

Computer Engineering Bachelor of Science Degree Program Educational Objectives and Outcomes

Computer Engineering Educational Objectives

Graduates of the Computer Engineering program at the University of Virginia will have the knowledge, skills and attitudes that will allow them to make tangible contributions, meet new technical challenges, contribute effectively as team members, and be innovators in computer hardware, software, design, analysis and applications. They will communicate effectively and interact responsibly with colleagues, clients, employers and society.

Computer Engineering Program Outcomes

The **fundamental principles** and techniques of mathematics and science enables our graduates to contribute to an engineering effort. The graduated student will have:

- Outcome 1.a.** a knowledge of mathematics (including differential equations), science, and engineering fundamentals.
- Outcome 1.b.** an ability to identify, formulate, and solve engineering problems.
- Outcome 1.c.** an ability to design and conduct experiments, and analyze and interpret data.
- Outcome 1.d.** an ability to effectively communicate technical material.
- Outcome 1.e.** an ability to function as a member of a multidisciplinary team.

An **in-depth knowledge of computer engineering** enables our graduates to contribute in their area of expertise. The graduated computer-engineering student will have:

- Outcome 2.a.** a knowledge of the essential fundamentals in computer science and electrical engineering.
- Outcome 2.b.** a knowledge of advanced topics in mathematics including discrete mathematics, transform calculus, complex variables, probability and statistics.
- Outcome 2.c.** a working knowledge of the hardware and software design process.
- Outcome 2.d.** the ability to specify, design, analyze and validate a computer-based system to meet a set of desired goals, within the context of a broader system application.
- Outcome 2.e.** an understanding of computer and networked system organization and architecture and knowledge of recent advances, current practices and trends in computer systems.
- Outcome 2.f.** specialized knowledge in topical areas of electrical engineering and computer science.
- Outcome 2.g.** preparation for graduate-level and specialist studies in computer engineering, computer science or electrical engineering.

An understanding of the Jeffersonian Principles of free enquiry, ethical awareness, creativity, and **professionalism** enables successful careers and responsible engineering practice. The graduated student will:

- Outcome 3.a.** recognize the need for and be capable of engaging in lifelong learning.
- Outcome 3.b.** receive a broad education in the humanities and social sciences, to gain an understanding of contemporary issues.
- Outcome 3.c.** understand the interrelationships between technology and contemporary society.
- Outcome 3.d.** understand the ethical and professional responsibilities of an engineering practitioner or researcher.