What can I do with a degree in... **ENGINEERING?**

Why study **ENGINEERING?**

Students interested in making the world a better place and helping solve 21st century challenges in areas such as energy, new product design, advanced manufacturing, advanced mechatronics, the environment, and human health, may choose to pursue a degree in engineering. The Bachelor of Science in Engineering (B.S.E.) program provides a foundation in mathematics, sciences, and engineering, augmented with engineering specializations.

What is the **DEGREE OPTION?**

Bachelor of Science (B.S.) in Engineering
NOTE: Western Carolina University also offers a Master of Science in Engineering Technology.

What are the **CONCENTRATIONS?**

Students choose between one of three concentrations: **Electrical Power, Manufacturing,** and **Mechanical.**

Electrical Power: The Electrical Power concentration focuses on electric power systems, power electronics, smart grid design, renewable and sustainable energy, electric machines and drives, and emphasizes fundamental coursework in electrical and mechanical engineering.

Manufacturing: The Manufacturing concentration focuses on 3D visualization, manufacturing processes, computer aided design and manufacturing, automated manufacturing systems, and advanced manufacturing.

Mechanical: The Mechanical concentration focuses on mechanics, 3D visualization and simulation, analysis of static and dynamic systems, computer-aided engineering, energy, system dynamics and control, and machine design.

What is the **UNDERGRADUATE ADMISSION PROCESS?**

Any currently enrolled student at WCU may declare Engineering as an undergraduate major. Please make an appointment with your advisor via your MyWCU student portal.

What **JOBS ARE AVAILABLE?**

Our graduates are prepared to become a variety of professionals including aerospace engineers, agricultural engineers, automotive engineers, biomedical engineers, civil engineers, power electronics engineers, electro-mechanical engineers, environmental engineers, fire protection engineers, industrial engineers, mechanical engineers, manufacturing engineers, nuclear engineers, solar energy systems designers, tool and machine designers, and more.
NOTE: Advanced degrees may be required for some of the above careers. Please speak with an advisor or career counselor for more information.

Who employs **ENGINEERING** graduates?

Our graduates work for a variety of employers including large corporations such as General Electric, Eaton, Moog, Kubota, AT&T, Borg Warner, Boeing, and Goodyear; small and private engineering firms and businesses; hospitals and health organizations; federal, state, and local government contractors; educational institutions; and more.

MAJOR MAP

How to use this map: Review the four categories and suggestions of activities and when you should consider engaging in them. Remember, these are just suggestions! There is a fillable space for you to add in any other ideas you have to set yourself up for success in life after college.

	1st YEAR	2nd YEAR
EXCEL IN ACADEMICS	Coursework in your first year will focus on foundational classes within math, physics, and introductory engineering. Check out the **8-semester plan for your concentration** and make an appointment with your advisor.	The second year continues with additional liberal studies requirements as well as core engineering courses, project-based learning and topics related to your concentration. Check out the **8-semester plan for your concentration** and make an appointment with your advisor.
GET HANDS-ON EXPERIENCE	Check out **WCU's DegreePlus program** and choose which events in any of the four categories you want to attend. Categories include: Professionalism, Teamwork, Leadership, or Cultural Responsiveness. See what on-campus employment opportunities are available by logging in to JobCat via your MyWCU.	Consider joining clubs or organizations related to your major such as FEM in STEM or the student branch of the American Society of Mechanical Engineers (ASME), Institute of Electrical and Electronics Engineers (IEEE), etc. If you are thinking about attending graduate school, start engaging in hands-on experiences required in graduate school admissions. Engage deeper with **DegreePlus;** choose an additional competency to complete.
BE PART OF THE COMMUNITY	Connect with the **Center for Community Engagement and Service Learning** and ask about the **Lily Award,** a program aimed to encourage and recognize students who are connected with their community.	Develop deeper relationships with the organizations for which you volunteer. Ask for special projects or responsibilities that you can highlight on a resume. If you want to **study abroad,** this is a good year to have that experience. The Study Abroad Office has excellent suggestions on places to go to study your major specifically.
PREPARE FOR LIFE AFTER COLLEGE	Further explore your career options or career interests using the **Center for Career and Professional Development's** online resources, **Focus 2,** and **Onet Online.** Connect with a career counselor early on to explore opportunities and experiences you can do while in college to further develop your professional resume.	Attend the **Catamount Career and Networking Day** to identify summer, part-time, or internship opportunities for additional hands-on opportunities. Start a spreadsheet of graduate schools you wish to apply to in a few years; label your spreadsheet with each school's admission requirements and application materials so that you are aware of the expectations.

