COMPUTER SCIENCE (B.S.)

The mission of the Computer Science B.S. program is to provide undergraduate students with a strong foundation in both Computer Science theory and programming practice that is necessary to solve real-world engineering problems. Through the use of state of the art software and hardware, students will learn to develop their theoretical and programming skills in order to allow them to apply these learned techniques to analyze a problem, evaluate possible solutions, and create a solution as part of a program development team. The program prepares students for engineering careers in software design, intelligent systems, big data systems and analytics, computer systems and network design, software system security, and bioinformatics. Graduates will be prepared to take positions in these areas in academia, industry and government, the local community, and will be prepared for graduate studies in Computer Science as well. In addition the program provides students with opportunities to interact with other professional institutions and exhibit the highest ethical standards in the practice of their profession.

Admission Requirements

For admission to the Bachelor of Science program, students must satisfy the admission criteria of the Division of Engineering, James and Patricia Anderson College of Engineering (http://bulletins.wayne.edu/undergraduate/college-engineering/bs/). Students planning to major in computer science should consult with a departmental advisor as soon as possible prior to enrolling in courses. In general, the requirements in effect when a student declares a major in computer science will be those that the student must satisfy. Students should check with the department for the latest information concerning the program and requirements.

Admission following an interruption in enrollment: A student attempting to complete a computer science major after a prolonged interruption of his/her education may find that some of his/her course work in computer science is out of date. In this case, the student's record will be reviewed and the Department may require the student to fulfill additional computer science course requirements existing at the time of his/her return, and/or to retake some courses previously taken.

Transfer students should consult with an undergraduate departmental academic advisor prior to their transfer. Determination of course equivalency will be made by the Transfer Credit Evaluation Unit in conjunction with the Undergraduate Committee. The Department reserves the right of final determination of course equivalency.

Introductory Course Work

The Department of Computer Science offers a number of courses introducing students to basic computer and computing concepts. Some of these courses also serve as prerequisites for more advanced study in computer science. Some introductory courses require mathematics preparation equivalent to MAT 2010. (See course descriptions regarding the required prerequisite math courses.) CSC 1000, offered as computer-based instruction, is for non-majors who desire to learn basic computing concepts. Students who intend to major or minor in computer science will not normally take this course

Academic Regulations

Academic Probation

A student is considered to be on academic probation whenever his or her cumulative grade point average, or his or her cumulative grade point average falls below 2.0. All students on academic probation are required to meet with their academic advisor to discuss what steps should be taken to remedy the academic deficiencies. While on probation, a student may not represent the James and Patricia Anderson College of Engineering in student activities.

A student on probation is expected to remove the grade point deficiency promptly. A student on probation is expected to remove the grade point deficiency promptly. If a student's GPA falls below 2.0, they will be placed on academic probation for two consecutive semesters—referred to as Probation #1 and Probation #2—to provide an opportunity to improve their performance. If, after these two semesters, the GPA remains below 2.0, the student may be eligible for an additional semester to meet the 2.0 requirement, provided they have earned a term GPA above 2.0 or demonstrated steady overall improvement. If not, the student will be excluded from the College.

If the student's cumulative GPA reaches at least 2.0 by the end of the first semester or second semester after being placed on probation, they will be returned to regular status. Multiple occurrences of probation in non-consecutive semesters may also result in the student's exclusion from the College. A student may also be refused the privilege of registering in the James and Patricia Anderson College of Engineering for irresponsible attendance and performance in class, regardless of any probationary status.

Students who have earned 90 or more credits toward their degree and meet the exclusion criteria will remain enrolled at the college if they follow an academic recovery plan.

For complete information regarding academic rules and regulations of the University, students should see the Academic Regulations (https://bulletins.wayne.edu/undergraduate/general-information/academic-regulations/) section of this bulletin.

Exclusion

Following exclusion from the James and Patricia Anderson College of Engineering, the privilege of registering in the College will be withheld for at least one calendar year.

A student who has been refused the privilege of registering in the James and Patricia Anderson College of Engineering may request a re-consideration of his or her status by the Academic Standards Committee (ASC) after the one-year exclusionary period. He or she should not make the request, however, unless evidence can be provided of changes in academic preparation or circumstances that will substantially increase the likelihood of academic success. A formal written request for reconsideration must be presented to the Associate Dean for Academic Affairs. Students who plan to petition for readmission are encouraged to meet with their academic advisor as early as possible during the exclusion period to discuss what changes may provide an opportunity for readmission. In no case is readmission to the James and Patricia Anderson College of Engineering guaranteed.

