Master of Science in Computer Science

The Master of Science in Computer Science degree program provides a technically oriented postbaccalaureate scientific education for those who wish to acquire or extend their knowledge in the field of computer science. The program combines both the study of modern computer devices and their applications along with the study of the philosophical foundations which underlie the discipline.

In addition to the above goals and objectives, the program is also committed to improving the writing and communication skills of the student.

Admission to the Program

In addition to the general requirements of the university, specific requirements for admission to classified graduate status are:

1. An acceptable score on the GRE (general examination only);
2. A statement of purpose from the student; and
3. Either A or B below:
   a. A baccalaureate degree in computer science or computer engineering;
   b. A baccalaureate degree in a related field with a cumulative grade point average of "B" (3.0) or better with no grade lower than "C +" (2.3) in a selection of program preparatory courses including:
   The equivalent of a one-year sequence of "Introduction to Computer Science" courses, as defined by the ACM Curriculum Committee as courses CS1 and CS2. This can be satisfied by successful completion of courses equivalent to:

CSE 2010	Computer Science I	4
CSE 2020	Computer Science II	4
Courses in calculus, discrete mathematics and linear algebra equivalent to:		
MATH 2720	Discrete Mathematics	3
MATH 2210	Calculus I	4
MATH 2220	Calculus II	4
MATH 2310	Applied Linear Algebra	4
Courses in computer science equivalent to:		
CSE 3100	Digital Logic	4
CSE 4010	Contemporary Computer Architecture	4
CSE 4600	Operating Systems	3
CSE 5000	Introduction to Formal Languages and Automata Theory	3
or CSE 5700	Compilers	

Applicants who have not completed the above courses may still be considered for conditional admission.

Advancement to Candidacy

In order to be advanced to candidacy, a student must have:

1. Achieved classified standing;
2. Secured a major advisor from the School of Computer Science and Engineering for the preparation of the thesis or the implementation of a project;
3. Completed at least 9 semester units and no more than 15 semester units of work applicable to the degree program as a graduate student at this university with a minimum grade point average of 3.0 ("B");
4. Submitted a formal program of graduate study prepared in consultation with and approved by the School of Computer Science and Engineering graduate committee and/or the major advisor. This program of graduate study should include an abstract to serve as a thesis research proposal for Thesis or a tentative title and description of the project for Master Project, or enrollment in CSE 6890 and CSE 6980 for the comprehensive written exam;
5. For students choosing Master Project, satisfactory passage of the comprehensive oral examination to be administered by the graduate committee;
6. Obtained final approval of the program and of the candidacy itself by the School of Computer Science and Engineering graduate committee and the Dean of Graduate Studies.

Requirements for Graduation

1. A minimum of 31 semester units of acceptable graduate-level work included in the formal program with 5000- and 6000-level courses in computer science, with 22 units completed in residence at this university. No more than nine units may be earned from 5000-level courses;
2. Advancement to candidacy and approval of the specific program of study;
3. A public presentation for the thesis or project option;
4. Completion of a final oral examination concluded by acceptance of the thesis, for the thesis option; satisfactory completion of the comprehensive oral examination and completion of the project, for the project option; or satisfactory completion of the comprehensive written examination, for the examination option;
5. The program must be completed within a seven-year period. No more than seven years may elapse between the time of registration for the earliest course listed on the program and completion of all requirements for the degree;
6. A grade point average of at least 3.0 ("B") in all graduate course work fulfilling the requirements of the Master of Science in Computer Science and a grade of "C" (2.0) or better in each course in the program;
7. For the thesis option, the student will submit the written thesis in electronic form to the school. For the project option, the student will submit the written software engineering documentation in electronic form to the school;
8. The graduation writing requirement is met upon successful completion of term papers in the graduate courses taken by the student and the writing of the thesis or software engineering documentation of the project;
9. Any additional general requirements not cited above and listed in Graduate Degree and Program Requirements (https://catalog.csusb.edu/graduate-degree-programs/graduate-degree-program-requirements/).

Department Graduate Committee and Major Advisor

The School of Computer Science and Engineering graduate committee consists of the graduate coordinators and two or more faculty members from the School of Computer Science and Engineering. The committee has general supervision over the work of students progressing towards the master's degree and will determine whether students are adequately prepared for graduate study. Each new graduate student should consult with the graduate coordinator for advice in the selection of the appropriate program of graduate study.

