COMPUTER SCIENCE TEACHER EDUCATION (CSTE)

CSTE 8020 EXPLORING COMPUTER SCIENCE FOR TEACHERS (3 credits)
This course provides a breadth first introduction to computer science for pre-service and in-service teachers. The Exploring Computer Science curriculum [http://www.exploringcs.org] serves as a guiding framework for this course, which introduces domain knowledge and appropriate teaching techniques related to teaching human computer interaction, computational problem solving, web design, programming, data analysis, and robotics in school environments. In addition the course covers ethical and social issues in computing along with an overview of computing careers.

CSTE 8030 COMPUTER SCIENCE PRINCIPLES FOR TEACHERS (3 credits)
This course introduces pre-service and in-service teachers to the foundational principles of computer science. It aims to help them learn the essential thought processes used by computer scientists to solve problems, expressing those solutions as computer programs. It prepares them to teach the CS Principles course [http://www.apcsprinciples.org] proposed by the College Board and the National Science Foundation as a new AP course in Computer Science. The exercises and projects make use of mobile devices and other emerging platforms.
Prerequisite(s)/Corequisite(s): MATH 1310 (or equivalent)

CSTE 8040 OBJECT ORIENTED PROGRAMMING FOR TEACHERS (3 credits)
This course provides an in-depth treatment of the fundamentals of object-oriented programming (OOP) in Java programming language environment. Topics include data types and information representation, control structures, classes and objects, methods, encapsulation, inheritance and polymorphism, and use of introductory data structures to solve real-world problems. Additionally, this course interleaves coverage of OOP content with discussion of common learner misconceptions and teaching strategies/tools that can be employed to aid learners' mastery of this material. This course prepares students to implement the Advanced Placement Computer Science A curriculum in a secondary school setting.
Prerequisite(s)/Corequisite(s): CSTE 8020 or CSTE 8030.

CSTE 8970 CS ED INDEPENDENT STUDY (1-3 credits)
This is a specially designed course taken under the supervision of a graduate faculty member to accommodate the student who has identified a focus of study not currently available in the departmental offerings and who has demonstrated capability for working independently.
Prerequisite(s)/Corequisite(s): Permission of the department and graduate faculty member.

CSTE 8990 THESIS (1-6 credits)
This course is an independent research project completed under the direction of a thesis advisor and required of all candidates pursuing a Master of Science with Thesis option. Thesis credits must be completed over two or more academic terms.
Prerequisite(s)/Corequisite(s): Completion of Required Core Courses and approval of advisor. Not open to non-degree graduate students.