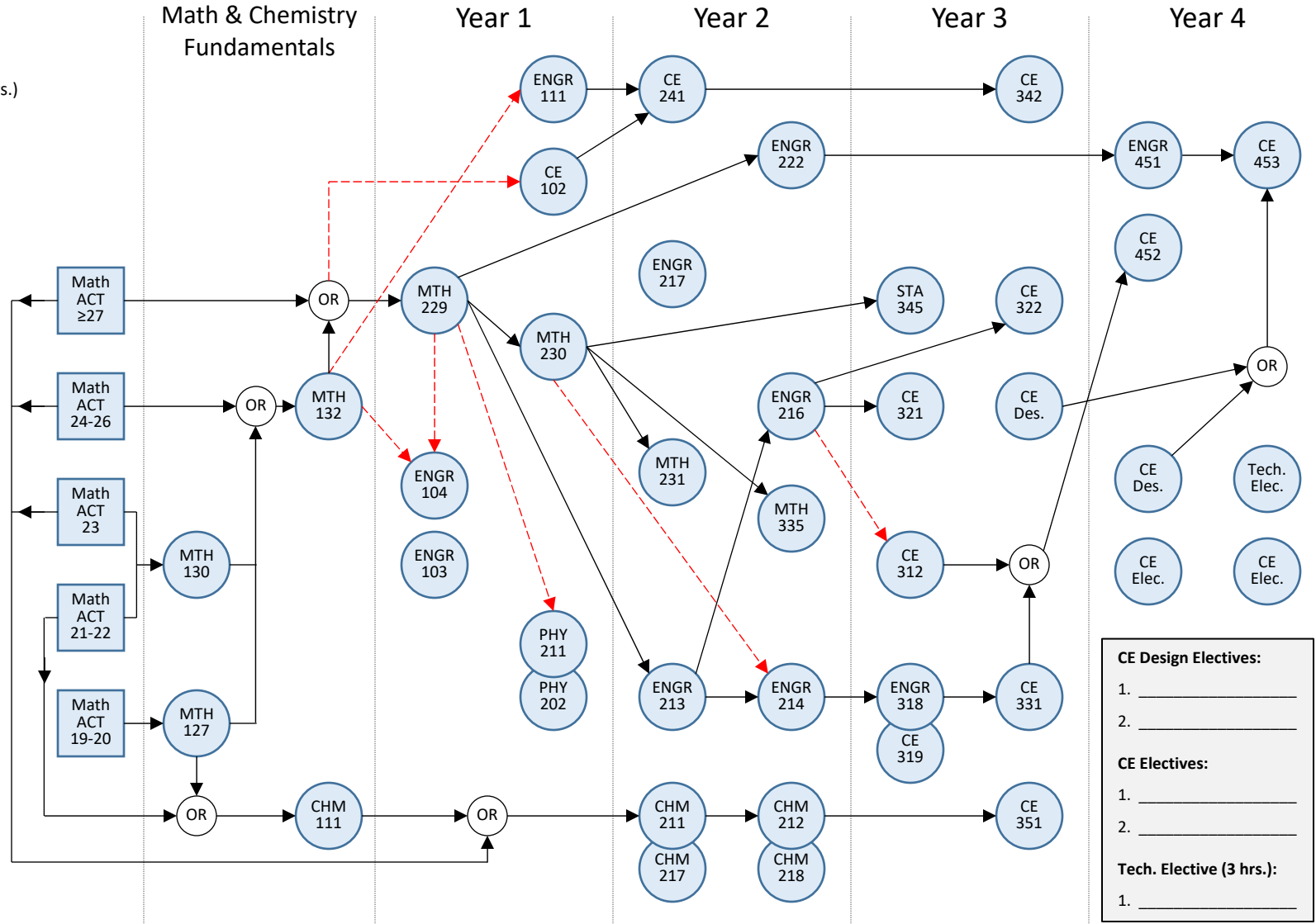
- CHM 111: Foundations of Chem. (3 hrs.)
- CHM 211: Chemistry I (3 hrs.)
- CHM 212: Chemistry II (3 hrs.)
- CHM 217: Chemistry I Lab (2 hrs.)
- CHM 218: Chemistry II Lab (2 hrs.)
- MTH 127: College Algebra - Expanded (5 hrs.)
- MTH 130: College Algebra (3 hrs.)
- MTH 132: Precalculus w/ Sci. Apps. (5 hrs.)
- MTH 230: Calculus II (4 hrs.)
- MTH 231: Calculus III (4 hrs.)
- MTH 335: Differential Equations (3 hrs.)
- PHY 202: Physics I Lab (1 hr.)
- PHY 211: University Physics I (4 hrs.)
- STA 345: Applied Prob. and Statistics (3 hrs.)

Additional CE Elective Options:

- CE 341: Advanced Geomatics (3 hrs.)
- CE 426: Retaining Structures (3 hrs.)
- CE 433: Hydrologic Engineering (3 hrs.)

Additional Tech. Elective Options:

- ENGR 219: Thermodynamics (3 hrs.)
- ENGR 245: Intro. to Circuits/Controls (3 hrs.)
- ENGR 330: Engr. Research (3 hrs.)



CE Design Electives:

1. _____
2. _____

CE Electives:

1. _____
2. _____

Tech. Elective (3 hrs.):

1. _____

Catalog Year
2021-2022

CE Design Electives (any two of the following):

- CE 413/414: Reinf. Conc. Design / Str. Steel Design (3 hrs.)
- CE 425: Foundation Engineering (3 hrs.)
- CE 434: Water & Wastewater Treatment Design (3 hrs.)
- CE 438/443: Pavement Design / Trans. Sys. Design (3 hrs.)

CE Electives (two required):

Any 300-level or higher CE course not previously taken to satisfy a CE Design Elective.

Tech. Elective (3 hrs.):

- Any 300-level or higher CE course not taken to satisfy a CE Design Elective or CE Elective.
- Any 200-level or higher engineering course (with advisor/chair approval).