

# MECHANICAL 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](http://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	_____
<b>Additional University Requirements</b>			
_____	Writing Intensive	3	_____
_____	Writing Intensive	3	_____
_____	Multicultural or International	3	_____
ENGR 452	Senior Capstone Design I	2	_____
ENGR 453	Senior Capstone Design II	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	_____
PHY 211/202	Core II Natural/Physical Science	4	_____
_____	Core II Humanities	3	_____
_____	Core II Social Science	3	_____
_____	Core II Fine Arts	3	_____

### MAJOR-SPECIFIC

All Mechanical 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 240	Manufacturing Processes	3	_____
MTH 230	Calculus II	4	_____	ENGR 245	Circuits and Instrumentation	3	_____
MTH 231	Calculus III	4	_____	ENGR 318	Fluid Mechanics	3	_____
MTH 335	Differential Equations	3	_____	ENGR 335	Adv Engineering Analysis	3	_____
CHM 211	Chemistry I	3	_____	ENGR 451	Intro to Project Mgmt	3	_____
PHY 211	University Physics I	4	_____	ENGR 452	Senior Capstone Design I	2	_____
PHY 202	General Physics I Lab	1	_____	ENGR 453	Senior Capstone Design II	3	_____
PHY 213	University Physics II	4	_____	ME 111	Mech Engineering Computations	3	_____
PHY 204	General Physics II Lab	1	_____	ME 310	Thermodynamics II	3	_____
ENGR 102	Intro to CAD	2	_____	ME 455	Metallurgy	3	_____
ENGR 103	Freshman Engineering Seminar	1	_____	ME 325	Exp. Design &Thermal Fluids lab	2	_____
ENGR 104	Engineering Profession	1	_____	ME 340	Machine Element Design	3	_____
ENGR 213	Statics	3	_____	ME 350	Heat Transfer	3	_____
ENGR 214	Dynamics	3	_____	ME 360	Fluid Dynamics	3	_____
ENGR 215	Engineering Materials	3	_____	ME 410	Kinematics & Design of Machine	3	_____
ENGR 216	Mech of Deformable Bodies	3	_____	ME 420	Control Systems	3	_____
ENGR 217	Engineering Co-Op Prep	1	_____	ME 425	Mech. Engr. Lab II	1	_____
ENGR 219	Engineering Thermodynamics	3	_____	_____	ME Design Elective	3	_____
ENGR 222	Engineering Cost Analysis & Economy	3	_____	_____	ME Technical Elective	3	_____
				_____	ME Technical Elective	3	_____
				_____	ME Technical Elective	3	_____

### MAJOR INFORMATION

- Senior Capstone Design I: To be eligible to take the Senior Engineering Seminar course (ENGR 452), students must have senior standing in mechanical engineering. Senior standing is defined for the B.S.M.E. as having completed or concurrently taking these three courses: ME 325, ME 340, and ME 350.
- Senior Capstone Design II: To be eligible to take the capstone design course, students must have completed ENGR 451, ENGR 452 and at least one of the design electives (ME 430 or ME 435).
- ME Design Elective: At least one design elective must be taken from the following courses: ME 340, or ME 435.
- Technical Electives: At least three technical electives must be taken from the

- following approved list of courses: Any 300-level or higher ME course not taken to satisfy other B.S.M.E. degree requirements, any 300-level or higher ENGR course not taken to satisfy other B.S.M.E. degree requirements. Other courses may be taken to satisfy this requirement with the approval of the student's advisor and the division's 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.

General Education Requirement  
College Requirement  
Major Requirement  
Area of Emphasis

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.

# MECHANICAL ENGINEERING

Mechanical Engineers apply fundamental math and physics laws to design, fabricate and innovate mechanical devices. They are multi-skilled and have working knowledge of computers, electricity, structures and mechanisms, materials, and manufacturing processes. The Bachelors of Science in Mechanical Engineering (B.M.S.E.) at Marshall University is designed to emphasize service, systems-based knowledge, and sustainability combining a traditional engineering approach with new and emerging fields.

