Bachelor of Science with a Major in Computer Science

Selected Educational Outcomes

1. Students will analyze a complex computing problem and apply principles of computing and other relevant disciplines to identify solutions.
2. Students will design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
3. Students will communicate effectively in a variety of professional contexts.
4. Students will recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
5. Students will function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
6. Students will apply computer science theory and software development fundamentals to produce computing-based solutions.

Examples of Outcome Assessments

The department assesses the extent to which the program requirements create the desired outcomes by a variety of techniques. Examples of these assessments include the following:

1. The capstone courses are used to assess student progress since taking Area F courses. They determine if students have mastered effective oral and written communication skills, acquired critical analysis skills, and learned to use the library and technological resources in solving non-routine problems. Assessment methods include student projects and presentations.
2. Student examinations and samples of student work are kept in the department and are examined by the faculty to assess student content knowledge.
3. Available employer and alumni survey data collected by the University will be examined to determine students' level of undergraduate preparation for further education or employment.

Requirements for the Bachelor of Science Degree with a Major in Computer Science

Code	Title	Hours
Core Curriculum		**60**
Core Curriculum Areas A-E (See VSU Core Curriculum)		42
Majors in Computer Science are required to take MATH 1112 or MATH 1113 or MATH 2261 in Area A and MATH 2261 or MATH 2262 in Area D		
Core Curriculum Area F		18
CS 1301	Principles of Programming I	4
CS 1302	Principles of Programming II	4
CS 2620	Discrete Structures	3
MATH 2261	Analytic Geometry and Calculus I (1 hour "spillover" from Area D)	1
MATH 2262	Analytic Geometry and Calculus II	4
Any D.2.a or D.1 Laboratory Science from a different discipline than the sequence completed in D.2.a (with 2 hours "spilling" into Supporting Courses) or ENGR 2320 (with 1 hour "spilling" into Supporting Courses)		2
Senior College Curriculum		**60**
CS 3101	Computer Organization	3
CS 3200	Security and Ethics in Computing	3
CS 3335	The C Programming Language	3
CS 3410	Data Structures	3
CS 3520	Algorithms	3
CS 4345	Operating Systems	3
CS 4121	Data Communications and Networks I	3
CS 4321	Software Engineering I	3
CS 4721	Database Design I	3
CS 4500	Formal Languages and Automata Theory	3
CS 4900	Senior Seminar	3
Additional 3000-level or 4000-level course in CS		3

Additional 4000-level course in CS		3
Supporting Courses		11
D.2.a Laboratory Science ("spillover" from Area F)		
MATH 2150	Introduction to Linear Algebra	
MATH 3600	Probability and Statistics	
MATH 4651	Numerical Analysis I	
or MATH 4901	Operations Research I	
Electives		10
Total Hours Required for the Degree		**120**

Requirements for the Bachelor of Science Degree with a Major in Computer Science--Cyber Security Track

Code	Title	Hours
Core Curriculum		**60**
Core Curriculum Areas A-E (see VSU Core Curriculum)		42
Core Curriculum Area F		18
CS 1301	Principles of Programming I	4
CS 1302	Principles of Programming II	4
CS 2620	Discrete Structures	3
MATH 2261	Analytic Geometry and Calculus I	4
MATH 2262	Analytic Geometry and Calculus II	4
Any D.2.a or D.1 laboratory science from a different discipline than the sequence completed in D.2.a (with 2 hours "spilling" into Supporting Courses) or ENGR 2320 (with 1 hour "spilling" into Supporting Courses)		2
Senior College Curriculum		**60**
CS 3101	Computer Organization	3
CS 3200	Security and Ethics in Computing	3
CS 3300	UNIX Programming	3
CS 3335	The C Programming Language	3
CS 3410	Data Structures	3
CS 3520	Algorithms	3
CS 3750	Introduction to Cybersecurity	3
CS 4121	Data Communications and Networks I	3
CS 4321	Software Engineering I	3
CS 4345	Operating Systems	3
CS 4500	Formal Languages and Automata Theory	3
CS 4625	Network and System Security	3
CS 4635	Digital Forensics	3
or CS 4884	Biometric Recognition	
CS 4721	Database Design I	3
CS 4900	Senior Seminar	3
Supporting Courses		11
D.2.a Laboratory Science ("spillover" from Area F)		2
MATH 2150	Introduction to Linear Algebra	3
MATH 3600	Probability and Statistics	3
MATH 4651	Numerical Analysis I	3
or MATH 4901	Operations Research I	
Electives		4
Total Hours Required for the Degree		**120**

Additional Notes

1. The 12-hour lab science requirement must include a two-course sequence from Area D.2.a. Students not completing these requirements in their Core Curriculum must complete them with elective courses.

2. Students must receive a “C” or better in all of the mathematics and computer science courses completed to satisfy the degree requirements.
3. Students may use CS 4800 only one time to fulfill the additional 3000-level or 4000-level courses in the Senior College Curriculum.