

# ELECTRICAL AND COMPUTER 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 Seminar	3	_____
MTH 229	Critical Thinking Course	5	_____
_____	Critical Thinking Course	3	_____
<b>Additional University Requirements</b>			
_____	Writing Intensive	3	_____
_____	Writing Intensive	3	_____
_____	Multicultural or International	3	_____
EE 420	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	_____
PHY 211	University Physics I	4	_____
_____	Core II Humanities	3	_____
_____	Core II Social Science	3	_____
_____	Core II Fine Arts	3	_____

### MAJOR-SPECIFIC

All Electrical and Computer Engineering majors are required to take the following courses:

CODE	COURSE NAME	HRS	GRADE	CODE	COURSE NAME	HRS	GRADE
MTH 229	Calculus I	5	_____	EE 211	Intro to Comp. Engr. Conc & Desig	3	_____
MTH 230	Calculus II	4	_____	EE 310	Electromagnetic Fields	3	_____
MTH 231	Calculus III	4	_____	EE 320	Signals & Systems	3	_____
MTH 335	Differential Equations	3	_____	EE 330	Random Signals & Systems	3	_____
MTH 220	Discrete Structures	3	_____	EE 340	Computer Architec & Design	4	_____
CHM 211	Chemistry I	3	_____	EE 350	Elec Properties of Materials	3	_____
PHY 211	University Physics I	4	_____	EE 360	Control Systems	3	_____
PHY 213	University Physics II	4	_____	EE 370	Electric Machinery	3	_____
PHY 204	General Physics II Lab	1	_____	EE 375	Communication Systems I	3	_____
ENGR 103	First-Year Engineering Seminar	1	_____	EE 380	Microprocessors	3	_____
ENGR 104	Engineering Profession	1	_____	EE 401	Communication Systems II	3	_____
ENGR 201	Circuits I	4	_____	EE 415	Intro to VHDL Design	3	_____
ENGR 217	Engineering Career Prep	1	_____	EE 425	Electric Power Systems	3	_____
ENGR 222	Engr. Cost Analysis & Economy	3	_____	EE 440	Digital Control	3	_____
ENGR 335	Advance Engr. Analysis	3	_____	EE 410 or	Electrical Engineering Design or	3	_____
CS 110	Computer Science I	3	_____	EE 412	Computer Engineering Design	3	_____
EE 202	Circuits II	3	_____	EE 420	Capstone	3	_____
EE 204	Intro to Digital Systems	3	_____	_____	Technical Elective	3	_____
EE 210	Programming Lab	3	_____	_____	Technical Elective	3	_____

### MAJOR INFORMATION

- EE 410 or EE 412: To be eligible for EE 410 or EE 412 students must have senior standing in BSEE and have completed the following courses: EE 370, 375, and 380.
- Capstone EE 420: To be eligible to take the capstone design course (EE 420), students must have completed EE 410 or EE 412.
- Technical Electives: At least 2 technical elective courses related to the area of emphasis must be taken. The courses must be approved by the student's advisor and the division chair. The following is a suggested list: EE 445, 447, 448, ME 465, 475, CS 412, 430, or 440.
- 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 B.S.E.E. degree program requires a minimum of 132 credit hours of coursework to graduate.

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.

# ELECTRICAL AND COMPUTER ENGINEERING

Electrical and Computer Engineers design and maintain electrical control systems and components. They are multi-skilled and are able to work in projects from the design phase, through development, implementation, testing, up to client follow-up. The impact of their work is seen all over the building industry, services, transportation, manufacturing, and production and distribution of power.

YEAR ONE	FALL SEMESTER				SPRING SEMESTER			
	CODE	COURSE NAME	HRS	GRADE	CODE	COURSE NAME	HRS	GRADE
	CHM 211	Chemistry I	3	_____	CS 110	Computer Science I	3	_____
	MTH 229	Calculus I (CT)	5	_____	MTH 230	Calculus II	4	_____
	ENGR 103	First-Year Engineering Seminar	1	_____	PHY 211	University Physics I	4	_____
	ENGR 104	Engineering Profession	1	_____	CMM 103	Fund Speech Comm	3	_____
	ENG 101	Beginning Composition	3	_____	MTH 220	Discrete Structures	3	_____
	FYS 100	First Year Sem Crit Thinking	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
	EE 210	Programming Lab	3	_____	EE 202	Circuits II	3	_____
	ENGR 201	Circuits I	4	_____	ENGR 222	Engr. Cost Analysis & Economy	3	_____
	MTH 231	Calculus III	4	_____	EE 204	Intro to Digital Systems	3	_____
	PHY 213	University Physics II	4	_____	EE 211	Intro to Comp Engr. Concept & Des	3	_____
	PHY 204	Physics II Lab	1	_____	MTH 335	Differential Equations	3	_____
	ENGR 217	Engineering Career Prep	1	_____	_____	Core II Social Science (MC/I, WI)	3	_____
	<b>TOTAL HOURS</b>		<b>17</b>		<b>TOTAL HOURS</b>		<b>18</b>	
	Summer Term (optional):							

YEAR THREE	FALL SEMESTER				SPRING SEMESTER			
	CODE	COURSE NAME	HRS	GRADE	CODE	COURSE NAME	HRS	GRADE
	ENGR 335	Advance Engr. Analysis	3	_____	ENG 201	Advanced Composition	3	_____
	EE 310	Electromagnetic Fields	3	_____	EE 360	Control Systems	3	_____
	EE 340	Computer Architecture & Design	4	_____	EE 330	Random Signals & Systems	3	_____
	EE 350	Elec Properties of Materials	3	_____	EE 375	Communication Systems I	3	_____
	EE 320	Signals & Systems	3	_____	EE 370	Electric Machinery	3	_____
					EE 380	Microprocessors	3	_____
	<b>TOTAL HOURS</b>		<b>16</b>		<b>TOTAL HOURS</b>		<b>18</b>	
	Summer Term (optional):							

YEAR FOUR	FALL SEMESTER				SPRING SEMESTER			
	CODE	COURSE NAME	HRS	GRADE	CODE	COURSE NAME	HRS	GRADE
	EE 401	Communication Systems II	3	_____	EE 420	Capstone	3	_____
	EE 410 or	Electrical Engineering Design or	3	_____	EE 415	Intro to VHDL Design	3	_____
	EE 412	Computer Engineering Design		_____	_____	Technical Elective	3	_____
	EE 425	Electric Power Systems	3	_____	_____	Technical Elective	3	_____
	EE 440	Digital Control	3	_____	_____	Core II Fine Arts	3	_____
	_____	Core II Humanities (WI, CT)	3	_____				
	<b>TOTAL HOURS</b>		<b>15</b>		<b>TOTAL HOURS</b>		<b>15</b>	
	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

General Education Requirement  
College Requirement  
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# ELECTRICAL AND COMPUTER ENGINEERING – 2023-2024

## 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

- Business
- Mathematics
- Statistics
- Education
- Mechanical Engineering

## GRADUATION REQUIREMENTS

- Have a minimum of 132 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.

## 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.



Sign up for Handshake! Handshake is the #1 place to launch a career with no connections, experience, or luck required. The platform connects up-and-coming talent with 650,000+ employers.

## 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 long-term 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 long-term 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.

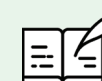


Meet with a career education specialist to conduct a "gap analysis." Figure out the skills you'll need for the career you want while you still have time to build them.

## 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.



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



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



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

- Information Protection
- Operating Systems
- Computer Networks
- Circuit Design
- Robotics
- Bioelectronics
- Energy Systems
- Digital Systems



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