

COLLEGE OF ENGINEERING

GRADUATE HANDBOOK



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The Graduate Handbook is intended to facilitate your successful completion of the Master of Science (MS) degree in engineering. Specific questions concerning graduate study in engineering which are not answered here or in the university catalog should be directed to the Division of Graduate Studies.

GRADUATE PROGRAMS

The College of Engineering offers the following graduate programs:

- Master of Science in Civil Engineering (MSCE), offered by the Department of Civil and Geomatics Engineering and Construction.
- Master of Science in Engineering (MSE), Electrical Engineering Option offered by the Department of Electrical and Computer Engineering.
- Master of Science in Engineering (MSE), Mechanical Engineering Option offered by the Department of Mechanical and Industrial Engineering.

The goals of these graduate programs are to: 1) enhance the students' understanding of advanced theoretical and practical concepts in engineering, 2) allow students to achieve an appropriate level of competence in solving practical problems, 3) develop students' critical thinking skills necessary for mastering new topics related to the advances in engineering and 4) allow students to acquire substantive knowledge that will permit them to pursue advanced academic or industrial work.

The graduate programs require the completion of a minimum of 30 units of intensive study in broad areas of engineering, culminated by a thesis, a project or a comprehensive examination. Those who obtain the MS degree will be ready to do significant development work in industry or pursue further advanced graduate studies.

ADMISSION

Admission to the program occurs at two levels. First, you must be admitted to the University; second you must be admitted by the Division of Graduate Studies to the specific program of interest. If you are not admitted as a "classified student", it is important that you obtain full Classified Standing within the first 10 units.

To qualify for admission to the university, you must have a minimum 2.7 GPA (on a 4.0 scale) and a preferred minimum quantitative GRE score of 450. For minimum GPA and GRE scores in a specific program, please consult with the graduate coordinator for that program.

Graduate Admission Requirements

Admission to the University requires official transcripts, GRE scores, and the completed application form. International students must also submit official TOEFL scores. Specific admission requirements to the Division of Graduate Studies may be found on their web site: www.csufresno.edu/gradstudies. Applications to the graduate program may be done online at www.csumentor.edu. Students should also visit the University web site (www.csufresno.edu) for the latest information on admissions and admission deadlines.

International students may receive more detailed information and an international application by contacting the International Student Services Office at 559-278-2782 or at the web site: http://studentaffairs.csufresno.edu/international_students/prospective/

To simplify your task, a summary of what should be included with your application is given below. As a minimum, the application should include the following materials:

- An official transcript.
- An official copy of GRE scores (photocopy is acceptable).
- International students must also submit an official copy of TOEFL (Test of English as a Foreign Language) scores; minimum acceptable composite TOEFL score is 550.
- A statement of purpose (outlining your reasons for attending graduate school)

- Three letters of recommendation from individuals who can attest to your preparation for advanced study (these letters may be included in the application sent by you, or may be mailed separately)

A package containing all of the above material should be mailed to:

Graduate Admissions

(for domestic students)

California State University, Fresno

211 Joyal Administration Bldg.

5150 N. Maple Avenue M/S JA57

Fresno, CA 93740-8026

International Admissions

(for international students)

California State University, Fresno

211 Joyal Administration Bldg.

5150 N. Maple Avenue M/S JA57

Fresno, CA 93740-8026

The information is reviewed by both Graduate Admissions and the appropriate department program coordinator. You will be notified by Graduate Admissions of both the University and Department application decisions.

Classifications of Graduate Students

Admission to a master's degree program places you in one of two categories:

- Conditionally Classified Graduate Standing
- Classified Graduate Standing

For further details, see the "Post-Baccalaureate Standing" section of the current university catalog.

Conditionally Classified Graduate Standing

If you are admitted as a Conditionally Classified Graduate Student, your admission statement will list the condition(s) required for program admission. It is required that you fulfill all these conditions. For example, if you are accepted conditionally with the obligation of earning a 3.00 GPA in the first 9 units, you must earn a cumulative GPA of 3.00. To be advanced to classified standing, you must submit the "Classified Standing Form" to the Division of Graduate Studies. Failure to satisfy any condition may delay your admission into the program and graduation.

