The Center for Computational Science and Engineering (CCSE) offers two educational programs, a master’s and a doctorate in computational science and engineering (CSE).

Master’s Program

The Master of Science in Computational Science and Engineering (CSE SM) is an interdisciplinary program that provides students with a strong foundation in computational methods for applications in science and engineering. The CSE SM program trains students in the formulation, analysis, implementation, and application of computational approaches via a common core, which serves all science and engineering disciplines, and an elective component that focuses on particular disciplinary applications. The program emphasizes:

- Breadth through introductory courses in numerical analysis, simulation, and optimization
- Depth in the student’s chosen field
- Multidisciplinary aspects of computation
- Hands-on experience through projects, assignments, and a master’s thesis


The research interests of CSE faculty cover a great variety of computationally intensive areas in engineering, science, and mathematics. Recent research has included such far-ranging topics as micromachined devices, guidance/control systems, imaging systems, distribution networks, molecular simulation, telecommunications systems, uncertainty quantification, and transportation systems.

Doctoral Program

The doctoral program in Computational Science and Engineering (CSE PhD) allows students to specialize at the doctoral level in a computation-related field of their choice via focused coursework and a doctoral thesis. The emphasis of thesis research activities is the development of new computational methods and/or the innovative application of computational techniques to important problems in engineering and science. The CSE program is administered jointly by CCSE and host departments which award the degree via specially crafted thesis fields that recognize the students’ specialization in computation. Current host departments include Aeronautics and Astronautics; Chemical Engineering; Civil and Environmental Engineering; Earth, Atmospheric and Planetary Sciences; Materials Science and Engineering; Mathematics; Mechanical Engineering; and Nuclear Science and Engineering.

To gain admission, CSE PhD applicants must receive approval from both the host department graduate admission committee and the CSE graduate admission committee. Applicants indicate the department they wish to be hosted in at the time of application. Once admitted, doctoral degree candidates are expected to complete the host department’s degree requirements (including qualifying exam) with some deviations relating to coursework, thesis committee composition, and thesis submission that are specific to the CSE program and are discussed in more detail on the CSE website.

For both CSE SM and CSE PhD, see the CSE Admissions website for information about the application process, requirements, and relevant deadlines.

Inquiries

For more information about CCSE or CSE graduate programs, please visit the CCSE website.