



MECHANICAL ENGINEERING
GRADUATE STUDENT HANDBOOK
2023-2024

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1 GENERAL INFORMATION

1.1 Registration, Enrollment, and Advising

Each student is individually responsible for meeting deadlines and ensuring they are enrolled in a **minimum of 12 units** every academic quarter (fall, winter, spring) (<http://classes.ucr.edu/>). Summer is not a regular academic quarter and does not generally require enrollment.

Each quarter before enrollment begins, all graduate students should review their ‘Degree Audit’ on R’Web.

1.1.1 Enrollment

Students can enroll in courses on R’Web before the deadlines as outlined here: <https://registrar.ucr.edu/calendar>. Generally, students should be able to self-enroll in R’Web during the graduate student open enrollment window.

Please note: Only Upper-Division Undergraduate and Graduate BCOE courses that relate to your degree should be taken. Taking courses outside of BCOE is highly discouraged and will not count toward you degree requirements, nor can they be used to supplement one's GPA.

Steps for enrollment outside of ME graduate-level courses:

- *Undergraduate Engineering Course Enrollment Process (numbered 199 or lower)*
To request enrollment in an undergraduate engineering course, please complete the BCOE Enrollment Assistance Form (EAF) online here: <https://student.engr.ucr.edu/enrollment-assistance>
- *Graduate Enrollment Process for non-ME courses (numbered 200 or above)*
To request enrollment in a course outside of engineering, please directly contact the Department or Program Student Services Advisor or Enrollment Center offering the course.

Additional information about registration and enrollment can be found in the General Catalog <https://registrar.ucr.edu/registering/catalog>, and at: <http://classes.ucr.edu/enrollment/>.

1.1.2 Advising

Students are required to complete a quarterly advising form each year. Ph.D. students and M.S. students on Plan I (thesis plan) must seek feedback from their research advisors. M.S. students on Plan II (comprehensive exam plan) and those who do not have a research advisor must seek feedback from the Graduate Advisor. Students submit signed forms to the Graduate Student Affairs Officer. All graduate students submit their annual form before the Fall quarter begins (or those entering the program in Winter or Spring will do so in their first quarter, followed by fall quarters annually). The students will update the form whenever their annual plan changes. <https://www.me.ucr.edu/academics/graduateresources>

1.2 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 a student will be allowed to transfer into their graduate record at UCR from institutions that are 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 points for this work when it is transferred to UCR. Approval from the Graduate Committee and the Graduate Division must be obtained before such units can be accepted for credit.

1.3 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 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, individual research, or other individual graduate work undertaken by a graduate student is normally evaluated using Satisfactory/No Credit (S/NC). No academic work applicable to a graduate program may be graded S/NC unless the course descriptions so indicate. Undergraduate courses, which are pure electives with no 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 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 when a student’s work is satisfactory but is incomplete because of circumstances beyond their 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 a TA, a GSR, a Teaching Fellow, or an Associate-Ins if they have more than 7 units of “I” grades.

The instructor must receive the incomplete portion of the work needed to earn a grade 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.

1.4 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 their work, acknowledge their use of others’ words, research results, and ideas, use 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 who 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 [Permission to Use Published Material in Dissertation/Thesis](#) form. *If you discover (or suspect) any cheating from a fellow graduate student and/or undergraduate, immediately bring the issue to the course instructor.* For more information on campus policies regarding [academic integrity and to report any incidences](#), please visit . Students may also refer to the [Resources for Current Graduate 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.

1.5 Student Progress

Students are considered to have made insufficient progress if:

- They have 12 or more units of “I” grades (incomplete coursework) 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

1.6 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 quarter. The Filing Fee is to be used only for students with thesis or dissertation drafts that require minor adjustments before the final submission or if on the MS Plan II, all requirements have been met except for the comprehensive exam. Students must submit their petition AND the draft of their M.S. thesis, M.S. project, or dissertation before the start of the quarter ([Ph.D.](#) petition, [M.S.](#) petition). Graduate Students on Filing Fee status only pay one-half the registration fee. They are not permitted to enroll in courses. They may not be employed as a Teaching Assistant or a Graduate Student Researcher. On filing fee status, students only retain library privileges and must purchase health insurance separately through the Campus Health Center. For complete information, please refer to [Graduate Divisions Regulations and Procedures](#). *If a student uses filing fee during the year and wishes to graduate

during the 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.

