



Operational Excellence and Assessment Support

Academic Learning Compacts

College of Engineering and Computer Science Academic Learning Compacts

Computer Science - B.S.

Discipline Specific Knowledge, Skills, Behavior and Values

1. Apply knowledge of computing and mathematics appropriate to the discipline; specifically to include the application of mathematics, science and engineering to solve and reason about computational problems.
2. All graduating CS majors, by the time of their graduation, shall be able to: Analyze a problem, and identify and define the computing requirements appropriate to its solution.
3. Design, implement and evaluate a computer-based system, process, component, or program to meet desired needs and budget, by applying best practices in software development processes, methods, and tools.
4. Demonstrate an understanding of professional, ethical, legal, security, and social issues and responsibilities.
5. Analyze the local and global impact of computing on individuals, organizations and society.
6. Recognize the need for continuing professional development and shall demonstrate the knowledge of research tools and professional resources necessary to accomplish this end.
7. Use current techniques, skills, and tools necessary for computing practices.
8. Apply mathematical foundations and computer science theory, in particular principles of algorithmic design and complexity analysis, in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.
9. Apply design and development principles in the construction of software systems of varying complexity.
10. Demonstrate their knowledge of, and ability to apply, programming fundamentals in at least three programming languages.
11. Demonstrate their knowledge and understanding of, and their ability to apply the concepts and design principles relating to: data structures, computer architecture and organization, programming languages, operating systems, and networks.

Critical Thinking

- 1. Apply knowledge of computing and mathematics appropriate to the discipline; specifically to include the application of mathematics, science and engineering to solve and reason about computational problems.**
- 2. All graduating CS majors, by the time of their graduation, shall be able to: Analyze a problem, and identify and define the computing requirements appropriate to its solution.**
- 3. Design, implement and evaluate a computer-based system, process, component, or program to meet desired needs and budget, by applying best practices in software development processes, methods, and tools.**
- 4. Analyze the local and global impact of computing on individuals, organizations and society.**
- 5. Recognize the need for continuing professional development and shall demonstrate the knowledge of research tools and professional resources necessary to accomplish this end.**
- 6. Use current techniques, skills, and tools necessary for computing practices.**
- 7. Apply mathematical foundations and computer science theory, in particular principles of algorithmic design and complexity analysis, in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.**
- 8. Apply design and development principles in the construction of software systems of varying complexity.**
- 9. Demonstrate their knowledge of, and ability to apply, programming fundamentals in at least three programming languages.**
- 10. Demonstrate their knowledge and understanding of, and their ability to apply the concepts and design principles relating to: data structures, computer architecture and organization, programming languages, operating systems, and networks.**

Communication

- 1. Function effectively on teams to accomplish a common goal.**
- 2. All graduating CS majors, by the time of their graduation, shall be able to: Communicate effectively with a range of audiences; in particular, graduating majors shall demonstrate effective oral and written communication skills while disseminating technical information about computing technology and its applications.**

Assessment of Computer Science - B.S. Outcomes

These outcomes will be assessed using a variety of assessment methods, including:

- **Data are collected for the assessment through surveys (alumni, industry, graduating students), the computer science foundation exam, Industrial Affiliates Board, School of EECS Technical Area Committees, the Computer Science Curriculum Oversight and Review Committee, and course assessment reports.**