MECHANICAL ENGINEERING GRADUATE STUDENT HANDBOOK 2018-2019

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## I. GENERAL INFORMATION

#### A. INTRODUCTION

Welcome to the Department of Mechanical Engineering (ME) at the University of California, Riverside (UCR). The information contained in this manual is intended to assist graduate students in this department with general information and department policy questions.

- <u>ME Department</u>
- <u>Registrar</u>
- <u>UCR Graduate Division</u>
- Graduate Students Academic Affairs Rules and Regulations
- <u>Thesis and Dissertation Format Guide, Graduate Division</u>
- Petition and Forms for Current Students
- Graduation Deadline Dates
- Graduate Academic Affairs Regulations and Procedures

In addition to degree requirements, this manual also summarizes departmental policies and procedures. The department reserves the right to modify the departmental procedures and requirements outlined in this manual. Generally, such modifications will not be considered retroactive.

#### **B. GRADUATE ADMISSION**

All applicants for admission to the ME graduate program must be approved by the ME Graduate Advisor and the Dean of the Graduate Division. To be approved for admission, an applicant to the graduate program should have a B.S. degree in engineering with a grade point average above 3.0 (based on a 4.0 point system), a combined (verbal and quantitative) GRE score above 1100 or above 300 (new scoring method since 08/2011) and good supporting reference letters. Students from non-English speaking countries also must receive a minimum TOEFL score of 550 (paper based), 213 (computer based), and 80 (internet based). Students with undergraduate degrees of outside of engineering, who meet the above criteria, may be required to complete remedial undergraduate course work before being granted official admission into the ME graduate program. This remedial work may not be used to satisfy graduate degree requirements.

#### C. NEW STUDENT INFORMATION

#### 1. CLEARING ADMISSION HOLDS

Accepted graduate students may be conditionally admitted by the Graduate Division and required to submit final documents prior to being permitted to register for their first quarter. All new students must check-in with the Graduate Division Admissions office prior to the start of their first quarter to clear any admissions holds. International students have an additional hold that will be cleared when they attend the International Education Center (IEC) orientation. All incoming graduate students must attend the mandatory Graduate Division and department orientations. For more information, please refer to the <u>Resources for Current Graduate Students</u>.

#### 2. ADVISING AND ENROLLMENT

Upon admission to the ME graduate program by the Graduate Division, each student is assigned a preliminary faculty advisor (generally the Graduate Advisor) to help him/her with course selection and general curriculum guidance. New graduate students are required to consult with their advisor and/or the Graduate Student Affairs Officer (GSAO) <u>before</u> registering for classes. During the first or second quarter of graduate studies, students should select a permanent degree advisor. This advisor becomes, in effect, the chairperson of the student's M.S. or Ph.D. committee(s).

Graduate study is individual in nature and requires frequent interaction of the student with his/her advisor. The degree advisor must be consulted in the planning of programs of study for each quarter and the preparation of the Statement of Program (Study Plan). Other consultations should be arranged with the advisor as needed. An advisor may be also assist and advise in non-degree related matters such as health services, housing, communication deficiencies, and career development.

The <u>**R'Web portal</u>** allows students to manage accounting and coursework online. Full-time graduate students are expected to register in a minimum of 12 units per quarter. Students are allowed to enroll in core courses via **R'Web** but must fill out a <u>Quarterly Advising form</u> available on the <u>ME website</u> and have it signed by their advisor and/or the Graduate Advisor. This needs to be turned into the Graduate Student Affairs Officer (GSAO), before you enroll in any core course in **R'Web**.</u>

Enrollment in ME 250, ME 290, ME 297, ME 299 and ME302 must be done by the department GSAO. In addition, students may not enroll in any undergraduate courses or any courses from a different department without the prior approval of the Graduate Advisor.

Note: Students enrolled in ME 250, Mechanical Engineering Seminar, are expected to attend **all** department seminars. It is MANDATORY for M.S students (Plan I) to enroll in at least 3 units (3 quarters) of ME 250 and for Ph.D. students to enroll in at least 6 units (6 quarters) of ME 250 before they are eligible for graduation. It is preferred that this is done in the initial years of study. Seminar announcements are posted on Departmental bulletin boards, on the ME website, and are sent via e-mail.

It is the responsibility of the student to register and submit forms by the deadlines specified in the quarterly *Schedule of Classes*. Therefore, advisement meetings with the degree advisor should be scheduled in anticipation of these deadlines. Late enrollment will result in the delay of fellowship fee payment as well as a \$50 late fee.

#### 3. MONEY, EXPENSES AND FINANCIAL SUPPORT

Students must bring enough money to pay University fees (tuition, fees, and health insurance) and move-in costs for housing or the remainder of what is not covered by a fellowship or financial aid. Remember to consider your own personal expenses as well. University fees are posted to your <u>R'Web</u> account. Initial move-in expenses are estimated to be about \$1,000-\$2,000. University fees may be paid with a credit card but the University only accepts certain types of credit cards. Students may also bring travelers checks in U.S. dollars. For other expenses, credit cards will be very useful. Please see the payment of fees information on the <u>Registrar's website</u> and the general <u>catalog</u> for more details. Do not bring a check or draft in foreign currency or from a non-California bank, since access to your money will be restricted for up to one month until the check is cleared. If you are on a fellowship, the money you need to bring is going to be less than the estimated costs for students not on a fellowship. Please meet with the department SAO for assistance on interpreting your fellowship award or other questions.

Research and teaching assistantships are awarded on a competitive basis to students with outstanding qualifications. The salary for such awards ranges from \$8,195 to \$18,000 per academic year. The assistantships are contingent upon annual appropriations, and typically include payment of the Graduate Student Health Insurance (**GSHIP**) fee and a Partial Fee Remission (**PFR**). Non-resident students receiving an assistantship may also receive a partial or full non-resident tuition remission. Typically, teaching and research assistantships are awarded on an annual basis.

Ph.D. applicants to our program are automatically considered for fellowships during the application process. Enrolled students may apply to fellowships such as the GRMP (Graduate Research Mentorship Program) or DYP (Dissertation Year Program). These provide a stipend up to approximately \$16,000 per year and include full or partial payment of tuition and fees. To maintain their fellowship, students are expected to maintain a minimum GPA of 3.0 and be enrolled and complete at least 12 units per quarter.

The ME department selects and administers teaching assistants (TAs). Faculty members select graduate student research assistants (GSRs). Faculty members also consult with the

Graduate Advisor and Graduate Student Affairs Officer concerning the availability of qualified students seeking support.

To be appointed as a TA, a student whose native language is not English must pass the thSPEAK test. This includes international students and students whose first language is not English. The purpose of the SPEAK test is to evaluate spoken English proficiency and to measure student comprehensibility in English. The SPEAK test is administered by the Learning Center when the student first arrives on campus. Ratings based on SPEAK test scores are as follows:

Clear pass:	50
Conditional Pass	40-45
No Pass:	35 or below

Those who score a conditional pass can be appointed as a TA but are required to participate in the appropriate English language classes at the Learning Center and to retake the test. Individuals in this range may be appointed as TAs for up to three quarters (four under unusual circumstances) on a probationary basis with the approval of the Graduate Dean. At the end of this time, students may no longer be required to take English classes or retake the test. For those students within the probationary range, a determination of their continuing eligibility to serve as TAs will be made by the Graduate Dean on the basis of:

- Departmental recommendation, including an assessment of the student's academic ability;
- Student teaching evaluations;
- Other evidence of commitment to/performance in teaching (e.g., faculty evaluations or statements of support, videotapes);
- Evidence of a good-faith effort to improve English skills; and
- Relative proximity to the level of competence represented by a clear pass.

Appointments for students who have not achieved a clear pass on the SPEAK test will only be approved for one quarter at a time so that their progress on the SPEAK test can be monitored. If a student does not participate in the ESL program and the student wants to be tested again, the Learning Center requires proof the student has done something that quarter to improve their English skills.

Students who fail the SPEAK Test can be appointed to a Reader title. Although they may not be involved in the classroom, they may conduct activities such as grading.

Please note that the ME department will pay for the first SPEAK test of a student. Students who need to retake the SPEAK test are responsible for paying for their own fees until they have received a Clear Pass. The Graduate Division will also pay for the first ESL course fee. Students who need to retake the ESL course are responsible for paying their own fees.

TAs do not need to turn in a timesheet at this time. However, they must report to the instructor for whom they are performing their teaching assistant duties for and/or inform the

ME Administrative Office staff specifically, the Graduate Student Affairs Officer, if an emergency arises and they cannot fulfill their TA duties.