1.7 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 [Half-Time Status Request form](#) via [R'Grad](#). Please refer to the [Resources for Current Graduate Students for complete information and instructions](#). 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 before the quarterly enrollment deadlines. It cannot be offered 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 in this program. It may only be approved in the final quarter of study (without exception); graduation is expected for the following quarter.

1.8 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. They cannot take examinations or receive academic credit for work done during the Leave period. Requests will be considered case-by-case 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 form through [R'Grad](#). *LOAs will not be approved for financial reasons alone. The immigration status of international 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. International students considering a Leave of Absence must seek counseling through [International Students and Scholars](#) and the [International Affairs Office](#). For complete information (including examples of situations where a Leave of Absence is approved), please refer to the [Resources for Current Graduate Students](#).

1.9 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 for the MS degree is three quarters (one academic year).

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

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

2 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 made by the department. Research assistants or Graduate Student Researchers (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 \$32,495 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 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, or GSR.
- Must enroll 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 objectives or degree programs 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. 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's [fellowship regulations](#) and the [regulations for holders of teaching and graduate research assistantships](#).

2.1 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 by the end of 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 maintain their position by working with a principal investigator to maintain or retain the possibility of funding. Without securing an advisor, 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 (principal investigator/professor) may be rescinded at any time, at the discretion of the PI, and for fund availability.

2.2 Teaching Assistants, the VERSANT 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 course instructor. All TAs are required to take the [TADP 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 [online](#).

ME graduate students whose native language is not English or who have completed most of their undergraduate study in a non-English speaking institution must pass the VERSANT Test or score 23 or above on the Speaking portion of the internet-based TOEFL (iBT) test. The purpose of both tests is to evaluate English proficiency and comprehension.

Versant FAQs:

1. Do I have to take the Test?

If you want to be or are scheduled to be a TA, Teaching Fellow, or Associate In within the next six months and are in one of the following categories, then you should take the test. If you scored a 23 or higher on the speaking portion of the TOEFL IBT OR you scored a 7 or higher on the speaking portion of the IELTS, you fulfill this requirement. If your TA evaluations
Versant test.

2. How can I enroll?

Email Patrick Napier at patrick.napier@ucr.edu and provide him with the test session information you'd like to enroll in and your signed authorization form. This form will need to be signed as a form of payment. Graduate Division will charge your student account a \$70 test fee.

3. How can I withdraw?

Email Patrick Napier at patrick.napier@ucr.edu at least 2 business days before your test to request a withdrawal.

4. How can I change my test time?

Email Patrick Napier at patrick.napier@ucr.edu at least 2 business days before your desired test time.

5. How long will it take to receive my score?

It will take about two weeks for Graduate Division to review all scores. Your score will be emailed to you and your department.

6. What are the implications of the scores?

If you receive a NO PASS (39 or below), you will not be eligible to TA. You must retake the test to be eligible for TA in future quarters. If you receive a CONDITIONAL PASS (40-49), you can TA, but you will also be required to take an advanced ESL course at UCR Extension. You will need to retake the test at the end of this course. A conditional pass is only valid for 6 months. If you earn a CLEAR PASS (50 or above), you will NOT be required to take an ESL course or retake the test.

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 and support and meet with other TAs each quarter. Should another UCR course conflict with the ME 302 meeting(s), the student must obtain permission from the ME 302 instructor.

2.3 Student Assistants (Domestic & International)

Student Assistant positions are used in cases where a professor may employ a graduate student on filing fee status. 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 a filing fee also are not permitted to be employed as a TA or GSR, but may be as a Student Assistant.

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

2.4 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 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 internships are expected to be enrolled in one unit of ME 298I during the summer. This is done through UCR Summer Sessions Office, and students must pay the one-unit summer fee before registering for the course.

2.5 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 professional school fees if applicable.