Students enrolled in the thesis or project option must choose and be accepted by a major advisor prior to their advancement to candidacy and the initiation of a thesis or project. The major advisor in consultation with the student will develop a program of graduate study consisting of specific courses and an acceptable thesis abstract or project proposal based on the student's interest, abilities and preparation. The major advisor will direct this research.

The program of graduate study as well as any subsequent modification of the thesis or project are subject to the approval of the School of Computer Science and Engineering graduate committee and the Dean of Graduate Studies.

Students enrolled in Comprehensive Examination are advised by the graduate coordinator. The program of study for Comprehensive Examination consists of declaring and choosing the Comprehensive Exam and may not be modified to Thesis or Master Project.

Thesis Preparation, Presentation and Examination

The student must conduct a research study, and from these efforts, write a thesis acceptable to the student's thesis committee and the Dean of Graduate Studies. The student's thesis committee shall be chaired by the major advisor and two other faculty members who are chosen by the student upon consultation with the major advisor and the graduate coordinator. The thesis topic and major advisor must be included on the program of graduate study submitted with the application to candidacy, although this may be amended.

The student shall enroll in Thesis at a rate of two to five units per semester for all contiguous academic year semesters starting from the time of advancement to candidacy until the thesis is completed and accepted. Over that period, seven units of Thesis will count toward the degree.

The student, upon completion of the thesis, must give a public presentation of the research and stand for the defense of the thesis before the faculty made up of the thesis committee and any other faculty members who wish to attend. The student is given a maximum of five years from the time the student was advanced to candidacy to finish the degree.

Project Preparation, Presentation and Examination

The student must implement and complete a project acceptable to the student's project committee and the Dean of Graduate Studies. The student's project committee shall be chaired by the major advisor and two other faculty members who are chosen by the student after consultation with the major advisor and the graduate coordinator.

The project topic and major advisor must be included on the program of graduate study submitted with the application to candidacy, although this may be amended.

The student shall enroll in Master Project at the rate of two or four units per semester for all contiguous academic semesters starting from the time of advancement to candidacy until the project is completed and accepted. Over that period, four units of Master Project will count toward the degree.

The student, upon completion of the project, must give a public presentation. The student is given a maximum of five years from the time the student was advanced to candidacy to finish the degree.

Comprehensive Written Examination

The student shall enroll in CSE 6890 and CSE 6980 after consultation with the graduate coordinator and completion of the last core course(s). CSE 6890 is a graduate seminar in preparation of the comprehensive examination CSE 6980 and CSE 6980 may be repeated only once. Students enrolled in CSE 6980 must pass a written examination on the material in the core courses.

Degree Requirements (31 units)

(Program Code: CSCM)

Required Courses (15)		
CSE 6020	Computation and Complexity Theory	3
CSE 6100	Modern Computer Architecture	3
CSE 6300	Theory of Algorithms and Their Analysis	3
CSE 6550	Software Engineering Concepts	3
CSE 6600	Operating Systems Concepts and Theory	3
In rare instances past 5000-level course work may preclude a student from enrolling in a required course. In that case, the student must seek advising by the graduate coordinator who will determine a viable alternative.		
Culminating Experience (16)		
Sixteen units from one of the following options:		16
Total Units		**31**

Culminating Experience (16 units)

Examination Option (16 units)

CSE 6890	Graduate Seminar	1
CSE 6980	Comprehensive Examination	0
15 units of elective coursework chosen from 5000- to 6000-level computer science courses deemed appropriate by the department graduate committee. Up to 9 units of 5000-level computer science courses may be taken.		15
Total Units		**16**

Project Option (16 units)

CSE 6962	Masters Project (for a total of 4 units)	4
or CSE 6964	Masters Project	
12 units of elective coursework chosen from 5000- to 6000-level computer science courses deemed appropriate by the department graduate committee. Up to nine units of 5000-level computer science courses may be taken.		12
Total Units		**16**

Thesis Option (16 units)

Six units chosen from:		6
CSE 6972	Thesis	

CSE 6973	Thesis	
CSE 6974	Thesis	
CSE 6976	Thesis	
10 units of elective coursework chosen from 5000- to 6000-level computer science courses deemed appropriate by the department graduate committee.		10
Total Units		**16**