YEAR ONE	FALL SEMESTER				SPRING SEMESTER			
	CODE	COURSE NAME	HRS	GRADE	CODE	COURSE NAME	HRS	GRADE
	CHM 211	Principles of Chemistry I	3	_____	MTH 230	Calculus II	4	_____
	MTH 229	Calculus I (CT)	5	_____	ENG 101	Beginning Composition	3	_____
	ENGR 103	Freshman Engineering Semin	1	_____	ENGR 102	Intro to CAD	2	_____
	ENGR 104	Engineering Profession	1	_____	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	_____	ME 111	Mech Engineering Computations	3	_____
	UNI 100	Freshman First Class	1	_____				
	<b>TOTAL HOURS</b>		<b>17</b>		<b>TOTAL HOURS</b>		<b>17</b>	
	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	_____
	ENGR 215	Engineering Materials	3	_____	ENGR 216	Mech of Deformable Bodies	3	_____
	ENGR 245	Circuits and Instrumentation	3	_____	ENGR 217	Engineering Co-Op Prep	1	_____
	MTH 231	Calculus III	4	_____	ENGR 219	Engr. Thermodynamics	3	_____
	PHY 213	University Physics II	4	_____	ENGR 240	Manufacturing Processes	3	_____
	PHY 204	General Physics II Lab	1	_____	MTH 335	Differential Equations	3	_____
	<b>TOTAL HOURS</b>		<b>18</b>		<b>TOTAL HOURS</b>		<b>16</b>	
	Summer Term (optional):							

YEAR THREE	FALL SEMESTER				SPRING SEMESTER			
	CODE	COURSE NAME	HRS	GRADE	CODE	COURSE NAME	HRS	GRADE
	ENGR 318	Fluid Mechanics	3	_____	ME 420	Control Systems	3	_____
	_____	Core II Social Science (MC/I, WI)	3	_____	ME 325	Exp. Design &Thermal Fluids lab	2	_____
	ME 310	Thermodynamics II	3	_____	ME 350	Heat Transfer	3	_____
	ENGR 335	Adv Engineering Analysis	3	_____	ME 410	Kinematics & Design of Machine	3	_____
	ME 340	Machine Element Design	3	_____	ME 360	Fluid Dynamics	3	_____
	ENGR 222	Engineering Cost Analysis & Economy	3	_____	ENG 201	Advanced Composition	3	_____
	<b>TOTAL HOURS</b>		<b>18</b>		<b>TOTAL HOURS</b>		<b>17</b>	
	Summer Term (optional):							

YEAR FOUR	FALL SEMESTER				SPRING SEMESTER			
	CODE	COURSE NAME	HRS	GRADE	CODE	COURSE NAME	HRS	GRADE
	ENGR 451	Intro to Project Mgmt	3	_____	ENGR 453	Senior Capstone Design II	3	_____
	ENGR 452	Senior Capstone Design I	2	_____	ME 455	Metallurgy	3	_____
	ME 425	Mech. Engr. Lab II	1	_____	_____	ME Technical Elective	3	_____
	_____	ME Technical Elective	3	_____	_____	ME Technical Elective	3	_____
	_____	Core II Fine Art	3	_____	_____	Core II Humanities (WI, CT)	3	_____
	_____	ME Design Elective	3	_____				
	<b>TOTAL HOURS</b>		<b>15</b>		<b>TOTAL HOURS</b>		<b>15</b>	
	Summer Term (optional):							

General Education Requirement  
College Requirement  
Major Requirement  
Area of Emphasis

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.

## INVOLVEMENT OPPORTUNITIES

- Student Government Association
- Campus Activity Board
- JMELI
- Commuter Student Advisory Board
- Club Sports
- Religious Organizations
- Political Organizations
- Residence Hall Association
- Cultural Organizations
- National Society of Leadership and Success

## RELATED MAJORS

- Electrical Engineering
- Mathematics
- Statistics
- Education

## GRADUATION REQUIREMENTS

- Have a minimum of 133 credit hours (some colleges or majors require more);
- Have an overall and Marshall Grade Point Average of 2.00 or higher;
- Have an overall Grade Point Average of 2.00 or higher in the major area of study;
- Have earned a grade of C or better in English 201 or 201 H;
- Have met all major(s) and college requirements;
- Have met the requirements of the Core Curriculum;
- Have met the residence requirements of Marshall University, including 12 hours of 300/400 level coursework in the student's college (see section entitled "Residence Requirements" in the undergraduate catalogue);
- Be enrolled at Marshall at least one semester of the senior year;
- Have transferred no more than 72 credit hours from an accredited West Virginia two-year institution of higher education.