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 if 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 indirect 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. A 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 coursework 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.

3 MASTER OF SCIENCE (M.S.) DEGREE PROGRAM

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

- by completion of a thesis ([Plan I](#)), which reports a creative investigation of a defined problem
- by passing a comprehensive examination ([Plan II](#)).

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 coursework is necessary for each quarter of academic residence. Students should enroll 12 units each quarter unless the Graduate Advisor grants an exception.

3.1 Master of Science Plan I (Thesis)

The M.S. degree Plan I (Thesis) requires completion of a minimum of 36 units of upper-division 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 20 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 the 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 coursework may be satisfied with directed studies (ME 290). Students must defend a thesis. For detailed course descriptions, please consult the [ME Catalog of Courses](#).

Coursework 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 coursework remaining in their Bachelor's Degree program and who have been admitted to graduate status may begin coursework 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 coursework in question. After entering the graduate program, these students may petition to transfer these units to their graduate records. 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 the following:

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

The student's M.S. Thesis Committee is responsible for approving the thesis. The thesis committee comprises three members (including the research advisor). After submission of the M.S. thesis, the student must defend the thesis in a defense. An abstract and title should be submitted to the Graduate Student Affairs Officer at least 10 days before the scheduled defense so that it can be advertised to the public for at least one week. No exceptions will be made for late abstracts. The student will 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.

3.2 Master of Science Plan II (Comprehensive Exam)

The M.S. degree, Plan II (Comprehensive Examination), requires completing a minimum of 36 units of upper-division and graduate-level approved coursework and successfully passing a comprehensive examination. At least 24 of these units must be in graduate courses (200 series courses), a minimum of 20 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 to complete the requirements of the MS Plan II. For detailed course descriptions, please consult the [ME Catalog of Courses](#).

The M.S. Comprehensive Examination will be prepared and administered by the Graduate Examination Committee. The exam typically takes place at the end of the spring quarter. 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: **materials structure & properties, control systems, engineering analysis, fluid mechanics, heat transfer, thermodynamics, and solid mechanics**. Students are strongly encouraged to complete the relevant graduate-level coursework for the selected subject areas:

Topic	Relevant course work	Quarter offered
Control Systems	ME235/EE235	Winter 2024
Engineering Analysis	ME200	Fall 2023
Fluid Mechanics	ME240A	Fall 2023
Heat Transfer	ME241A	Winter 2024
Thermodynamics	ME243A	Fall 2023
Solid Mechanics	ME261	Fall 2023
Materials Structure and Properties	ME266	Winter 2024

Students will be notified at least one month before the Comprehensive Exam Dates.

After the examination, the Graduate Examination Committee will issue a passing or failing grade. Students who fail on the first attempt may retake the test at the next scheduled comprehensive examination period. No more than two attempts to pass the exam are allowed. The second comprehensive examination is typically scheduled toward the end of summer.

Students will be notified about permitted materials such as calculators and hand-written notes as specified by the examiners.

Notes:

- A student, who plans to take the M.S. comprehensive exam, must submit a formal request to the Graduate Program Officer by the deadline announced by the Graduate Program.
- The Graduate Committee will review the exams promptly and make recommendations for ME Faculty's approval.
- Students are recommended to take the ME graduate and undergraduate courses offered during the Fall and Winter quarters to prepare for the exam.

4 DOCTOR OF PHILOSOPHY (PH.D.) DEGREE PROGRAM

The Ph.D. degree provides an opportunity for students to pursue a research program in a specialized area and 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 coursework;
2. Passing written and oral preliminary examinations;
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. Qualifying Exam 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 at 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.

4.1 Course Work

The coursework should be formulated by the student and their faculty advisor within the first quarter after admission to the Ph.D. program. 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 completing a minimum of 72 units of upper-division undergraduate or graduate-level approved coursework. Before the Ph.D. Qualifying Exam, at least 32 units of coursework must be completed. This excludes seminar and research credits. Of these, a minimum of 24 graduate units must be in Mechanical Engineering courses (ME 200 or higher, excluding ME 250, ME 290, ME 297, ME 298i, and ME 299). The student must take 6 units of the seminar (ME 250) and at least 36 units of directed or thesis research credits (ME 297 or ME299). Students may petition to transfer up to 2 graduate courses to apply toward the Ph.D. course requirement if those graduate courses have not been used to complete a degree. 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 [ME Catalog of Courses](#).