Repeated Courses and Substandard Grades

Students that fail to pass a course with at least a 'C-minus' grade (or a grade of "C" for CSC 1100, CSC 1500, CSC 2110 and CSC 2200) after three attempts constitutes grounds for exclusion from the James and Patricia Anderson College of Engineering. Prerequisite math and science courses that do not count for degree credit, but are required if students did not place into MAT 2010 (https://bulletins.wayne.edu/search/?P=MAT%202010) are also counted towards exclusion from the College.

Bachelor of Science Degree Requirements

Candidates for the Bachelor of Science degree must complete 120 credits of coursework, including the University General Education (http://bulletins.wayne.edu/undergraduate/general-information/general-education/) requirements. All course work must be completed in accordance with the academic procedures of the University (http://

bulletins.wayne.edu/undergraduate/general-information/) and the James and Patricia Anderson College of Engineering (http://bulletins.wayne.edu/undergraduate/college-engineering/academic-regulations/) governing undergraduate scholarship and degrees.

Code	Title	Credits
Mathematics		
MAT 2010	Calculus I	4
MAT 2020	Calculus II	4
MAT 2030	Calculus III	4
MAT 2250	Elementary Linear Algebra	3
Total Credits		**15**

Code	Title	Credits
Basic Engineering Courses		
BE 1200	Basic Engineering I: Design in Engineering	3
BE 1600	Introduction to Programming and Computation: Python	3
BE 2100	Basic Engineering III: Probability and Statistics in Engineering	3
Total Credits		**9**

Code	Title	Credits
Computer Science		
CSC 1100	Problem Solving and Programming	4
CSC 1500	Fundamental Structures in Computer Science	4
CSC 2110	Computer Science I	4
CSC 2200	Computer Science II	4
CSC 3010	Ethics in Computer Science	3
CSC 3020	Java Programming	3
CSC 3100	Computer Architecture and Organization	4
CSC 3110	Algorithm Design and Analysis	3
CSC 4110	Software Engineering	4
CSC 4420	Computer Operating Systems	4
CSC 4500	Introduction to Theoretical Computer Science	3
CSC 4710	Introduction to Database Management Systems	3
CSC 4996	Senior Capstone Project	4
Four additional Computer Science courses numbered 3000 or above, of at least three credits each [1]		12
Total Credits		**59**

[1] excluding CSC 4990 and CSC 4995

Code	Title	Credits
Program Requirements		
ENG 3050	Technical Communication I: Reports	3
or ENG 3010	Intermediate Writing	
ENG 3060	Technical Communication II: Presentations	3
PHY 2170	University Physics I for Scientists and Engineers	4
PHY 2180	University Physics II for Scientists and Engineers	4
PHY 2171	University Physics I Experimental Laboratory	1
or PHY 2181	University Physics II Experimental Laboratory	
Total Credits		**15**

(Please note that the four-credit core CSC courses include mandatory instructional labs linked to the lecture course. These laboratories must be taken concurrently with their corresponding lecture.)

A minimum of twenty-eight credits in computer science must be earned at Wayne State University. A minimum grade of 'C' is required in CSC 1100 , CSC 1500 , CSC 2110 , and CSC 2200 . All other courses including CSC, MAT, BE, and courses within the General Education program must adhere to the requirements of the Engineering Division as stated above.

Students declaring their major must consult with a departmental academic advisor about their individual plan of work and degree requirements

Cooperative Work-Study Program

Students who wish to enrich their education with on-the-job engineering experience may enroll in a zero credit course (BE 3500) with approval from their academic advisor (http://engineering.wayne.edu/cs/students/advising.php#undergraduate) and the Engineering Career Resource Center (http://engineering.wayne.edu/career/co-ops.php). Registration in BE 3500 allows the university to provide additional support services and safe guards to students. BE 3500 registration also ensures that the co-op experience is well documented to employers when students apply for their first job after graduation. At the end of the semester, students will submit a final report or PowerPoint showcasing co-op activities to the Assistant Dean of Student Services. Student's performance on the job is rated by his/her industrial supervisor. Salaries and other benefits are paid for the time spent on each work assignment. For details and enrollment procedures, contact the Engineering Career Resource Center (http://engineering.wayne.edu/career/contact.php). Students interested in registering for Professional Practice in Computer Science (CSC 4995) for academic credits should consult with their departmental academic advisor.

'AGRADE' Program (Accelerated Graduate Enrollment)

Accelerated Graduate Enrollment: This program enables qualified seniors to enroll simultaneously in the undergraduate and graduate programs and apply a maximum of 16 credits towards both the bachelor's and master's degrees. Students electing the 'AGRADE' Program may expect to complete the bachelor's and master's degrees in five years of full-time study.

