Computer Science Studies

The goal of the Computer Science Studies (CSS) concentration is to produce graduates whose strong, balanced and general preparation in computer science prepares them for positions in the workplace or for graduate study. Graduates of the CSS concentration will have the analytical, experimental and professional skills needed to identify, formulate and solve scientific and technical problems throughout their careers; able to address technical, societal and ethical dimensions of computing; and have an awareness of the importance of professional and personal integrity, cultural awareness and ethical behavior in their careers.

Concentration Requirements:

Discrete Math*	3 cr
Calculus I and II*	6 cr
Linear Algebra	3 cr
ITE 102: Introduction to Computer Science*	3 cr
Algorithm Development and Data Structures	3 cr
ITE 410: Software Engineering (or Software Systems Design)	3cr
ITE 220: Networking & Data Communications	3 cr
ITE 430: Database Management and Design (or Database Systems)	3 cr
ITE 225:Computer Organization (or Computer Architecture)	3 cr
Electives:	3 cr

- Compilers
- Analysis of Algorithms
- Survey Comparison of Programming Languages
- Microprocessors
- Operating Systems
- Or other faculty-approved area

CSS 499: Capstone	3 cr

* Will not satisfy part of the upper division requirements in the concentration

Co-requisites:

9 Credits required:

- *6 credits in Logic, from the following:*
- Programming Logic
- Philosophical Logic
- Digital Logic
- Mathematical Logic
- *3 credits in Technical Communication*

Notes:

1. Time Restriction: The 15 upper division credits in a computer related concentration, including the individualized concentration, must be less than ten (10) years old at the time of matriculation unless the student is employed in the computer field or has been actively pursuing formal or informal studies in the computer field. However, older courses may be used as free electives in the overall degree program.
2. Duplication of credit: If examinations have been passed for two or more versions of the same content or if two or more versions of the same course have been taken, credit for the most recent exam/course can be applied towards the degree. Students cannot receive credit for both passing a certification exam and for taking courses that lead to the exam.

Student Learning Outcomes

Students who graduate with a concentration in Computer Science Studies will be able to:

1. solve problems based on the application of logic and mathematics to developing, adapting and understanding algorithms and data;
2. describe the interdependence of hardware and software;
3. develop software programs in a contemporary, high-level language from design through implementation;

4. explain the theoretical bases of operating systems and networks;
5. work independently in research or development and as a member of a development team;
6. explain the history of computing, current technology and its limitations and future directions;
7. communicate technical information accurately;
8. design and implement database systems;
9. apply principles of ethics; and
10. explain how workforce diversity, including differences in communication styles, impacts the workplace.