#### 4. TRANSFERRING COURSES AND WAIVING REQUIREMENTS

Many ME graduate students joining UCR that have taken graduate-level coursework may wish to transfer courses to UCR. All transfer, waiver, and unit reduction petitions MUST be received in a student's first quarter of attendance at UCR by the Graduate Student Affairs Officer. It is imperative that the student consult with the GSAO before enrolling in courses. UCR Extension courses may be transferred to campus by requesting official transcripts from Student Services in University Extension and submitting them to Graduate Division. Please call their office at 951-827-1039 for more information. The Department will allow students to transfer up to two pre-approved courses (8 units) taken at non-UC institutions, or up to half of the required UCR graduate courses required, if taken at other UC campuses. Students may request to transfer a course only if it did not count towards a previously obtained degree. Transferred courses appear on the UCR graduate transcript but are not factored into the GPA, and reduce the number of required graduate courses at UCR.

Based on prior graduate coursework at other institutions, the Department may also waive selected course requirements and/or request a degree unit reduction which would decrease the overall number of units required for the Ph.D. For example, if a student has taken a course similar to one of the courses in our Core Areas, it might be appropriate to petition for a waiver to reduce the Core Requirements from three to two courses. Unit requirement requests may be approved up to five courses (20 units) for computer science relevant master's courses comparable to ones offered at UCR. Waived requirements do not appear on the UCR graduate transcript, are not factored into the GPA, and do not reduce the number of required graduate courses at UCR. A petition to also reduce the number of required graduate considered on a case-by- case basis.

Please fill out the <u>Graduate Student General Petition</u> and attach the syllabus for each non-UCR course. Please submit the completed form to the ME department's Graduate Student Affairs Officer (SAO), so that the Graduate Advisor can review the request. You will receive a letter from Graduate Division with the final approval or denial. No transfer credit may be given for work completed while currently enrolled or on a Leave of Absence. Petitions for transferring credit will be considered only when the work is necessary to fulfill degree requirements. Students may not transfer courses from a program in which they have successfully completed a degree. For more information, please also refer to the Graduate Division <u>Handbook & Resources for Current Students</u>. To receive department approval for counting a graduate UCR, non-ME course in your ME graduate program requirements, please complete the Petition for Course Requirement Exception form (see appendix) and return it to the SAO after you have obtained your advisor's signature. This form must be approved by the department prior to taking the non-ME course.

#### 5. HEALTH SERVICES AND MEDICAL INSURANCE

Quarterly enrollment in campus health insurance is mandatory. If you already have coverage, please read below regarding completing a waiver. All graduate students employed by the department or PI in a 25% or more appointment will have their Graduate Student Health Insurance Plan (GSHIP) paid by their payroll funding source. Fellowship recipients whose awards pay registration fees will also have their GSHIP paid by the award. For more information, please refer to the <u>Resources for Current</u> <u>Graduate Students</u>. Please make sure to visit the <u>Campus Health Center</u> website for questions regarding insurance (and waivers), immunizations, forms, appointments, and more. You will be required to have certain health immunization about these requirements to all new students.

Your insurance coverage at UCR will not begin until the first day of the quarter. Please purchase temporary travel insurance to ensure that you have coverage from the time you enter California until the beginning of the quarter. It is a United States federal government requirement that international students have adequate medical insurance coverage for the period of their stay in the U.S. Specific insurance coverage requirements are available at the International Student Resource Center. Students will be enrolled in a UCR policy, and the fee for the insurance is included in the quarterly fee statement. UCR may accept medical insurance coverage from an outside agency if the coverage meets UCR requirements, however, these students must apply for a waiver immediately. *Do not purchase health insurance in your home country without first contacting the Student Health Office.* For any questions regarding the waiver policy, please visit the Campus Health Center. You may also visit <u>http://gsa.ucr.edu/gship/</u> for more information.

#### 6. HOUSING AND CHILDCARE

There are many on-campus and off-campus housing options. For on-campus housing, community living, or to find a roommate, please visit the UCR housing website to access online application forms. Please direct any questions to (951) 827-6350 or fax (951) 827-3807. There may be long waiting lists for most of the on-campus housing facilities. All of the information pertaining to this housing option can be found on the housing website. Be sure to secure confirmed on-campus housing before you come to Riverside, or find off-campus housing. Single (unmarried/no dependents) students can choose to live at Aberdeen and Inverness Residence Hall, Lothian Residence Hall, Bannockburn Apartments, Stonehaven Apartments, and University Plaza. Married students without children can live at Bannockburn Apartments or University Plaza. Married students with children may live at Canyon Crest Student Family Housing or University Plaza. You may add your name to the waiting list by completing an application online at the housing website. You will need to call and find out the status of your housing application, they will not contact you. If for some reason, you have not yet made housing arrangements that will be available to you upon immediate arrival, there are several temporary venues located near the UCR campus. Specific information (including costs) and contracts are available at <u>http://housing.ucr.edu</u>. Should

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you have any additional questions, problems, or concerns regarding these accommodations, please see the department Purchasing and Travel Assistant. The Child Development Center at UCR accepts children from age 4 months through six years of age (kindergarten). Regarding cost and admission please contact:

The Child Development Center

3333 Watkins Drive. Riverside, CA 92507. (951) 827-3854. Immunization records are required.

#### 7. CALIFORNIA RESIDENCY

Graduate students planning to file for California residence status after their first year should review the official residency requirements on the <u>Registrar's website</u> and speak with their office directly. For more general information, please refer to the <u>Resources for Current</u> <u>Graduate Students</u>.

#### 8. KEY CONTACT PERSONNEL

The administrative suite is located in A342 Bourns Hall. A listing of key contact personnel in the ME Department and the College of Engineering with whom graduate students may interact is given below. Note that your primary and first contact regarding graduate student affairs should be the ME department SAO.

**Paul Talavera,** Graduate Student Affairs Officer (SAO), A342 Bourns Hall, 951.827.2115 paul@engr.ucr.edu

**Susana Aparicio,** Department Manager, Financial & Administrative Officer, A335 Bourns Hall, 951.827.2409, <u>susana@engr.ucr.edu</u>

**Robert Godoy,** Contracts & Grants Analyst, A337 Bourns Hall, 951.827.2417, rgodoy@engr.ucr.edu

Louis Sandoval, Purchasing/Personnel Assistant, A342 Bourns Hall, 951.827.5830, lsandoval@engr.ucr.edu

John Cleary, Program System Administrator, A308/ A344 Bourns Hall, systems@engr.ucr.edu

### II. AREAS OF STUDY AND DEGREE REQUIREMENTS

#### A. AREAS OF STUDY

The Department of Mechanical Engineering offers advanced study and research designed to educate students in a range of technical areas within Mechanical Engineering. Current areas of specialization offered in the ME graduate program are:

- Acoustics and Stress Waves
- Air Quality Modeling
- Biomedical Devices
- Computational Mechanics
- Combustion and Fire Behavior Modeling
- Cyber-physical systems
- Human-Machine Systems
- Mechanics and Materials
- Porous Media Heat Transfers
- Nanostructured Materials
- MEMS & BioMEMS
- Sensors and Sensor Networks
- Engines, Emissions, Nanoparticle Science
- Nanoscale Heat Transfer
- Micro/Nano Fabrication
- *Physical Metallurgy*

Graduate study and research programs can be designed to allow for study in two or more related areas, specialization in one area, or for some other specialized or newly evolving areas of Mechanical Engineering. Students choose their areas of research in consultation with their advisor. Proposed M.S. and Ph.D. programs for other emphases must be approved by the Graduate Committee and must include applicable basic core courses prescribed by the ME Department.

#### **B.** ME GRADUATE PROGRAM POLICIES

#### **1.** Transfer of Credits Taken at Other Universities

Petitions to the Graduate Division for transfer of credits will be considered by the Graduate Committee when the work is necessary to fulfill graduate degree requirements.

The total number of units that a student will be allowed to transfer into their graduate record at UCR from institutions from non-UC campuses is eight (8) quarter credits. These units must have been taken in graduate status in an institution of recognized standing with a grade of "B" or better and cannot be used to reduce the minimum residency requirement or minimum requirement of 200 series courses taken at UCR.

Credit for graduate work completed at other UC campuses may be granted in excess of the eight units. Up to one-half of the units required for a Master's degree may be transferred from other UC campuses including 200 series unit requirements. Students receive both units and grade point for this work when it is transferred to UCR. Approval from both the Graduate Committee and the Graduate Division must be obtained before such units can be accepted for credit.