Admission Requirements: An 'AGRADE' applicant may petition the Graduate Committee of the Computer Science Department for acceptance into the program no earlier than the first semester in which ninety credits will be completed. Following Departmental Graduate Committee approval, students must seek the approval of the Graduate Officer of the College. Applicants must have an overall grade point average (g.p.a.) of 3.3 or better and a 3.45 g.p.a. or better in the major courses already completed. If the student's petition is accepted, the student shall submit a graduate Plan of Work, specifying 'AGRADE' courses to be included in subsequent semesters.

Departmental Honors

Candidates for the Bachelor of Science degree must complete 120 credits of coursework, including the University General Education (http://bulletins.wayne.edu/undergraduate/general-information/general-education/) requirements. All course work must be completed in accordance with the academic procedures of the University (http://bulletins.wayne.edu/undergraduate/general-information/) and the James and Patricia Anderson College of Engineering (http://bulletins.wayne.edu/undergraduate/college-engineering/academic-regulations/) governing undergraduate scholarship and degrees.

Code	Title	Credits
Mathematics		
MAT 2010	Calculus I	4
MAT 2020	Calculus II	4
MAT 2030	Calculus III	4
MAT 2250	Elementary Linear Algebra	3
BE 2100	Basic Engineering III: Probability and Statistics in Engineering	3
Computer Science Honors		
BE 1200	Basic Engineering I: Design in Engineering	3
BE 1600	Introduction to Programming and Computation: Python	3
CSC 1100	Problem Solving and Programming	4
CSC 1500	Fundamental Structures in Computer Science	4
CSC 2110	Computer Science I	4
CSC 2200	Computer Science II	4
CSC 3010	Ethics in Computer Science	3
CSC 3020	Java Programming	3
CSC 3100	Computer Architecture and Organization	4
CSC 3110	Algorithm Design and Analysis	3
CSC 4110	Software Engineering	4
CSC 4420	Computer Operating Systems	4
CSC 4500	Introduction to Theoretical Computer Science	3
CSC 4710	Introduction to Database Management Systems	3
CSC 4996	Senior Capstone Project	4
Four additional Computer Science courses numbered 3000 or above, of at least three credits each (excluding CSC 4990 and CSC 4995)		12
(Please note that the four-credit core CSC courses include mandatory instructional labs linked to the lecture course. labs. These laboratories must be taken concurrently with their corresponding co-requisite lecture.)		
Program Requirements		
ENG 3050	Technical Communication I: Reports	3
or ENG 3010	Intermediate Writing	
ENG 3060	Technical Communication II: Presentations	3
PHY 2175	University Physics for Engineers I	4
PHY 2185	University Physics for Engineers II	4
PHY 2171	University Physics I Experimental Laboratory	1
or PHY 2181	University Physics II Experimental Laboratory	
Departmental Honors Requirements		
Department Honors Thesis		
CSC 4999	Honors Thesis	3-6
One semester of an Honors Program 4000 level seminar		
HON 4200	Seminar in Philosophy and Letters	3
or HON 4230	Seminar in Physical Science	
or HON 4250	Seminar: Global Perspectives on Historical Studies	
or HON 4260	Seminar in Foreign Culture	
or HON 4280	General Honors Seminar	
3-6 additional honors credits in Computer Science courses depending on thesis credits		
Total Honors Credits		**12**

A minimum of twenty-eight credits in computer science must be earned at Wayne State University. A minimum grade of 'C' is required in CSC 1100, CSC 1500, CSC 2110, and CSC 2200 .

All other courses including CSC, MAT, BE, and courses within the General Education program must adhere to the requirements of the Engineering Division as stated above.

The Honors Thesis is a paper presenting the results of the student's independent research. The length of the thesis may vary according to the nature of the topic and method of approach, but is typically a minimum of 20 pages in length. A minimum of two semesters should be allowed for completion of all of the thesis requirements. It is expected that the Honors Thesis will conform to the University master's thesis format requirements (copies available from the Graduate School).

Students are responsible for identifying their own research project and full-time faculty member. Students must submit a completed and signed Honors Thesis Registration form to their departmental academic advisor before registration overrides will be provided. At the end of the first semester a deferred grade of Y will be assigned, with a grade change processed at the completion of the thesis in a subsequent semester. A grade is awarded for CSC 4999 after approval of the thesis by the faculty advisor and one other full-time faculty member.

An overall Wayne State University cumulative grade point average of at least 3.3.

Students should consult with the Honors College (https://honors.wayne.edu/) regarding additional honors-designated course work available each semester.