MS IN COMPUTER ENGINEERING

Total units required for MS: 30 minimum, (including 0-5 units of 500-level courses for Plan A, B, or C) and the remaining units from the list of required and elective courses

Program Description
The Master of Science degree in Computer Engineering is jointly supported by the Departments of Computer Science and Electrical and Electronic Engineering. The program is designed to provide opportunities for students with undergraduate degrees in Computer Engineering, Computer Science, Electrical Engineering, or a closely related field to pursue graduate studies in this interdisciplinary field. The program provides students with broad and advanced knowledge in areas such as advanced microprocessor architecture, parallel computer architecture, advanced microprocessor systems, distributed computing, data communication, computer networks, operating systems, and concurrent programming. The program is sufficiently flexible to allow students to conduct independent research and broaden their professional scope. Each student plans a program of study in consultation with a graduate advisor and/or his/her thesis or project advisor and works closely with these advisors.

Computer Engineering is a part of the larger Information Technology (IT) discipline. Highly skilled computer engineers who have advanced knowledge of both hardware and software and who can design, test, and implement complex digital systems are a part of the IT workforce. Networks such as the Internet, Intranets, communication systems, banking computer systems, public utility systems, and transportation systems are just a few examples of areas where high-tech solutions and skilled workers are needed. The continuing dramatic progress in hardware and the sophistication of computing devices and systems require continually increasing technical skills in hardware and software.

Note: All graduate students are required to take CPE 201 in their first semester of study. Students may take no more than 6 units of CPE 299 to fulfill the unit requirements. Only those courses completed within seven years prior to date of graduation will satisfy course requirements.

Admission Requirements
Admission to the graduate program in Computer Engineering requires all of the following:

- a BS degree in Computer Engineering (CPE), Computer Science (CSC), Electrical and Electronic Engineering (EEE), or a closely related field;
- at least a 3.0 GPA in the last 60 units of the BS degree;
- Graduate Record Examination (GRE) general test scores and;
- background as specified in Required Basic Knowledge to enter the program.

Students with deficiencies in the admission requirements are advised to remove any such deficiencies before applying. However, under special circumstances, a student who does not satisfy the admission requirements may be admitted as a conditionally classified graduate student. Conditional admission may be granted to those students who are likely to complete all the admission requirements. Deficiencies will be specified in the acceptance letter to the student and must be removed by the student before the student can become a fully classified graduate student.

A student registered as an unclassified or conditionally classified graduate student cannot use graduate courses to improve his/her grade point average for admittance to the program. Only undergraduate courses required in the degree program in CPE, CSC, or EEE may be taken or retaken to improve the GPA for admittance to the graduate program.

Required Basic Knowledge
A student must have completed the following list of Required Basic Knowledge before becoming a fully classified graduate student in Computer Engineering. Courses listed in parentheses are the equivalent Sacramento State courses.

Minimum required GPA in the following subject areas: 3.0

Electrical Fundamentals
Analog/Digital Electronics
CMOS and VLSI
Digital Logic Design and Introduction to Computer Organization
Assembly Language
Computer Interfacing
Object Oriented Programming
Algorithms and Data Structure
Systems Programming
Introduction to Operating Systems
Computer Networks and Internets
Differential Equations for Science and Engineering
Statistics and Probability
Applied Linear Algebra
Numerical Analysis

Graduate Admission Procedures
Applications will be accepted as long as there is space available. All prospective graduate students, including Sacramento State graduates, must file all of the following with the Office of Graduate Studies, River Front Center 215, (916) 278-6470:

- an online application for graduate admission and fee at the time of application;
- one set of official transcripts from colleges and universities attended, other than Sacramento State; and
- Graduate Record Examination (GRE) scores;

For more admissions information and application deadlines, please visit the Office of Graduate Studies website (http://www.csus.edu/gradstudies/).

Approximately six weeks after receipt of all items listed above, a decision regarding admission will be mailed to the applicant.

Minimum Units and Grade Requirement for the Degree
Units required for the MS: 30

Minimum cumulative GPA: 3.0. Up to three courses in the program of study may have a grade of "C+" or "B-". All other courses in the program of study must have a grade of "B" or higher.

Advancement to Candidacy
Each student must file an application for Advancement to Candidacy indicating a proposed program of graduate study. This procedure should begin as soon as the classified graduate student has:
Students must have been advanced to candidacy before they can register for Plan A, B or C. The student should fill out the form after planning a degree program in consultation with a Computer Engineering graduate advisor. The completed form must be signed by the CPE Graduate Coordinator and is then returned to the Office of Graduate Studies for approval.

Note: It should be recognized that the industry puts a high value on project and thesis problem-solving experience, and the demonstration of technical writing skills that these options require. Graduating under the Plan C option will not provide that experience. Students taking this option should consider, with their elective area advisors, other ways of gaining that valuable experience, such as through a CPE 299 Special Problems course.
Students whose undergraduate degree preparation has not covered a significant amount of the material in CSC 159/CPE 159 must take this course as one of the CSC Breadth Requirement courses.

No more than 6 units of under 200-level courses.

Additional units from Area B (Required Breadth Courses), Area C (CSC Elective), or Area D (EEE Elective), or 299, to fulfill the minimum course work units.

The Masters Degree requires 18 units of Graduate (200-level) seminar courses. No more than six units of 295, 296, or 299 may be counted towards a degree.