#### 2. Grading

For a Graduate Student, only the grades A, A-, B+, B, B-, C+, C and S represent satisfactory scholarship and are applied toward degree requirements. Graduate Students must be doing work equivalent to letter grading of B to be given an S grade in a class. A UCR course taken during graduate status in which a grade of C- or better is earned may be accepted in partial satisfaction of the degree requirements if the student has a grade point average of at least 3.0 in all courses applicable to the degree. These include all upper division undergraduate and graduate courses in the student's program of study, and that are taken while registered in graduate status. A grade point average below the B level (3.0) is not satisfactory, and a student whose grade point average is below that level is subject to academic disqualification.

Individual study and research, or other individual graduate work undertaken by a Graduate Student, is normally evaluated by means of the grades Satisfactory/No Credit. No academic work applicable to a graduate program may be graded S/NC unless the course descriptions so indicate. Undergraduate course, which are pure electives, that is, which do not have any significant relationship to the graduate program, may be taken S/NC with the approval of the Graduate Dean. Such courses do not count towards the student's degree objective. A grade of S is equivalent to a grade of B (3.0) or better. No credit is given for a course in which a grade of NC is assigned.

The grade Incomplete (I) is given only when a student's work is satisfactory but is incomplete because of circumstances beyond his or her control, and the student has been

excused in advance from completing the quarter's work. Although Incomplete grades do not affect the student's grade point average, they are an important factor in evaluating academic progress. Students may not be employed as TA's, GSR's, Teaching Fellows, or Associate-Ins if they have more than 7 units of "I" grades.

The incomplete portion of the work needed to earn a grade must be received by the instructor no later than the last day of the quarter following the assignment of the "I". If not made up within the time allowed, the "I" lapses to an F or NC. An advanced degree cannot be awarded if there is an Incomplete on the student's record.

#### 3. Plagiarism

At UCR, honesty and integrity are fundamental values that guide and inform us as individuals and as a community. Students must represent themselves truthfully, claim only work that is their own, acknowledge their use of others' words, research results, and ideas, using the methods accepted by the appropriate academic disciplines and engage honestly in all academic assignments. Both students and faculty are responsible for ensuring the academic integrity of the University. Academic misconduct is any act that does or could improperly distort student grades or other student academic records. Examples include: cheating, plagiarism, unauthorized collaboration, facilitating academic dishonesty, interference or sabotage, fabrication, retaliation, and failure to comply with research regulations (excerpt from the Dean of Students Office). Students that have plagiarized materials will be examined on a case-by-case basis and reported directly to the Student Conduct and Academic Integrity Office. This may lead to a failing grade on the affected assignment or in the class, suspension, and even dismissal.

If a student wishes to use their own published materials as a part of their thesis/dissertation, they must first get permission from the copyright holder and file the <u>Permission to Use Published Material in Dissertation/Thesis form.</u> Should you discover (or suspect) any form of cheating from a fellow graduate student and/or undergraduate, bring the issue to the course instructor immediately. For more information on campus policies regarding academic integrity and to report any incidences, please visit <u>www.conduct.ucr.edu</u>. Students may also refer to the <u>Resources for Current Graduate</u> Students. After reviewing these materials, any graduate student still unsure of what this section entails should refer to The graduate advising staff member for clarification and assistance.

#### 4. Student Progress

Students are considered to have made insufficient progress if:

- They have 12 or more units of "I" grades (incomplete course work) outstanding
- The overall GPA falls below 3.00. Students with a GPA of less than 3.00 will be placed on probation.
- The quarterly GPA falls below 3.00 for two consecutive quarters

- They fail to fulfill program requirements such as examinations or research in a timely and satisfactory manner, or
- They have not completed their programs within one year after reaching normative time or
- They fail to pass comprehensive or qualifying exams in two attempts or
- They fail to make progress in research for two consecutive quarters

#### 5. Filing Fee Status

Students nearing completion may petition to be on Filing Fee Status for one quarter. During this quarter they are restricted to 12 hours of faculty time per week. Filing Fee is to be used only for students with thesis or dissertation drafts that require minor adjustments prior to the final submission, or, if on the MS Plan II and all requirements have been met except for the comprehensive exam. Students are required to submit their petition AND the draft of their M.S. thesis, M.S. project or dissertation prior to the start of the quarter (Ph.D. petition, M.S petition). Graduate Students on Filing Fee status only pay one-half the registration fee, are not permitted to enroll in courses and may not be employed as a Teaching Assistant or Graduate Student Researcher. On filing fee status students only retain library privileges and will need to purchase health insurance separately through the Campus Health Center. For complete information, please refer to the Resources for Current Graduate Students.. \*If a student uses filing fee during the year and wishes to graduate during summer, they must enroll in (and pay for) 2 units during the summer of graduation (ALL graduate students). Filing Fee Status will not be approved for an international student that has already been enrolled in less than 12 units (see next section on Half-Time Status) in their final quarter.

#### 6. Half-Time Status

Half-time status (quarterly registration for 6 units or less) is approved on a case-by-case basis, and only for students who cannot attend full-time for reasons of occupation, extenuating family responsibilities, or health. Half-time students are not eligible for fellowships, GSR, or TA appointments. Students must complete and submit the <u>Half-Time Status Request form</u> to the department. For complete information and instructions, please refer to the <u>Resources for Current Graduate Students.</u> The Department of Homeland Security requires international students with F and J immigration status to complete a full course of study every quarter (12 units). However, the United States immigration regulations DO allow international students to reduce their course load if a "student is completing his/her program of study and needs less than 12 units in the final quarter". The form must be submitted and approved prior to the quarterly enrollment deadlines. It cannot be submitted if a student has already been on filing fee status. Full-time fees will be charged for international students below 12 units during the quarter on this program and it may only be approved in the final quarter of study (without exception); graduation is expected for the following quarter.

#### 7. Leave of Absence

A graduate student is expected to enroll for each regular academic session unless a formal Leave of Absence is granted. To be eligible for a Leave of Absence, students must be in good standing and have been enrolled for at least one quarter. Graduate students granted a Leave of Absence forfeit the use of University facilities and faculty time, and cannot take any examinations or receive academic credit for work done during the Leave period. Requests will be considered on a case-by-case basis and are not normally granted for more than one year. Students who must leave the academic program for more than three quarters normally should withdraw and apply for readmission at the time they expect to resume graduate study at UCR. Students who have not attained the academic objective for which they were admitted and who fail to enroll or secure a formal Leave of Absence lose graduate standing with the University. Students wishing to request a Leave of Absence must complete and submit a Leave of Absence from through the R'Grad app. The graduate advising staff member. \*LOAs will not be approved for financial reasons alone. The immigration status of foreign students might be affected by a Leave depending on circumstances and whether they are staying in the U.S. or returning to their own country. It is imperative that foreign students considering a Leave of Absence seek counseling at the International Education Center. For complete information (including examples of situations where a Leave of Absence is approved) please refer to the Resources for Current Graduate Students.

#### 8. Normative and Maximum Time Limits for Degree

The normative time for a student to complete the M.S. degree under either Plan I or Plan II is six (6) quarters. The formal residence requirement of the MS degree is three quarters (one academic year).

The suggested time allotments for an M.S. student, entering the program with a Bachelors degree are given below:

- Nine months, or 3 academic quarters for M.S. coursework;
- Nine months, or 3 academic quarters to formulate research plan and complete dissertation.

Full-time, self-funded students may be able to complete these requirements earlier.

Although the formal residence requirement of the Ph.D. degree is six quarters (two academic years), most student spend three to four years (nine to twelve academic year quarters) in full-time study beyond the Master's degree. The normative time to complete the Ph.D. degree for a typical student appointed as an RA or TA (50% time) may vary from 3 to 4 years (9-12 quarters) for students holding an M.S. degree in Mechanical Engineering, or a closely related field, and 4-6 years (12-18 quarters) for those entering the program without an M.S. degree in Mechanical Engineering or a closely related field.

#### C. STUDENT ORGANIZATIONS

#### Mechanical Engineering Graduate Student Association (MEGSA)

The purpose of the Mechanical Engineering Graduate Student Association (M.E.G.S.A.) is to promote the social and academic well-being of the Mechanical Engineering and Materials Science Engineering graduate students at the University of California, Riverside. This includes, but is not limited to increasing student involvement in the surrounding community, organizing events, and ensuring that the concerns of M.E. graduate students are known and represented in their respective programs. The M.E.G.S.A. is a member of the Bourns College of Engineering Leadership Council and strives to promote the interests of the Department of Mechanical Engineering, the Materials Science Engineering Program, the Bourns College of Engineering, and UC-Riverside as a whole.