Classified Graduate Standing

Classified standing is granted to those students who meet all program admission requirements, and have satisfied all professional, scholastic or other expectations of entering graduate students. Classified standing should be attained prior to or during the semester in which a maximum of 10 units to be used for the master's degree are completed.

Advancement to Candidacy

The next step after classified standing is Advancement to Candidacy. This classification gives a student permission to proceed toward attaining the degree. A student who has been advanced to candidacy has permission to proceed toward qualifying for the graduate degree. Approval of Advancement Petition from a student signifies a formal agreement between the student, program, and university. Students should be advanced to candidacy as soon as possible, after satisfying these conditions:

1. Attain classified standing
2. Complete nine units of graduate study with 3.0 GPA or better
3. Satisfy all prerequisite courses required by the Graduate Coordinator
4. Earn a minimum GPA of 3.0 (for both overall GPA, and campus GPA)
5. Select project advisor or thesis committee chair
6. Complete the Graduate Writing Requirement.

A student must petition for Advancement to Candidacy no later than the semester prior to the semester s/he intends to graduate. Check with the Division of Graduate Studies website for the petition deadline. However, it is strongly encouraged that a student submits the petition for advancement as soon as the above requirements are met.

GRADUATE LIFE

As an entering graduate student, you should be aware of the expectations of graduate school. Graduate students are expected to maintain a minimum cumulative grade average of "B." A graduate student is expected to contribute to the sum total of knowledge in the chosen field of interest. This means that your graduate experience should not be merely the acquisition of knowledge but analyzing, synthesizing and modifying information to discover new frontiers of knowledge. To facilitate these goals you are expected to work closely with the faculty. A close relationship between you and the faculty, especially your Graduate Advisor, will enhance your graduate experience. The faculty strongly support graduate students and encourage their active participation in the departmental activities.

When you arrive on campus you should confer with the Graduate Coordinator of your program. The Coordinator will serve as your temporary advisor and answer questions you may have regarding the regulations, requirements, and procedures of graduate study within the program. The Graduate Coordinator serves as your provisional graduate advisor until you find a Graduate Advisor who meets your academic needs. The Graduate Advisor helps you to explore thesis/project research topics, identify appropriate courses, suggest possible thesis committee members, and oversees your progress towards your degree. The nature of a graduate degree presumes that you will master a specific area in one of our disciplines and it is important that you work closely with a faculty member who specializes in an area related to your academic and professional interests. The Graduate Coordinator on the other hand oversees general issues relevant to all graduate students in the program.

As a graduate student, you will be expected to maintain professional and ethical behavior. Graduate students in a specific program should follow the code of ethics of nationally recognized professional societies:

Civil Engineering -- ASCE
Electrical and Computer Engineering -- IEEE,
Mechanical Engineering – ASME

PROGRAM REQUIREMENTS

The minimum number of units required to complete a Master's Degree Program is 30. Of these 30 units, at least 21 units must be graduate level courses, i.e., courses numbered in the 200 series. With the permission of your graduate advisor and program coordinator, up to 6 units of course work from another program may be used to complete your degree requirements. To satisfy residency requirements, at least 21 units of any Master of Science degree program must be from California State University, Fresno.

Degree Requirements

The minimum number of units required to complete the MS degree is 30 units including the culminating experience. General program requirements are:

- Core courses
- Required courses
- Elective courses
- Culminating experience.
- Possible options include:
 - Comprehensive examination (0 units)
 - Project (CE, EE, ME 298): Project (3 units)
 - Thesis (CE, EE, ME 299): Thesis (3-6 units)

Actual requirements vary from program to program. You should consult with your program's graduate coordinator for details. The master's degree diploma does not distinguish between a project, thesis or comprehensive exam.

Degree Requirements and Rules

While minimum number of units to graduate is 30, a student may take higher number of units based on his/her preparation for graduate study.

