

engineering Physics

Did You Know?

Three CU-Boulder professors have won the Nobel Prize for Physics, including Carl Weiman and Eric Cornell in 2001 for the world's first Bose-Einstein condensate, and John Hall in 2005 for his contributions to the development of laser-based precision spectroscopy.

Students in department:

EPEN: 113 undergraduates

PHYS: 206 undergraduates

PHYS: 208 grad students

Faculty:

47 faculty

Research Highlights:

2 NSF research centers in Ferroelectric Liquid Crystal Materials and Extreme Ultraviolet Science and Technology

\$8 million in research funds (2006-07)

Rankings:

CU-Boulder is the only doctoral university in the Rocky Mountain region ranked in the top 20 public engineering programs in the nation (USNWR).

Colorado
University of Colorado at Boulder



The Engineering Physics Program focuses on the physical foundations of modern technology. The program prepares students for research, development, and entrepreneurial careers in many frontier areas of engineering, including nanotechnology, quantum devices, ultra fast lasers, adaptive optics, cryogenic electronics, computer simulation of physical systems, solar cells, magnetic storage technology, micro-mechanical systems, and molecular electronics.

At CU-Boulder all engineering physics students study the core theoretical subjects of mechanics, electricity and magnetism, thermal physics, and quantum mechanics, supplemented by courses in mathematics, computation, and laboratory technique. The program can be tailored to a student's special interests through electives in engineering, physics, or other sciences.

"I was hired as a freshman to work in the cold molecules lab. It's a good way to apply what you learn in class and learn the nuances of experimental physics. I also think it's really good preparation for graduate school."

— Carrie Weidner



Hands-on Learning

At CU, students learn by doing. Engineering Physics undergraduates take a variety of core and elective laboratory courses that emphasize student-developed and -designed independent projects. Students are encouraged to form research collaborations with faculty as they pursue senior thesis projects, and many additional research, internship and industry co-op experiences are available.

What can I do with a degree in engineering physics?

- Develop high-efficiency solar cells
- Explore quantum computation
- Probe ultrafast phenomena with lasers
- Become a patent attorney
- Teach high school physics

Engineering Physics curriculum

128 semester credit hours required

(Sample Curriculum)

FRESHMAN YEAR

Fall Semester

APPM 1350 Calculus 1 for Engineers	4
CSCI Computer Science 1	4
PHYS 1110 General Physics 1	4
Humanities and Social Science Elective	3

Spring Semester

APPM 1360 Calculus 2 for Engrs	4
PHYS 1120 General Physics 2	4
PHYS 1140 Experimental Physics	1
Humanities and Social Science Elective	3
MCEN 1025 Drafting	3

SOPHOMORE YEAR

Fall Semester

APPM 2350 Calculus 3 for Engrs	4
CHEM 1111 General Chem I	5
PHYS 2170 Foundations of Modern Physics	3
Engineering Elective	4

Spring Semester

APPM 2630 Diff Eq with Linear Algebra	4
PHYS 2150 Experimental Physics	1
PHYS 2210 Classical Mech/Math Methods I	3
General Elective	3
Humanities and Social Science Elective	3
Engineering Elective	3

Credits

15

15

16

17

JUNIOR YEAR

Fall Semester

PHYS 3210 Classical Mech & Math Meth II	3
PHYS 3310 Principles of Elec & Mag I	3
PHYS 3330 Junior Laboratory	2
CHEM 1131 General Chem II	5
General electives	6

Spring Semester

PHYS 3220 Quantum Mechanics	3
PHYS 3320 Principles of Elec & Mag II	3
Physics Elective	3
Upper division Math or Applied Math	3
Humanities/Social Science Elective	3
PHYS 4230 Thermo/Stat Mech	3

SENIOR YEAR

Fall Semester

PHYS 4410 Atomic & Nuclear Physics	3
Physics Elective	3
General Electives	3
WRWG 3030 Writing on Science & Society	3
Engineering Elective	3

Spring Semester

Engineering Electives	8
Physics Elective	3
Social Science/Humanities Elective	3
General Elective	3

Credits

16

18

15

17

Engineering Physics Degree Plans:

The College of Engineering and Applied Science, in cooperation with the College of Arts and Sciences, offers three different engineering physics degree plans.

- Bachelor of Science (B.S.) degree (4 years)
- B.S./M.S. degrees (5 years)
- Dual B.S. degree in engineering physics and business (5 years)

For more information visit www.colorado.edu/physics