Contact Information:

Mechanical Engineering Graduate Student Association University of California, Riverside

3401 Watkins Dr. Bourns Hall, A342 Attn: <u>megsa@engr.ucr.edu</u> Riverside, CA 92521

Email: <u>megsa@engr.ucr.edu</u> Webpage: <u>www.engr.ucr.edu/megsa/</u> Facebook: <u>https://www.facebook.com/megsa.ucr</u>

#### D. GRADUATE STUDENT EMPLOYMENT

Assistants are expected to aid faculty members in the instructional or research programs. A 50% appointment requires an average of 20 hours per week. Administration and selection of Teaching Assistants (TAs) is done by the department. Research assistantships (GSRs) are selected by the faculty members directing the project and are supported by research contracts or grants. However, faculty members consult with the Graduate Advisor and SAO concerning the availability of qualified students seeking support. The department does not typically award employment to international MS students.

Graduate student employment is considered a financial award, which includes research or teaching assistantships, and fellowships. Typically, teaching and research assistantships are awarded annually on a competitive basis, and include:

- Full or part-time salary of up to approximately \$16,000 per academic year and, in addition,
- Payment of the Graduate Student Health Insurance Plan (GSHIP) fee and a Partial Fee Remission (PFR).

# \*\*International students may apply for a social security card when they become employed as a GSR or TA; fellowship students are not eligible until they secure employment.

Recipients of campus employment and fellowships must adhere to the following regulations:

- Must maintain a 3.0 GPA for fellowship, TA, and/or GSR.
- Must enroll in and complete a full course load (12 graduate units or the equivalent).
- Must have no more than 7 units of incomplete grades.
- Any change in student status (leave of absence, withdrawal, etc.) must be reported immediately to the graduate advising staff member.
- Changes in degree objective or degree program may affect the student's eligibility for fellowship awards.
- Fellowships are awarded to students to free them from the need for employment. Awards with a stipend greater than or equal to \$10,000 can be supplemented with prior approval of the Department and the Graduate Dean, after completing the <u>supplementation request</u> form. This form may also be used to continue employment for students having difficulty meeting the minimum eligibility requirements. Fellowships that do not allow supplementation include the GAANN, Eugene Cota-Robles Award, Dissertation Year Fellowship, Humanities Research Assistantship, and Research Assistantship/ Mentorship Program.

For complete information, please refer to the Graduate Division <u>fellowship regulations</u> and the <u>regulations for holders of teaching and graduate research assistantships</u>.

#### 1. Graduate Student Researchers (GSR)

A GSR position is appointed by a ME or cooperating faculty member and is reported to the Graduate Program Coordinator for processing. Graduate students are responsible for securing an advisor in a timeframe that allows them to advance to candidacy prior to the sixth quarter, or complete their M.S. project or thesis by the end of their second year. Having an advisor is technically different from receiving a GSR position, and does not apply to MS students under Plan II. For Ph.D. students, it is crucial to secure and/or maintain their position working with a Principle Investigator in order to continue to maintain, or retain the possibility of funding. Without securing an advisor before then, a student is not guaranteed department funding after the (typically one-year) fellowship award expires. A student enrolls in ME 299 if the research *is* instead directly related. Graduate students with a new GSR appointment must check-in with the Graduate Student Affairs Officer and ME Payroll office to complete new-hire paperwork and obtain a social security card (if not done so previously). GSR offers made by a PI (primary investigator/professor) may be rescinded at any time, at the discretion of the PI and for fund availability.

#### 2. Teaching Assistants, the SPEAK Test and ME 302

A Teaching Assistant position is designated by a combination of efforts in the department and is processed by the department. TAs are responsible for the instruction of a particular lab section, and report directly to the supervising instructor. All TAs are required to take the <u>TADP</u> workshop series offered by the Learning Center at the beginning of every quarter. The TA training should be completed in the first quarter a TA begins teaching. Students register for the workshop series <u>online</u>.

ME graduate students whose native language is not English or have completed the majority of their undergraduate study (possibly including high school) in a non-English speaking institution, must pass the SPEAK Test or must score 23 or above on the Speaking portion of internet-based TOEFL (iBT) test. The purpose of both tests is to evaluate English proficiency and comprehension. There is a \$70 fee to take the test. Test date and time are sent to students via email every quarter. Scores on the SPEAK Test are as follows:

5. Clear Pass	6. Conditional Pass	7. Fail
8. 50 - 60	9. 40 – 45	10. 20 – 35

The SPEAK Test is administered quarterly by the UCR Extension Center (students are responsible for the test fee), but arrangements may be made to take the test off-cycle. Graduate students that do not receive a Clear Pass score and do not have a Clear Pass in the SPEAK Test must attend the English language classes offered at the UCR Extension Center until a Clear Pass is obtained. *Students are provided with one quarter of free instruction at the UCR Extension Center*. Students still not able to obtain a Clear Pass are responsible for paying for the instruction until a Clear Pass is obtained on the SPEAK Test. A student with a Conditional Pass

can be appointed as a TA, but these appointments will only be approved for one quarter at a time and must be approved by the Graduate Dean.

All TAs must enroll in ME 302 Apprentice teaching. This course meets once per week (dates, times, and duration may change, depending on the flow of the meeting sessions) and provides a place for TAs to receive advice, support, and meet with other TAs each quarter. Should another UCR course conflict with the 302 meeting(s) the student must receive permission from the instructor of the 302 course.

#### 3. Student Assistants (Domestic & International)

Student Assistant positions are used in cases where a new graduate student those on filing fee status may be employed by a professor. Employment as a TA or GSR is not permitted for new graduate students until they become official and active students on campus. New students may participate in paid research in a lab during the summer prior to their fall quarter start, as a Student Assistant. Students on filing fee also are not permitted to be employed as a TA or GSR, but may be a Student Assistant.

Student Assistants have hourly and do not receive any benefits (the position does not cover any fees or health insurance), thus they are responsible for securing health insurance separately during the time of this employment (GSHIP can NOT be paid by the advisor).

#### 4. Internships

Students participating in an internship **during a quarter** (either full or part-time) must enroll in ME 298I under their advisor. International students who wish to complete an internship at any point during the year must also complete a CPT application; complete the CPT Certification Form at myforms.ucr.edu (you must upload your offer letter and faculty advisor recommendation letter).

International students on summer internship are expected to be enrolled in one unit of CS 298I during summer. This is done through UCR Summer Sessions Office and students must pay the one-unit summer fee prior to registering in the course.

#### 5. In Absentia

*In absentia* is a form of registration available to academic and professional graduate students undertaking coursework or research related to their degree programs **outside of California**. Students registered for *in absentia* are assessed full health insurance fees and 15% of the tuition and student services fee. Students are also assessed non-resident tuition and/or professional school fees if applicable.

#### **Eligibility Criteria**

The student must be enrolled full-time (12 units). Students in self-supporting programs or exchange programs are not eligible for *in absentia* registration.

Students may apply for *in absentia* status fi the following criteria are met:

- The research or coursework is of a nature that makes it necessary to be completed outside of the state of California for at least one full quarter.
- The work away from the UCR campus is directly related to the student's degree program as evidenced by faculty approval.
- The work involves only <u>indirect</u> supervision (correspondence or review of written work) from UCR faculty during the *in absentia* period.
- The work involves no significant collaboration with UCR faculty during the *in absentia* period.

Doctoral students must meet the following criteria:

- 1. Must be advanced to candidacy by the time *in absentia* period begins.
- 2. May only use *In absentia* registration for a maximum of 6 quarters. Student may apply for only one year at a time.

Master's only and graduate professional (e.g. MBA) students must meet the following criteria:

- 1. Must have completed at least one year of course work by the time the *in absentia* period begins.
- 2. May only use *in absentia* registration for a maximum of three quarters.
- 3. Students in self-supporting programs (e.g., Flex MBA) are not eligible for *in absentia*.

Students may apply for and receive University fellowships and research assistantships, but not teaching assistantships or serve as readers or tutors.

All applications are due by **September 1** for Fall Quarter, **December 1** for Winter Quarter and **March 1** for Spring Quarter.

Please contact the Graduate Academic Affairs office with any questions at 951-827-3315 or <u>amanda.wong@ucr.edu</u> (last names A-L) or <u>trina.elerts@ucr.edu</u> (last names M-Z).

#### E. PAYROLL

Policies and Regulations Governing Graduate Student Employment: see <u>Graduate Division</u>. Madie will be your first point of contact for all of your payroll needs. The following are some frequently asked questions that may assist you.

#### How and when are fellowship stipends paid?

Stipend payments are disbursed quarterly. You may authorize a direct deposit to the bank of your choice, or checks will be mailed to your billing address. Note that this is handled differently than regular payroll direct deposit. Please be advised that if you elect to have your paycheck mailed, it will be mailed on the first of the month (if the first falls on a weekend, checks will be mailed on the following Monday). For those using direct deposit, the deposit is made no later than the first day of the month. To receive more information on direct deposit, payroll, taxes, and more, visit the campus <u>Student Business Services Office</u>.

