

Gateway to



Learning - Discovery - Community

PRE-ENGINEERING

DEPARTMENT OF PHYSICS & ASTRONOMY
COLLEGE OF ARTS & SCIENCES
EASTERN KENTUCKY UNIVERSITY

Physics and Engineering at EKU

Physics is the study of the organization and structure of nature at its most basic level: matter and the forces between and within matter. As such it is the most fundamental science and serves as the foundation of the other sciences. Physics spans the range from the very small (the organization of the atom) to the very large (the organization of the universe) and from the everyday (mechanics, heat, sound and electricity) to the exotic (quantum mechanics, nuclear physics and astronomy).

Engineering is the practical application of the principles of physics. Engineers design things that are used in everyday life such as automobiles, telephones, bridges, light bulbs, and computers and develop the means and methods of manufacturing these products.

Careers in Physics and Engineering

The Pre-Engineering curriculum at EKU prepares students to complete their Engineering education and undertake a successful career in Engineering. Careers in Engineering encompass many of the traditional Engineering fields, such as electrical, mechanical, civil and chemical engineering, and also include more recent additions to the Engineering world, such as bio-medical, optical, environmental and computer engineering. Students should meet with a faculty advisor at EKU to determine how best to achieve their Engineering career goals through the Dual-Degree Engineering Program or the Pre-Engineering Program.

Degree Programs

The Department of Physics and Astronomy offers the Bachelor of Science degree in Physics with options in General Physics and in Engineering Physics, and in Physics Teaching. Also, the department offers a dual degree program with Auburn University and the University of Kentucky, where the student studies for three years at EKU and two years at the engineering school, receiving both an EKU physics degree and an engineering degree. In addition, the department offers the two-year Associate of Science Degree in the Science for Engineering. Graduates of the AS program continue to an engineering school or seek immediate employment before continuing their education. The department also offers minors in physics and physics teaching.

For More Information

Office of Admissions
SSB CPO 54
Eastern Kentucky University
521 Lancaster Avenue
Richmond, KY 40475-3102
www.admissions.eku.edu
800-465-9191
859-622-2106

Department of Physics & Astronomy
Moore 351
Eastern Kentucky University
521 Lancaster Avenue
Richmond, KY 40475-3102
www.physics.eku.edu
859-622-1521

Eastern Kentucky University

If you are serious about learning, Eastern Kentucky University is your kind of place. We're committed to helping you realize your potential and achieve your goals. And we'll work hard to provide you with a quality, life-changing learning experience.

As a student at EKU, you'll be taught, challenged and guided by professors who put teaching first. And because we maintain high standards set by national and regional accrediting agencies, we'll have high expectations for you as a student. You'll work hard, and we'll help you succeed.

Most of your classes at EKU will be small and will be taught by professors, not graduate students. You'll study in modern classrooms, laboratories, libraries and other facilities using state-of-the-art technology and equipment. And you'll discover opportunities to enhance classroom learning with hands-on experience through internships or the cooperative education program.

- A comprehensive, public university serving more than 16,000 students.
- Undergraduate and graduate excellence through more than 160 associate, baccalaureate, master's, specialist and cooperative doctoral programs.
- Quality and diversity in faculty and staff.
- Student/professor ratio of 17:1
66-acre main campus in Richmond, educational centers in Corbin, Danville and Manchester, and academic offerings at other sites throughout the Commonwealth.

Education For Life.



Eastern Kentucky
University

WWW.EKU.EDU

PRE-ENGINEERING (A.A.S.)

There are two pre-engineering curricula offered by the College of Arts and Sciences. In the first curriculum, referred to as the **Two-Two Curriculum**, students spend two years at EKU and study basic science, mathematics, and courses for their basic education. Students then transfer their credits to the engineering school of their choice. Students can usually complete a degree in engineering after two years of course work at the engineering school.

TWO-TWO CURRICULUM

Major Requirements	30 hours
PHY 201, 202, MAT 124*, 224, 225, CHE 111, 112.	
Supporting Course Requirements	9 hours
PHY 221, TEC 190 and an approved programming language.	
General Education Requirements	24 hours
Six hours of English composition, 18 hours selected from the humanities and social sciences to satisfy general education requirements at the chosen engineering school.	
University Requirement	1 hour
ASO 100.	
Total Curriculum Requirements	64 hours

* A preparatory course (MAT 109) may be required before admission to MAT 124.

THREE-TWO CURRICULUM

In the second curriculum - the **Three-Two Curriculum** - students spend three years at EKU and then take two years of work in engineering at the University of Kentucky or Auburn University and earn a baccalaureate degree from EKU in physics or chemistry and an engineering degree from the engineering school. The additional year spent at EKU allows students to do more work in a science major, thus improving the breadth of their background. Variations occur depending upon the engineering degree sought and the differing requirements of the University of Kentucky and Auburn University. Inquiries concerning a specific program should be addressed to the pre-engineering advisor, Department of Physics and Astronomy or Department of Chemistry. A program representative of the first two years is given in the **Two-Two Curriculum** above. The third year curriculum will depend primarily on the undergraduate major sought, either physics or chemistry. A third option available to a student would be to complete requirements for a baccalaureate degree in physics or chemistry at EKU and then to apply to a graduate school in engineering for admission and graduate studies.

MATHEMATICS & PHYSICS COURSES

MAT 109	Precalculus Mathematica
MAT 124	Calculus I
MAT 224	Calculus II
MAT 225	Calculus III
PHY 201	University Physics I
PHY 202	University Physics II
PHY 221	Statics

OTHER COURSES

CHE 111	General Chemistry I
CHE 112	General Chemistry II
CHE 115	General Chemistry Lab I
CHE 116	General Chemistry Lab II
CHE 116H	General Chemistry Honors Lab II
TEC 190	Technical Graphics