1. The student and his/her graduate advisor will determine the individual student's program of study. The graduate coordinator and student advisor must approve all degree requirements and in particular, elective requirements.
2. In addition to the electives in the program, an approved Engineering seminar or an approved upper-division Engineering, or approved course from outside the department, can be used to meet an elective requirement.
3. There are strict restrictions on undergraduate capstone courses counting towards the graduate program.
4. Receiving SP (satisfactory progress) for any units in CE, EE, ME 298 or 299 course commits the student to a project or thesis. A subsequent change to a comprehensive exam may not be approved. If a student does not complete a project or thesis after being given a grade of "SP," the "SP" grade will be changed to an "F" by the Division of Graduate Studies. This may seriously jeopardize a student's required 3.0 GPA for graduation.
5. Students must maintain a cumulative GPA of 3.0 or greater to graduate. No grade substitutions are allowed in graduate programs. Special restrictions on GPA and course load apply to Graduate Teaching Assistants (see the section on Assistantships).
6. Students must fulfill Graduate Writing Requirement prior to Advancement to Candidacy.
7. Students must maintain continuous enrollment a) while completing a grade of "SP" or "I" in either thesis or project or other course, b) while preparing to take comprehensive examinations, and c) during the semester in which an application for graduation is filed. International students must consult the office of International Students Services and Programs for enrollment requirements.
8. Students have a maximum of five years to complete all master's degree requirements from the date their first course, used toward the MS degree, is taken.
9. No more than six units of independent study (CE, EE, ME 290) may be applied toward the 30 unit program.

Special note: This section of degree requirements and rules is designed for explanation and illustration of commonly asked questions. All students are governed by the official rules published in the University Catalog. The catalog contains the formal (official) degree requirements.

Graduate Writing Requirement

The Graduate Writing Requirement must be fulfilled prior to candidacy and after classified standing. This requirement can be met by:

Taking a graduate level course recommended by the graduate consultative body of the department/program. This course must have significant writing component. The student must pass the course with a grade of B or better. This course may be used for graduate credit also.

OR

By passing the GWCE (graduate writing competency exam) offered by the department and passing the exam with a grade of B or better.

The Graduate Consultative Body of the Program will resolve all student appeals regarding the compliance of the Writing Requirement.

Completion of Master's Degree

Upon completion of your culminating experience, your advisor and Graduate Coordinator must submit a "Master Degree Clearance" form to the Division of Graduate Studies. This form may be obtained from the graduate coordinator.

Graduate Students may not proceed to a project presentation, thesis defense, or begin comprehensive examinations with incomplete work outstanding (grades of SP or I).

Thesis Option

Prior to completion of a thesis proposal, the student is required to complete the "Thesis Committee Form" available from the Division of Graduate Studies. This form lists all of the committee members, and the thesis topic. This form must be signed by the student's thesis advisor, graduate program coordinator, and by the Dean of the College of Engineering. Normally, your graduate advisor is the chair of that committee. Students using human subjects as part of their thesis must also be granted approval by the Human Subjects Committee.

Thesis Proposal

As a first step in preparing a thesis, you should prepare a written proposal, which specifies the thesis topic, the significance of the topic, the research parameters and the methods to be employed in the thesis. There shall be an oral presentation of the proposal to the thesis committee. The acceptance, modification, or rejection of the proposal is the responsibility of your graduate thesis committee. One copy of the approved proposal, with signatures of the committee members, shall be submitted to the Graduate Coordinator.

A thesis topic should not be selected solely because of the interests of the members of the thesis committee. However, you should select members of the committee who are interested in both the substantive issue and methodological techniques employed in the thesis. You must demonstrate a fundamental understanding of the relevant research methodologies to be used and a familiarity with the literature in the area of your thesis topic.

Timetable for Submitting a Thesis

Your thesis must be submitted to the thesis committee members at least seven days prior to the oral defense. The oral defense must be completed at least one week prior to initial submission to the Division of Graduate Studies. This is to ensure that you have enough time to make necessary corrections to the thesis manuscript. After the oral defense, the corrected copy of your thesis must be submitted to the Division of Graduate Studies, twice, first for format review by the thesis consultant (final draft), and second, for clearance review of the final publication copy for binding. A Masters Clearance Form shall be completed and submitted along with the final publication copy. Failure to meet the deadlines for thesis submission set by the Division of Graduate Studies may delay your graduation.

Oral Defense of Thesis

The oral defense of the thesis is open to faculty, students and other relevant individuals. The place and time of the oral defense must be announced by your thesis committee chair, prior to the defense. The manuscript of the thesis must be distributed to the thesis committee and Graduate Coordinator at least one week prior to the date of the oral defense.