#### How are Fee Fellowships paid?

If your fees are paid by the fellowship, a credit for this will be posted to your student statement upon your enrollment in 12 units. For each quarter, you must be enrolled prior to the start of the quarter, or you will be charged a \$50 late fee.

#### How and when do I get paid as a GSR or TA?

TAs and GSRs are paid through the payroll system. If your appointment began October 1 you will be paid on November 1. You may authorize a direct deposit to the bank of your choice. Note that this is handled differently than fellowship direct deposit. For those using direct deposit, the money should be in your account no later than the first day of the month. Your fees are paid for an appointment of 25% or more, and a credit for this will be posted to your student statement upon your enrollment in 12 units. Please note that you will be separated from payroll if you have a period of unemployment for 1 quarter and will have to complete new paperwork with Louis to reinstate your payroll status.

#### How do I claim my taxes for a fellowship, TA or GSR?

Taxes are automatically deducted from a TA or GSR check. Fellowship funds are not immediately taxed and all students will be responsible for reporting their incomes appropriately. *Please note that you will most likely need to pay a balance to the government for your fellowship taxes at the end of the year (since it is not taken out of your check)*. International students are responsible for reporting their information in the tax compliance system "Glacier" and are responsible for applicable state and federal taxes; this must be done within 10 days of a payroll assignment or the tax rate will be assigned at the default 30% rate. If you have your I-20 available to reference, the online completion process will be much simpler. Please visit the <u>Accounting website</u> for complete Glacier information. To receive more information on direct

deposit, the deferred payment plan, payroll, taxes, and more, visit the campus <u>Student Business</u> <u>Services Office</u> and page 10 of the <u>Resources for Current Graduate Students</u>.

#### F. TRAVEL AND PURCHASING

The ME Purchasing & Personnel Assistant (Louis Sandoval) and Purchasing and Travel Assistant (Juana Guerrero) will be your first point of contact for all of your payroll, purchasing and travel needs if it is academically related. This includes (but is not limited to) office and lab supplies, airfare for travel to conferences, and pre-paid conference registration fees. In order to invite relatives to UCR, international students must visit the IEC.

#### Purchasing

The first step is to submit the purchase request through eBuy. The eBuy system is UC Riverside's online purchasing application. Once you have been given access, you will be able to initiate an order request (<u>https://ebuy.ucr.edu</u>). There are an array of vendors that the university has contracted with that provide competitive pricing. Use eBuy for all purchasing requests. The Purchasing Assistant will provide instructions on how to properly complete eBuy requests. Once you submit the eBuy request your advisor will be able to review your order for approval. Once your advisor approves the order, the eBuy purchasing request will be routed to the Purchasing Assistant to complete the order. You will receive an email notification once the order has been completed.

#### **Reimbursement (non-travel related)**

Please note that reimbursements for miscellaneous items (i.e. lab supplies) are not guaranteed without approval from the department and PI beforehand. When requesting reimbursements, fill out the Reimbursement Form found on the ME website under <u>forms and policies</u> (<u>www.me.ucr.edu</u>) and provide the itemized receipt. The itemized receipts are always required. Only payments with credit card or debit card are allowed for reimbursement.

#### Can conference airfare or conference registration be pre-paid through the department?

Yes, however, a student's travel is typically paid by an advisor's grant. ME department staff will help you make travel arrangements with the travel agency (if that is the advisor's choice) and coordinate the conference registration fee payment. The conference payee has to be an active vendor to able to prepay a conference registration fee. Please provide a copy of your completed registration form, including your advisor's approval. All travel and conferences must be cleared by the advisor and department prior to departure.

#### Is there a daily limit for meal expenses and lodging accommodations?

Yes. For all domestic (US) travel, the daily limit for meal expenses is \$62 per day (includes all meals: breakfast, lunch, dinner, and snacks). The University will not reimburse for any alcohol purchases within this daily limit. *Please make sure to keep all original receipts to be submitted for reimbursement*. Limits for domestic (US) lodging accommodations vary by

location. Please see Travel Assistant for limits. For travel to Hawaii, Guam, Alaska, and other non-foreign overseas locations (OCONUS Travel), there are special guidelines for meal expenses and lodging accommodations. For foreign travel, the daily limits for meal expenses and lodging accommodations vary per location. Please see Travel Assistant for limits.

#### Can I rent a car when I am traveling?

Yes. If you have a valid driver's license, you can rent a vehicle while you are traveling (both domestic and foreign). The University has agreements with the following rental agencies: Hertz, Enterprise, National. Please see your Travel Assistant for help regarding rental vehicles.

# Can I use my own personal vehicle for traveling on University Business rather than flying

Yes. You can use your own personal vehicle for traveling on University Business if advance approval has been obtained. Please contact the Travel Assistant prior to the travel. A traveler may use surface transportation for business related travels if air transportation is the more expensive. The cost of meals, lodging, parking, mileage, tolls, taxis, and ferries incurred while in transit may be reimbursed. However, these costs cannot exceed the cost of airfare, based on the lower of the regular coach fare available for the location of travel plus transportation costs to and from the terminals. Meals are not reimbursed for non-overnight travels. You will be required to provide a copy of airfare and rental vehicle rates to show that it would in fact be more cost effective to travel by surface transportation rather than air travel. When using your own personal vehicle, additional information is needed when traveling more than 300 miles per month.

# When I have a grant from the campus Graduate Student Association (GSA), what are the procedures to submit for reimbursement?

The first step is to submit all of your original receipts to GSA within 7 *days* of your return. GSA will review the receipts and then send all original receipts to the Travel Assistant for processing. Upon receipt of the packet from GSA, the Travel Assistant will email you to obtain some information regarding your travel. You will need to complete an online request and obtain your advisor's approval to be reimbursed.

#### What if I do not have an original itemized receipt?

When original receipts were not provided or have been lost, the Travel Assistant will provide a Declaration of Missing Evidence form to be used in place of the missing receipt(s). If you have a copy of an email confirmation to show that the item was paid for, including method of payment (i.e., Visa, MasterCard, etc.), please provide it to the Travel Assistant.

#### How do I get my reimbursement and how long does it take?

You have three choices for receiving your reimbursement:

- 1. Check via Campus Mail (sent to your home department)
- 2. Check via US Mail (please provide mailing address)
- 3. Electronic Funds Transfer (available only to those with Direct Deposit)

The usual processing time for travel reimbursements is up to 10 business days.

# Can I be reimbursed before I travel since I have receipts for airfare, lodging, and conference registration?

Per Travel Policy, a traveler *cannot* be reimbursed prior to traveling.

# If I am receiving funds from an outside source, can I receive the monies prior to traveling?

You will need to contact the Administration Office from which you will be receiving the funds in order to find out their procedures regarding reimbursement.

#### How can I get office supplies for my lab?

Please submit an online request through eBuy. The supervising professor will need to authorize this beforehand, and provide the fund number prior to submission. The ME administrative office will not order and stock paper for graduate research labs.

#### G. Colloquium (ME250)

The course ME 250 (Colloquium in Mechanical Engineering) is a graduate session that meets for approximately one hour per week. Master students must satisfactorily complete one quarter of ME 250 (Plan II) or three quarters if on Plan I (Thesis option).

Colloquia announcements are posted on Department bulletin boards, on the ME website, and sent via email. It is the student's responsibility to watch for the announcements and attend all colloquia. If a TA lab assignment or other approved UCR course conflicts with the scheduled seminar, a student must consult with the ME250 instructor in order to make arrangements. All other cases with conflicts (e.g., being away on internship) will be discussed on a case-by-case basis. To obtain a grade of 'S', each student must attend all sessions of the course.

ME 250 generally meets on Fridays, 11:00am-12:00pm. Use of laptops and cellular phones during class is not permitted.

#### H. MASTER OF SCIENCE (M.S.) DEGREE PROGRAM

The M.S. degree in Mechanical Engineering can be earned by either one of two plans:

- 1. by completion of a thesis (<u>Plan I</u>), which reports a creative investigation of a defined problem
- 2. by passing a comprehensive examination (<u>Plan II</u>).

For the M.S. degree, students must meet a minimum residency requirement of three quarters, one complete academic year, in the University of California. At least two of these three quarters must be spent at UCR. Registration in at least 4 units of 100 or 200 level course work is necessary for each quarter of academic residence. Students should enroll in 12 units each quarter unless the Graduate Advisor grants an exception.

