

# Department of Physics, Astronomy, Geosciences, and Engineering Technology

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The Department of Physics, Astronomy, Geosciences, and Engineering Technology is a multidisciplinary department with programs that lead to a Bachelor of Science degree with a major in physics, a Bachelor of Science degree with a major in astronomy, a Bachelor of Science degree with a major in environmental geosciences, and an Associate of Science degree in Engineering Studies. The Regents' Engineering Pathway Program (REPP) enables a student to take core curriculum, mathematics, science, and engineering courses at Valdosta State University and then transfer to universities offering the B.S. degree in engineering in Georgia (Georgia Tech, the University of Georgia, Kennesaw State, Georgia Southern, or Mercer) or any engineering school outside of Georgia to complete the requirements for a degree in engineering. The department also offers minors in astronomy, environmental geosciences, geology, and physics.

This multidisciplinary department spans five related areas: physics, astronomy, geology, geography, and engineering. Physics is the foundation science which deals with space, time, matter, energy, gravitation, electromagnetism, light, atoms, nuclei, and the fundamental forces of the universe. Astronomy is the science that deals with the origin, evolution, position, motion, and nature of all the bodies in the observable universe, including the Sun, planets, moons, stars, nebulae, and galaxies. Geology is the science which deals with the Earth, our planet upon which we are totally dependent, its materials, environments, processes on its surface and in its interior, its origin, and its physical, chemical, and biological evolution. Environmental geoscience is an integrative discipline that examines the action, location, and distribution of natural phenomena and the influence of those natural phenomena on people and on the environment in which they live. Engineering is the application of mathematical and scientific principles, technological tools, and practical experience to the solution of real-world problems.

The program leading to the B. S. degree with a major in physics is designed to provide students with knowledge in the fundamental branches of physics (mechanics, electromagnetism, and quantum mechanics), as well as several elective areas within the field of physics, such as thermodynamics, electronics, optics, and computational physics, and to prepare students to enter graduate programs in physics or related disciplines, or to embark upon careers in research laboratories, government, industry, or education.

The program leading to the B. S. with a major in astronomy is designed to provide students with knowledge of the fundamental branches of astronomy, including solar system astronomy, astrophysics and observational astronomy, as well as supporting branches of physics; and with the skills to use the tools of astronomy, including telescopes and auxiliary equipment, appropriate to various astronomical observations; and to prepare students to enter graduate programs in astronomy, physics, or related disciplines or to embark upon careers in research laboratories and observatories, government, industry or education.

The program leading to the B. S. degree with a major in environmental geosciences is designed to provide students with the knowledge and the skills required to analyze environmental questions and to recommend solutions, using research tools in both geography and planning, as well as analytical and technical skills such as geographic information systems, spatial and temporal analysis, computer mapping, and statistical analysis to analyze environmental, hydrologic, and planning problems of the south Georgia region; and to prepare to enter graduate programs in geography, planning, and related fields or to embark upon careers in industry, government, or education.

The Engineering Transfer Program is designed to prepare students to transfer as third-year students into an engineering curriculum at a degree-granting institution. A major part of this program is the Regents' Engineering Pathway Program (REPP). The program covers course work through the first two years in major tracks such as aerospace engineering, civil engineering, chemical engineering, computer engineering, electrical engineering, industrial engineering, materials science and engineering, and mechanical engineering. After completing the required courses at VSU, the REPP students can receive an Associate of Science (A.S.) degree in engineering.

The minor in astronomy is designed to provide students with an understanding of fundamental astronomical principles and an appreciation of the disciplines of astronomy and astrophysics. The minor in environmental geosciences is designed to provide students with an understanding of the physical and cultural diversity of the Earth, with map techniques and spatial problem solving skills, and with an appreciation of the relationship between people and their environment. The minor in geology is designed to give students a greater understanding of the characteristics and processes of planet Earth and, depending upon the student's major, could better prepare the student for working in areas involving energy, material resources, or environmental problems. The minor in physics is designed to provide undergraduate students with an understanding of fundamental physical principles and an appreciation of the discipline of physics.

Students majoring in various disciplines may be able to gain work experience related to their major through the VSU Co-op Program. Such experience can prove valuable in terms of career exploration, acquisition of new skills, and career development. Students seeking more information should contact their academic advisors or the Office of Career Opportunities.

- Associate of Science in Engineering Studies
- Bachelor of Science with a Major in Astronomy
- Bachelor of Science with a Major in Engineering Technology

- Bachelor of Science with a Major in Environmental Geosciences
- Bachelor of Science with a Major in Physics
  
- Minor in Astronomy
- Minor in Geography
- Minor in Geology
- Minor in Physics

**Astronomy**

**Engineering Technology**

**Geography**

**Geology**

**Physics**