Final Copy of the Thesis

The final copy of the thesis must conform to the regulations set forth by the Division of Graduate Studies and specified in the "Guidelines for Thesis Preparation." The final copy along the Masters Clearance Form shall be submitted to the Division of Graduate Studies with the appropriate signatures. The ultimate decision regarding the

acceptance of the completed thesis is the responsibility of the student's Thesis Committee, the Dean of the College of Engineering, and the Division of Graduate Studies.

The student shall provide a bound copy of the thesis to the committee chair along with copies to the thesis committee members. A bound copy must also be provided to the department for an archival purpose.

Project Option

Instead of a thesis, you may select to fulfill your degree requirements by completing a project. A project must show evidence of originality and independent thinking, appropriate form and organization, and a rationale. To simply describe, catalog, or compile information is not appropriate for a project. Generally, a project focuses on a significant problem, articulates objectives, methodologies, and conclusions or recommendations. The merit of the project is judged on the quality of the work and compliance with program requirements. Students using human subjects as part of their project must seek approval from the Human Subjects Committee.

A written project proposal, a final written project report and an oral presentation are all required for this option. The proposal must be approved by the project advisor prior to the undertaking of the project work. The student should provide a bound copy of the project report to her/his department for archival purposes.

Comprehensive Exam Option

As a third alternative you may elect to complete your degree requirements by passing a comprehensive examination. This examination is divided into two components: a comprehensive written examination and an oral examination. The comprehensive examination is used to assess:

1. Critical and independent thinking,
2. Mastery of subject matter, and
3. Integration of knowledge from selected areas of study.

The written examination will cover the student's program of study as determined by the program's comprehensive examination committee. The questions covering these areas will be comprehensive in nature and not necessarily limited to material covered in a student's course work.

After passing the written examination, the student must pass an oral examination conducted by the program's comprehensive exam committee. The oral examination shall be scheduled no later than one month after the completion of the written examination. The student should be prepared to answer questions related to the written examination and/or questions from other areas of her/his study.

A student is allowed to take the comprehensive examination a maximum of three (3) times. Should a student fail the exam three times, she/he can petition to the program's Graduate Consultative Group to request a change to either a thesis or project option.

GRADUATE ADVISOR

The graduate advisor will assist you in the selection of courses to fulfill the master's degree program requirements, to help you select faculty members to serve as members of your thesis committee, and to guide you through the culminating experience.

You are expected to apply your own initiative in requesting the professor of your choice to serve as your graduate advisor. Some students know at the beginning of the first semester on campus which professor they wish to have as their advisor; others may not be prepared to make such a choice, and the Graduate Coordinator will serve as a temporary advisor. You are encouraged to select your permanent advisor by the end of your first semester. Care should be exercised in the selection of an advisor so as to provide maximum faculty expertise in the area of your interest. If your graduate plans are altered, do not hesitate to seek a change of advisors. Such changes are made

without embarrassment on anyone's part. If changes are made in a thesis committee, a form reporting the change must be submitted to the Division of Graduate Studies (this form can be obtained in the department office).

If you plan to complete your degree during the summer months, all arrangements regarding the availability of faculty members for advising and approving a thesis, project, or administering comprehensive examinations should be made well in advance.

ASSISTANTSHIPS

Teaching and research assistantships are awarded to qualified classified graduate students. Minimum qualifications include a GPA of 3.0 for last 60 units in your major. Previous teaching or research experience will enhance your eligibility for an assistantship. Appointments are made by the department chair upon nomination(s) from the program's graduate faculty group. Assistantships are usually awarded for a maximum of four semesters.

Teaching and research assistants should maintain full time student status. Exceptions to this requirement may be made in the student's last year of graduate work. Graduate Teaching Assistants are required to maintain a cumulative GPA of 3.25 in each semester of graduate work.

Although the department does not forbid a graduate student seeking employment beyond an assistantship, new graduate students are strongly advised against dividing their time too severely. Your first priority is to complete your master's degree in a reasonable time frame.