#### 1. Master of Science Plan I (Thesis)

The M.S. degree Plan I (Thesis) requires completion of a minimum of 36 units of upperdivision and graduate-level approved course work and submission of an acceptable thesis. At least 24 of these units must be in graduate courses (200-series courses), a minimum of 16 units of these being Mechanical Engineering graduate courses (ME 200 or higher, excluding ME 250, ME 290, ME 297, and ME 299). The student must take 3 units of seminar (ME 250) and at least 7 but no more than 11 units of directed or thesis research credits (ME 297 or ME 299). No more than 8 units of course work may be satisfied with directed studies (ME 290). Students must defend a thesis. For detailed course descriptions please consult the <u>ME Catalog of Courses</u>.

Course work used to satisfy the student's undergraduate degree requirements may not be applied toward the 36 unit M.S. requirement. However, UCR Undergraduates who have no more than two courses or eight units of course work remaining in their Bachelor Degree program, and who have been admitted to graduate status may begin course work for their advanced degrees at the beginning of the final quarter of undergraduate study. Bringing forward units from undergraduate studies requires that students inform their college offices before beginning the course work in question. After entering the graduate program, these students may petition to transfer these units to their graduate record. These units cannot have been used towards the Bachelor's Degree.

An acceptable M.S. thesis must be submitted. The M.S. thesis may be based on:

- a research or advanced design project, either analytical, computational or experimental;
- an extensive report consisting of theoretical, computational or experimental contribution to mechanical engineering.

The student's M.S. Thesis Committee is responsible for approving the thesis. The thesis committee is composed of three members (including the research advisor).

After submission of the M.S. thesis, the student is required to defend the thesis in a defense.

An abstract and title should be submitted to the Graduate Assistant at least 9 days prior to the scheduled defense so that it can be advertised to the public for a period of at least one week. No exceptions will be made for late abstracts.

The student will then modify the thesis based on comments received during the defense. Upon approval, two unbound copies of the final thesis in a format compatible with the guidelines set forth by the Graduate Division must be submitted to the Graduate Division.

#### 2. Master of Science Plan II (Comprehensive Exam)

The M.S. degree, Plan II (Comprehensive Examination) requires completion of a minimum of 36 units of upper-division and graduate-level approved course work and successfully passing a comprehensive examination. At least 24 of these units must be in graduate courses (200 series courses), a minimum of 16 of these being Mechanical Engineering graduate courses (ME 200 or higher, excluding ME 250, ME 290, ME 297, and ME 299). The student must take 1 unit (ME 250) and no more than 7 units of directed studies (ME 290). One additional 4 unit course is required for completing the requirements of the MS Plan II. For detailed course descriptions please consult the <u>ME Catalog of Courses</u>.

The M.S. Comprehensive Examination will be prepared and administered by the Graduate Examination Committee. The written examination is designed to test understanding of graduate-level mechanical engineering concepts and methods. It covers three subject areas to be selected by the student among the following: **materials structure & properties, control systems, engineering analysis, fluid mechanics, heat transfer, thermodynamics, solid mechanics**. Students are strongly encouraged to complete the relevant graduate-level course work for the selected subject areas:

topic	Relevant course work	offered
materials structure & properties	ME266 Mechanics and Physics of Materials	Winter 18
control systems	ME235/EE235 Linear System Theory	Fall 17
engineering analysis	ME200 Methods of Engineering Analysis	Fall 17
fluid mechanics	ME240A Fundamentals of Fluid Mechanics	Fall 17
heat transfer	ME241A Fundamentals of Heat and Mass Transfer	Winter 18
thermodynamics	ME243 Advanced Mechanical Engineering Thermodynamics	Winter 18
solid mechanics	ME261: Elasticity	Fall 17

Subsequent to the examination, the Graduate Examination Committee will issue a passing or failing grade. If a student fails in the first attempt, he or she may retake the examination at the next scheduled comprehensive examination period. No more than two attempts to pass the exam are allowed.

The exam in each subject takes two hours. Students will be notified about permitted material such as calculators and hand-written notes as specified by the examiners.

#### Notes:

1. A student, who plans to take the M.S. comprehensive exam, must submit a formal request to the Graduate Program Assistant by the deadline announced by the Graduate Program.

2. The Graduate Committee will review the exams in a timely manner and make recommendations for ME Faculty's approval.

3. Students are recommended to take the ME graduate and undergraduate courses offered during the Fall and Winter quarters to prepare for the exam.

#### I. DOCTOR OF PHILOSOPHY (PH.D.) DEGREE PROGRAM

The Ph.D. degree provides an opportunity for students to pursue a program of research in a specialized area and to develop a dissertation that "embodies the results of original research and gives evidence of high scholarship". The procedures for satisfying the requirements for the Ph.D. degree in Mechanical Engineering at UCR will consist of four (4) principal parts, each of which is discussed in greater detail in subsequent sections:

- 1. Successful completion of an approved program of course work;
- 2. Passing of a written and oral preliminary examination;
- 3. Oral defense of a dissertation proposal written and submitted by the candidate
- 4. Defense and approval of the dissertation

The Graduate Committee administers the first two requirements while the Ph.D. The Qualifying Committee and the Ph.D. Dissertation Committee oversee the third and fourth requirements respectively. In addition to these requirements, students must meet the minimum residency requirement of six quarters in the University of California, three of which must be spent in continuous residence at UCR. A student must maintain continuous registration until all degree requirements have been fulfilled. If such registration is not possible, the student must secure an approved leave of absence from the department and the Graduate Division.

#### 1. Course Work

The course work should be formulated by the student and his/her faculty advisor within the first quarter year after admission to the Ph.D. program and must be approved by the student's Ph.D. advisor and Ph.D. Examination Committee. It is understood that changes to this may occur as the student's research progresses. These changes should be documented after consultation with the Ph.D. advisor and Ph.D. Examination Committee.

The Ph.D. degree will require completion of a minimum of 72 units of upper-division undergraduate or graduate-level approved course work. At least 24 of these units must be in graduate courses (200-series courses), a minimum of 8 of these being Mechanical Engineering graduate courses (ME 200 or higher, excluding ME 250, ME 290, ME 297, ME 298I, and ME 299). The student may apply a maximum of 8 units of upper division undergraduate level courses towards their 72 unit requirement. The student must take 6 units of seminar (ME 250) and at least 36 units of directed or thesis research credits (ME 297 or ME299). Students who already have an M.S. (either from UCR or elsewhere) may petition to transfer up to 2 graduate courses to apply towards the Ph.D. course requirement. Students who pursue a concurrent M.S. at UCR in a department other than Mechanical Engineering. These transferred courses cannot substitute for the necessary UCR ME graduate course requirement mentioned above. Courses taken as part of the Ph.D. requirement can be used to satisfy the course requirements for an M.S. in Mechanical Engineering at UCR and vice versa. For detailed course descriptions please consult the <u>ME Catalog of Courses</u>.

#### 2. Preliminary Examination

The purpose of the Ph.D. preliminary examination is to screen candidates for continuation in the Ph.D. program. <u>The Ph.D. preliminary examination must be completed in the graduate student's first year.</u>

The examination is administered by the graduate program committee and has two components:

1. The written examination is designed to test understanding of graduate-level mechanical engineering concepts and methods. It covers three subject areas to be selected by the student among the following: materials structure & properties, control systems, engineering analysis, fluid mechanics, heat transfer, thermodynamics, solid mechanics. Students are strongly encouraged to complete the relevant graduate-level course work for the selected subject areas:

topic	Relevant course work	offered
materials structure & properties	ME266 Mechanics and Physics of Materials	Winter 18
control systems	ME235/EE235 Linear System Theory	Fall 17
engineering analysis	ME200 Methods of Engineering Analysis	Fall 17
fluid mechanics	ME240A Fundamentals of Fluid Mechanics	Fall 17
heat transfer	ME241A Fundamentals of Heat and Mass Transfer	Winter 18
thermodynamics	ME243 Advanced Mechanical Engineering Thermodynamics	Winter 18
solid mechanics	ME261: Elasticity	Fall 17

2. Oral component assess the student's ability to conduct independent research. This examination is administered by a committee of 3 faculty members selected by the candidate in consultation with the advisor. The student is required to submit a form that lists the committee members and the outcome of the exam signed by the committee chair. The oral exam has to be completed within four weeks after the written exams. Failure to take the oral exam on time constitutes non-satisfactory progress and disqualifies candidate from awards, fellowships, teaching assistantships and relevant benefits reserved for students in good standing. If the student fails the oral exam the first time, they will be required to retake the exam before the start of the upcoming fall quarter.

It is necessary to pass both components to advance to the dissertation proposal.

First year students will be notified at least one month in advance of the Preliminary Exam Dates. They must submit the <u>Intent to Register Form</u> for the Preliminary Examination form, signed by their advisor prior to the deadline set by the Graduate Committee.