Looking for a minor? Consider these options:

Computer Information Systems
Entrepreneurship
Management
Marketing
Mathematics
Physics

3rd YEAR

Courses in your third year will focus heavily on upper-level Engineering courses and topics related to your concentration. Check out the **8-semester plan for your concentration** and make an appointment with your advisor.

Complete an internship that will give you practical hands-on experience in your field. Contact the CCPD for help in your internship search.

Consider networking with professionals in your field. **ASME**, **IEEE** and the **Society of Manufacturing Engineers** have numerous networking events listed.

Volunteer with nonprofits that focus on your ideal career path.

Connect with alumni in your field through **LinkedIn.**

Visit the CCPD to hone your professional resume and cover letter (Make an appointment through MyWCU).

Utilize the **Writing and Learning Commons** for GRE, and other professional exam preparation sessions. Take the GRE, etc. Use **Big Interview** to learn more about professional interviews.

Schedule a visit to tour graduate schools of your choice, if applicable.

4th YEAR

Courses in your final year will continue to focus on upper-level Engineering and Capstone while finishing the liberal studies requirements. Check out the **8-semester plan for your concentration,** make an appointment with your advisor, and complete your degree audit, and **apply for graduation!**

Investigate requirements for full-time jobs or graduate school admissions. Assess what skills or experiences you're lacking and invest time in seeking additional opportunities such as certification programs, classes, or professional development workshops during your last year to fill that gap. Connect with your faculty advisor or career counselor.

Join professional organizations such as the **National Society of Professional Engineers.**

Network with employers and non-profits at the **Catamount Career and Networking Days.**

Apply to graduate schools, if applicable.

Look for and apply for jobs between 4 and 6 months before graduation.

Polish your resume, cover letter, and interview skills by vising the **CCPD.**

DID YOU KNOW? Internships are still the number-one educational experience employers look for in a recent college graduate resume. (Chronicle of Higher Education's study on 50,000 employers)

MORE INFORMATION

INTERNSHIP Information

There are numerous internship opportunities for students. In some cases internships are established through a faculty member in the student's major. Oftentimes students find part-time jobs in an area related to their field of study. When this happens, students should discuss with their academic advisor the possibility of receiving college credit. Generally, three hours of general elective credit can be earned for a minimum of 200 hours of experience.

SKILLS LEARNED in the classroom

The core competencies will center on developing skills, knowledge, and attitudes such as:

- product design and development
- quality control
- computer-aided engineering
- critical thinking skills
- open-ended problem solving
- teamwork
- leadership

KNOWLEDGE Base

This program will prepare students to:

- identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
- apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
- communicate effectively with a range of audiences
- recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
- function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
- develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
- acquire and apply new knowledge as needed, using appropriate learning strategies.

Professional **RESOURCES**

- American Society of Mechanical Engineer: asme.org
- Institute of Electrical and Electronics Engineers: ieee.org
- National Society of Professional Engineers: nspe.org

QUESTIONS?

For questions, please call the Engineering program at 828-227-2775 or visit engineering.wcu.edu.

To schedule an appointment with a career counselor, contact the Center for Career and Professional Development, 828-227-7133 or careerservices@wcu.edu.

Western Carolina University