Colleges and specific programs may have unique requirements that are more stringent than those noted above. Students are responsible for staying informed about and ensuring that they meet the requirements for graduation.

This academic map is to be used as a guide in planning your coursework toward a degree. Due to the complexities of degree programs, it is unfortunate but inevitable that an error may occur in the creation of this document. The official source of degree requirements at Marshall University is DegreeWorks available in your myMU portal. Always consult regularly with your advisor.

# MECHANICAL ENGINEERING – 2020-2021

## YEAR ONE



Have questions? Need to talk? You already have a Friend-At-Marshall ready to help you succeed. Find your FAM Peer Mentor here: [www.marshall.edu/fam](http://www.marshall.edu/fam)



Stay on the Herd Path and come to class! Class attendance is more important to your success than your high school GPA, your class standing, or your ACT/SAT scores.



Take a career self-assessment to help determine what majors fit your talents and interests and consider job shadowing opportunities.



In order to graduate on time, you need to take an average of 15 credits per semester. Are you on track? Take 15 to Finish.



Take a pulse check. Know what you need to do every year to keep your grants, scholarships, or federal financial aid.



Declare a major before your 30th hour. Participate in a Career Exploration Experience (job shadow) to help decide on your major and career goals.



Explore peer leadership opportunities through the FAM Program, or apply to be a UNI Peer Mentor.

## YEAR THREE



Attend an intercultural festival or event on campus or in town.



Talk to faculty about pursuing optional professional certifications.



Are you on track to graduate? Meet with your advisor for your Junior Eval to make sure you know what requirements you have left.



Run for Student Government and represent your fellow students while making a longterm difference on Marshall's campus.



Networking is key! Attend a Career Expo to seek employment opportunities and network with employers in your field.



Prepare for and pass the FE exam.



Don't enter your field with zero experience! Secure an internship related to your field of study.

## YEAR TWO



Are you completing enough credits to graduate on time? Dropping or failing a class can put you behind. Use summer terms to quickly get back on track.



Run for Student Government and represent your fellow students while making a longterm difference on Marshall's campus.



In order to work in your field, you need to take a certification exam. Develop a study strategy now. Check with your advisor.



No need to wait until graduate school. Discuss undergraduate research opportunities with faculty in your major right now.



Don't enter your field with zero experience! Secure an internship related to your field of study.



Join or create a club or organization on campus about a particular issue you care about. Marshall has more than 200 student organizations.

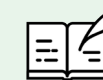


Meet with a career education specialist to conduct a "gap analysis." Figure out the skills you'll need for the career you want while you still have time to build them.

## YEAR FOUR



This is it! Are you on track to graduate? Meet with your advisor for your Senior Eval to see what requirements you have left.



Want to continue your education and increase your opportunities? Talk to a faculty member about whether graduate school fits you career goals.



Strengthen your resume and enhance your presentation skills. Present what you've learned at an academic conference of campus.



Prepare for and pass the FE exam.



Don't enter your field with zero experience! Secure an internship related to your field of study.



Run for Student Government and represent your fellow students while making a longterm difference on Marshall's campus.



Be at the top of your professional game! Prepare a final resume and practice your interview skills with a career coach in Career Education.

## TRANSFERABLE SKILLS ASSOCIATED WITH THIS MAJOR

- Analytical Skills
- Design Skills
- Oral and Written Communication Skills
- Critical Thinking Skills
- Leadership Skills
- The Ability to Work as Part of a Team

## ASSOCIATED CAREERS

- Machine Design
- Systems Design
- Manufacturing and Production
- Energy Resources/Conservation
- Transportation and Environmental Impact



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