Based on the results of the written examination, the Graduate Committee makes a decision by majority vote. The committee will recommend that the student, either passes or fails the

examination. If the student passes, he/she will be permitted to develop a Ph.D. dissertation proposal. If the student fails the examination, he/she is given a second and final opportunity to retake either all, or a portion of the examination at its next offering.

If a student fails the preliminary examination during the second attempt, then one of the following will occur:

- 1. If the student fails more than one written examination, then the student will be required to withdraw from the Ph.D. program.
- 2. If the student fails no more than one examination and, in the committee's judgement, the student has demonstrated proficiency in the subject matter, but has some weaknesses, the examination committee may grant a conditional pass. The committee will recommend additional course work and acceptable satisfactory grades for the course work. Once the additional course work is completed satisfactorily, the student is declared to have passed the examination. If the committee does not grant a conditional pass, then the student will be required to withdraw from the Ph.D. program.

A student who withdraws from the Ph.D. program may petition to be change his/ her degree objective to an M.S. If the student has completed all requirements for the M.S. degree, he/she will be awarded the M.S. degree at that time. If the M.S. degree requirements have not been met, the student will be permitted to continue in the program, complete these requirements, and receive the M.S. degree.

The oral exam has to be completed within the first two weeks after the start of the following Fall quarter. The exam evaluates the readiness of students for the dissertation work at the early stage. This exam should be given by a committee, consisting of three faculty members: the dissertation advisor (committee chair) and two members of the Academic Senate, of which one must be a ME regular or collaborative faculty member. The committee members shall be selected by the student together with his/her dissertation advisor. Students must submit a 1-page abstract to the oral examination committee 5 days before the date of the examination. Students should consult their advisor to coordinate. The committee should submit a written recommendation to the Graduate Committee within 2 business days of the examination.

#### Ph.D. Dissertation Proposal and Qualifying Committee (The Qualifying Exam)

After successfully completing the Ph.D. preliminary examination, the student, with advice from his/her advisor, recommends a Ph.D. Qualifying Committee and prepares a dissertation proposal. The Ph.D. Qualifying Examination committee consists of 5 members including the student's research advisor and one faculty member from outside the department.

The student must submit *Form 2*, electronically through R'Grad, in order to nominate their committee at least 2 weeks prior to the Qualifying Exam date. At the time that the exam is taken, the student must submit the *Form 3* reporting their results, this form also serves as the form that nominates the Dissertation Committee. The *Form 3* must be submitted to the Graduate Student Affairs Officer (GSAO) no later than 48 hours after the exam. All forms should be

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submitted via the SAO and under no circumstances taken to the Graduate Division by the student. *Please contact the SAO for Form 3. Or, find the forms here:* <u>http://www.me.ucr.edu/academics/graduateresources.html</u>

The dissertation proposal consists of a written document and an oral presentation or defense. The procedure for initiating a Qualifying Exam involves the first step by the Ph.D. student, by submitting a complete dissertation proposal to the Graduate Student Affairs Officer before submitting it to his/her Ph.D. Qualifying Committee and/or scheduling the exam date. The Qualifying Exam will not be scheduled if the proposal is not in the appropriate format or does not have the appropriate content. The GSAO will provide the first "check" of this submission. Once the proposal has been accepted, the student may arrange an exam date with his/her committee. The Ph.D. Qualifying committee chairperson will normally schedule an oral defense within one (1) month of the written proposal submission. The presentation is given only to the Ph.D. Qualifying Committee members.

The written dissertation proposal should be typewritten, 15 pages maximum (references not included), double-spaced, in standard typeface (12 pt) with 1" margins all around. Written document has to follow the National Science Foundation (NSF) proposal guidelines. As per NSF, the proposal has to include 1 page Project Summary that includes Intellectual Merits and Broader Impacts with possible Transformative Nature of the proposed research. In addition to the Project Summary, the write-up has to include up to 15 pages of the Project Description. Last part of the write-up is list of references (not included in 15 pages limit). Details of the NSF proposal format requirements are available at the NSF web site: <a href="http://www.nsf.gov/pubs/policydocs/pappguide/nsf14001/gpgprint.pdf">http://www.nsf.gov/pubs/policydocs/pappguide/nsf14001/gpgprint.pdf</a> , Chapter II, Page II-1 (Page 18). Project Summary is described at page II-9 (Page 25) and Project Description and References Cited are described from II-9 to II-11 (Pages 25-27).

Suggested organization for the Ph.D. dissertation proposal is as follows:

**Introduction:** This section should include the purpose, the objectives (or accomplishments), and the scope of the proposed research.

**Background:** This section should include a summary of the literature concerning research work related to the proposed dissertation and how the proposed research builds on or relates to previous work.

**Approach and Methodologies:** A narrative of how the research is to be conducted, including an overview of the general research approach and techniques. Also, any experimental designs, statistical methods, and conceptual or mathematical models to be developed or employed should be discussed.

**Preliminary Results and Discussion:** Presentation of preliminary research results and their relevance to the proposed dissertation.

**Significance of the proposed research:** The purpose of this section is to explain why the proposed research is relevant and needed.

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**Literature cited:** All publications referenced within the proposal should be cited in the reference section.

The oral presentation of the proposal focuses on the dissertation. The student should demonstrate considerable depth of knowledge in the student's area of specialty and a clear understanding of the research methods that are needed for successful completion of the dissertation research. The oral presentation will begin with a presentation by the student on his/her dissertation topic and will be followed by questions and suggestions from the Ph.D. Qualifying Committee.

The student is advanced to candidacy after successfully completing this examination. Students who fail the qualifying examination are given a second opportunity to take the examination. The committee will typically give suggestions to modify or enhance his/her proposal. Students who fail the examination at the second attempt will be required to withdraw from the Ph.D. program.

#### Ph.D. Dissertation Defense

Following advancement to Ph.D. candidacy, the student formally begins his/her dissertation research. The progress of the dissertation is monitored by the student's Ph.D. Dissertation Committee. The Ph.D. Dissertation Committee consists of 3 members. It is recommended that the Ph.D. candidate interact frequently with members of his/her dissertation committee to ensure that dissertation progress is acceptable.

After completion of the dissertation research, a written draft copy of the completed dissertation must be submitted to the Ph.D. Dissertation Committee for review, evaluation, and determination of whether the draft thesis is ready for oral defense. Once a draft has been approved for defense, an oral defense of the dissertation will be scheduled. The oral defense is open to the entire academic community. It consists of a presentation followed by a question/answer period conducted by the Ph.D. Dissertation Committee and the audience.

An abstract and title should be submitted to the Graduate Assistant at least 9 days prior to the scheduled defense so that it can be advertised to the public for a period of at least one week. No exceptions will be made for late abstracts. Dissertation Committee members should fill out the *Form 5* and return it to the Graduate Assistant as soon as possible after the defense. *Please contact the Graduate Assistant for Form 5*.

Based on the written dissertation and the oral defense, the Ph.D. Dissertation Committee decides to 1) accept the dissertation and recommend to the Graduate Division that the Ph.D. degree be awarded, 2) ask that the dissertation be modified and re-defended, or 3) decline acceptance of the dissertation (normally, only after a second opportunity is given).

#### J. STUDENT PROGRESS AND REVIEW

The University of California has adopted a policy on the normative time in which students are expected to complete the requirements for a Ph.D. degree. Normative time is defined as the best estimate of the time required from campus graduate admission to receipt of a doctorate. Time spent in a M.S. program at UCR is normally counted against the normative time. Normative time is expressed in terms of calendar years; each calendar year consists of three quarters: fall, winter, spring. The University policy on continuous registration from students' first quarter to completion of their degree (unless on an approved Leave of Absence or withdrawn) is enforced. The normative time for any particular degree program is intended as a guideline; some students may finish in less than the normative time, others may require more. Normative time serves as the basis for determining whether or not students are making acceptable progress toward attaining their degree. The normative time for graduation for students pursuing a Ph.D. degree is five years. The normative time for graduation for students pursuing a M.S. degree is two years. All full-time Ph.D. students are expected to advance to candidacy prior to the sixth quarter of enrollment.

All ME graduate students receive a personal progress review in the fall or winter quarter each year for the previous academic year. The graduate advising staff member and Graduate Committee conduct the reviews for unsupervised graduate students. The supervising faculty conducts the review for students actively involved in research and those who have advanced to candidacy. The Annual Student Review form (see appendix) is sent to the graduate students, who complete the first section of the form and send it to their supervising faculty member. The faculty member completes the remainder and sends it to the graduate advising staff member. The graduate advising staff member and Graduate Committee assess the progress of each student. Copies of annual student reviews are forwarded to the Graduate Division and student (deposited into their mailbox on the first floor of WCH).