SCHOLARLY ACTIVITIES AND PROFESSIONAL ORGANIZATIONS

Graduate students are encouraged to join professional and academic societies. Student memberships are often relatively inexpensive and a good investment for the amount of information you receive. Currently, graduate students and faculty members belong to a variety of organizations including the professional societies for each program.

The College considers your participation in professional and scholarly activities to be an important part of your professional development. Write seminar papers with a consideration for submission to an academic conference. Ask your committee chair or the Graduate Coordinator about deadlines for submitting papers or panels to conferences. Find out when conferences are held so you can plan to attend. Several graduate students in the past have attended conferences and received financial aid to do so. In addition, the College may hold various forums, graduate colloquiums and other activities beyond classes, which can be valuable experience to the graduate student.

FORMS AND DEADLINES

You will find that a component of your graduate experience will include following deadlines and protocols. It is your responsibility to complete appropriate forms, meet deadlines, and seek advice! Do not expect your advisor or the Graduate Coordinator to seek you out to complete forms; you must take responsibility for your own degree.

You are responsible for obtaining and completing forms such as the following:

Classified Standing Form - if you did not enter the program as a classified student.

Advancement to Candidacy Petition - after completion of nine units, the Graduate Writing Requirement, and selection of an advisor. This form should be executed as soon as possible (see Admissions). However it is due no later than the semester preceding the semester in which the student applies to graduate.

Master Degree Clearance Form - after passing your culminating experience.

Application to Graduate Form - during the first two weeks of the semester you plan to graduate. If you plan to complete your degree during a summer session, application must be made during the first two weeks of the first summer session.

Thesis Assignment Form – if you select the thesis option, a form must be completed specifying the members of your committee.

Change in Advancement to Candidacy Petition - if you make any changes in your plan of study or committee, you must complete appropriate forms documenting and requesting those changes.

As frustrating as some of these details can be, they are often essential for expediting your graduation. Therefore, please make sure that you type clearly all forms and provide clean copies of requested materials. Be attentive to posted deadlines and requirements of the Division of Graduate Studies and the department. Annual deadlines are published in the University catalog, the schedule of courses, and available through the Division of Graduate Studies.

FINANCIAL AID

The primary financial aid offered by the College of Engineering is in the form of Graduate and Teaching Assistantships. Additional financial aid is available from a variety of sources. The Division of Graduate Studies puts out a pamphlet detailing the number and kind of financial aid available to graduate students. Out-of-state tuition waivers for non-resident students may be available. You must apply for these waivers through the department's Graduate Coordinator.

SPECIAL PROGRAMS

If you desire an exception to any of the above regulations and procedures, you must petition through your advisor to the faculty. All such petitions are subject to the approval of the faculty of the College of Engineering. Some modifications require approval of the Dean of Graduate Studies. If the master's degree in your College does not meet your career objectives, the Division of Graduate Studies provides an opportunity for you to create a "special major" which combines study in two or more fields. If you are interested in such a program, you should contact the Graduate Coordinator of the appropriate department who may provide the necessary information. If you choose a Special Program, you must be granted approval prior to beginning coursework.

APPEALS AND PETITIONS

Graduate students wishing to make changes in a department's degree requirements should initiate their request through the Graduate Coordinator. Requests for exceptions to established university policies governing graduate study are to be addressed to the Dean, Division of Graduate Studies and also the University Graduate Committee. Grade protests are to be submitted to the Student Academic Petitions Committee through the Director of Advising Services. Information concerning grade protest procedures and dispute resolution is available in the Office of the Dean of Student Affairs.

RECEIVING THE MASTER'S DEGREE

To receive the Master's degree, the student must file an application with the Graduate Division within the first two weeks of the semester in which the academic requirements are to be completed. In addition, the applicant must be a registered student in the program during that semester. It is the student's responsibility to make sure that all necessary paperwork, including the Master's Degree Clearance form, is submitted to the Division of Graduate Studies by the published deadlines. Students completing the degree requirements will receive their diplomas approximately two to four months after the end of the semester.

HOODING CEREMONY

All students who have satisfied the requirements for the graduate degree may participate in the Convocation of the College of Engineering. They should also participate in the Hooding Ceremony that officially recognizes the completion of Master of Science degree program. The Hooding Ceremony normally takes place the evening before the University Convocation.