### **IV. FACULTY PROFILES**



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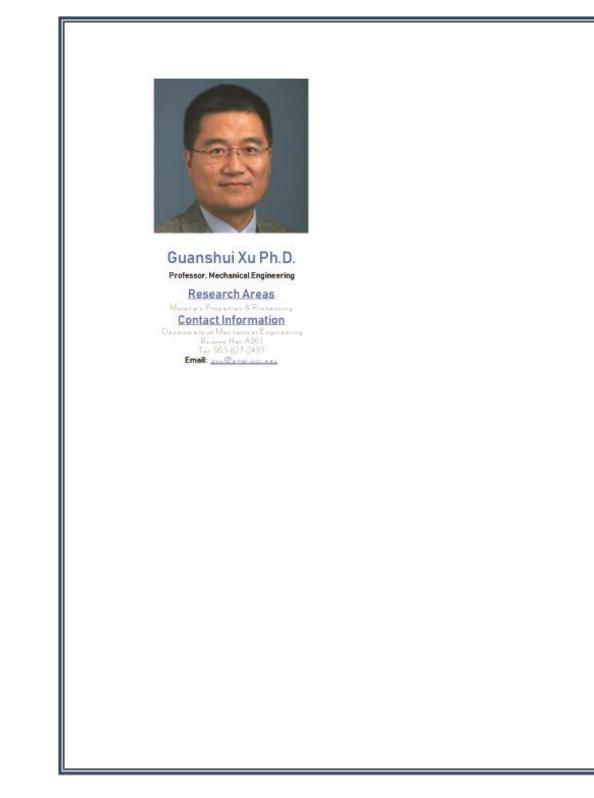
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## V. ME FACILITIES

The Department of Mechanical Engineering is housed in the recently opened \$41 million, 105,000 square-foot modern engineering complex, Bourns Hall. In Bourns Hall, the Mechanical Engineering Department occupies 1,800 square feet of teaching lab space, 8,000 square feet of research lab space, and 600 square feet of computing lab space. To meet the space needs of additional faculty and students in this growing department, a second engineering building is in the construction stage.

### A. AIR QUALITY LABORATORIES

The air quality laboratory facilities are associated with The College of Engineering Center for Environmental Research and Technology (CE-CERT) and the Air Pollution Research Center (APRC). Descriptions of these facilities follow.

#### 1. CE-CERT

Director: Matthew Barth, Ph.D. 1084 Columbia Avenue Riverside, CA 92507 (951) 781-5791; fax (951) 781-5790 info@cert.ucr.edu ; www.cert.ucr.edu

CE-CERT is a center for collaborative research by university, industry, and regulatory agencies on environmental problems. Founded in 1992, CE-CERT is housed in a 36,000 square-foot office and laboratory complex located two miles from the UCR campus in an industrial park. The laboratories at CE-CERT have been designed and developed to address air pollution and technology issues. Primary laboratories at CE-CERT include an atmospheric processes laboratory, vehicle emissions research laboratory, advanced vehicle-engineering laboratory, environmental modeling laboratory, pollutant analysis laboratory, and stationary source evaluation laboratory. Each of these laboratories is a state-of-the-art facility, and a number of the labs, especially the vehicle emissions research laboratory, contain equipment, which is unique to a university research facility.

#### 2. Air Pollution Research Center

The APRC research labs are housed in the Fawcett Lab on the UCR campus. The atmospheric chemistry group at APRC has four large volume (6000-8000 liter each) chambers for kinetic and product studies, with product analysis by gas chromatography (with flame ionization, Fourier transform infrared (FTIR) and mass spectrometric detection), in suit FT-IR absorption spectroscopy, and a PE SCIEX API MS/MS direct air sampling, atmospheric pressure ionization tandem mass spectrometer. Equipment for plant sciences research includes a greenhouse

with continuous stirred flow Teflon chambers and computer controlled fumigation capabilities.

### VI. ADDITIONAL BOURNS COLLEGE OF ENGINEERING FACILITIES

#### 1. Center for Nanoscale Science and Engineering

Director: Alex Balandin, Ph.D. ; <u>www.cnse.ucr.edu</u>

Engineers, physicists, computer scientists, neuroscientists, biologists, chemists, and biomedical scientists explore nanoscale materials, such as organic compounds, carbon nanotubes, and magnetic materials, for use in nanoelectronics, spintronics, sensors, and biomedical devices to develop new or improved technologies.

#### 2. Center for Research in Intelligent Systems

Director: Bir Bhanu, Ph.D. B232 Bourns Hall (951) 827-3954; fax (951) 827-2425; <u>www.cris.ucr.edu</u>

Promotes interdisciplinary research for developing computer systems that are flexible, adaptive, and intelligent. Involves an interdisciplinary team of faculty from Electrical Engineering, Computer Science, Psychology, Economics, Statistics, Mathematics, and Management. The goal is the research and development of autonomous/semiautonomous systems with sensing capabilities that can communicate and interact with other intelligent (biological and artificial) systems.

### **VII. ACADEMIC RESOURCES**

#### Graduate Division:

http://www.graduate.ucr.edu/ (951) 827-4302 or 951-827-3315

**Graduate Division Student Affairs & Academic Regulations**: <u>http://www.graduate.ucr.edu/studAfftoc.html</u> (951) 827-3315

Registrars Office: <u>http://registrar.ucr.edu/</u> (951) 827-7284

Financial Aid: http://www.finaid.ucr.edu/ (951) 827-3878

Student Business Services: http://www.sbs.ucr.edu/ (951) 827-3204

International Services: <u>http://www.internationalcenter.ucr.edu/</u> (951) 827-4113

Schedule of Classes: http://classes.ucr.edu/

**General Catalog :** http://catalog.ucr.edu/

#### VIII. MISCELLANEOUS DEPARTMENT INFORMATION

#### Student ID Card – Card & Key Access

All graduate students should have a student ID card and may receive one for a fee, at the Bannockburn Village I-101. For more information, visit <u>www.ucrcard.ucr.edu</u>. Access to research laboratories must be requested on a quarterly basis by the faculty member supervising the specific research laboratory. The Department Chair grants access to instructional laboratories to TAs on a quarterly basis. If regular keys are required for a specific door, a written request, approved by the student's advisor and must be submitted to the ME department office.

#### **Building** Access

Once you have your ID card, students should register with the systems administrator so that he can give you access into the building. Winston Chung Hall is locked at 5:30PM and does not reopen again until 7:30AM.

#### **Office and Desk Space**

Office and desk space, if available, is assigned to full-time students by the Graduate Chair. Preference is given to full-time students with teaching assistantships, full-time students with research assistantships, other full-time students, and finally part-time students, in that order. It may not be possible for every student to be assigned desk space.

#### Machine Shop

The machine shop facilities are located in the ground floor of the laboratory wing of Bourns Hall, room B155. Students may borrow equipment and use certain machine tools with supervision and prior approval of the Principal Mechanician or Machine Shop Manager. Such use is limited to research and is not for personal work.

In order to work in the shop, students must have completed the UCR's EH&S online Safety Laboratory training, review and sign the Machine Shop Chemical Hygiene Plan, and must pass the basic shop safety test. To use the lathe and the mill, students must complete the training and pass the test. Students are required to wear a name badge while working in the shop. Student's UCR ID card will be needed to insert it into the plastic name badge holders provided at the shop entrance.

If you require machining work from the Principal Mechanician or Machine Shop Manager, you will need to complete a requisition form so that we can track the actual progress of work in the shop.

Afterhours Access to the Shop: If you have been certified and have afterhours access, you will need to review and sign the Machine Shop's Chemical Hygiene Plan.

#### Mail

Incoming mail and intercampus notices may be picked up from mailboxes in the mailroom, A304 Bourns Hall. Outgoing intercampus mail and official university mail can be deposited in the main office, A342. Students should send and receive all personal mail (e.g. personal letters, bills, non-technical magazines) from their personal residences. *The department is not responsible for missing items. Please do not send personal mail to the department.* 

#### Copying

The department has only one copier and is used exclusively for faculty and staff. Teaching Assistants may use the printer and scanners in the TA room on the third floor. Copies should only be used for academic purposes; personal copies are not permitted. Copy codes can be obtained by Juana Guerrero, Assistant in the ME department.

#### Fax

The department has only one fax. The fax machine is located in the main suite room A342. The fax number is 951-827-2899. Personal faxes are not permitted.

\*\*Please note that ME graduate students leaving UCR without a degree will result in the termination of department services listed above (building access, office space, etc.), effective at the end of the quarter of enrollment. These students will be eligible for e-mail forwarding and will need to address this with the department Systems group. Exceptions may be made on a case-by-case basis and all requests must originate from the supervising active faculty member.

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