4.2 Preliminary Examination

The purpose of the Ph.D. preliminary examination is to screen candidates for continuation in the Ph.D. program. The Ph.D. preliminary examination must be completed in the graduate student’s first year. Administration of the preliminary exam is entirely the department’s discretion.

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: **materials structure & properties, control systems, engineering analysis, fluid mechanics, heat transfer, thermodynamics, and solid mechanics**. Students are strongly encouraged to complete the relevant graduate-level coursework for the selected subject areas:

Topic	Relevant course work	Quarter offered
Control Systems	ME235/EE235	Winter 2024
Engineering Analysis	ME200	Fall 2023
Fluid Mechanics	ME240A	Fall 2023
Heat Transfer	ME241A	Winter 2024
Thermodynamics	ME243A	Fall 2023
Solid Mechanics	ME261	Fall 2023
Materials Structure and Properties	ME266	Winter 2024

2. The oral component assesses 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 must submit a [form](#) that lists the committee members and the outcome of the exam signed by the committee chair. The oral exam must be completed within the first two weeks after the start of the Fall quarter following the written exam. For instance, if a student takes the written examination in Spring 2024, they are required to take the oral part of the preliminary examination before week 3 of Fall 2024. Failure to take the oral exam on time constitutes non-satisfactory progress and disqualifies the 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 it 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 before the Preliminary Exam Dates. They must submit the [Intent to Register Form](#) for the Preliminary Examination form, signed by their advisor, before the deadline set by the Graduate Committee.

The Graduate Committee decides by majority vote based on the written examination results. The committee will recommend that the student either passes or fails the examination. If the student passes, they will be permitted to develop a Ph.D. dissertation proposal. If the student fails the examination, they are given a second and final opportunity to retake 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 judgment, 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 coursework and acceptable satisfactory grades for the coursework. Once the additional coursework is completed satisfactorily, the student is declared to have passed

the examination. If the committee does not grant a conditional pass, the student will be required to withdraw from the Ph.D. program.

A student who withdraws from the Ph.D. program may petition to change their degree objective to an M.S. If the student has completed all requirements for the M.S. degree, they 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 students' readiness for the dissertation work at an 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 student and their dissertation advisor shall select the committee members. Students must submit a 1-page abstract to the oral examination committee 5 days before the examination date. 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.

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

After successfully completing the Ph.D. preliminary examination, the student, with advice from their 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 the *Nomination for Oral Qualifying Exam Committee* electronically via R'Grad to nominate their committee at least 2 weeks before the Qualifying Exam date. When the exam is taken, the student must submit *Report of Oral Qualifying Exam (and Nomination of Dissertation Committee)*, reporting their results. This form also serves as the form that nominates the Dissertation Committee. *Report of Oral Qualifying Exam (and Nomination of Dissertation Committee)* must be submitted electronically through R'Grad no later than 48 hours after the exam. All petitions should be submitted via the R'Grad petition portal. *More information about particular forms can be found here:*

<https://www.me.ucr.edu/academics/graduateresources>

<https://graduate.ucr.edu/petitions-and-forms>

The dissertation proposal consists of a written document and an oral presentation or defense. The procedure for a Ph.D. wishing to initiate a Qualifying Exam involves first, submitting a complete dissertation proposal to their Ph.D. Qualifying Committee. The Qualifying Exam will not be scheduled if the proposal is not in the appropriate format or does not have the appropriate content. Once the proposal has been accepted, the student may arrange an exam date with their 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. The 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. The last part of the write-up is a list of references (not included in 15 pages limit). Details of the NSF proposal format requirements are available at the NSF website: https://nsf-gov-resources.nsf.gov/202210/nsf23_1.pdf, Chapter II, page II-4. Project Summary is described on page II-10, and Project Description and References Cited are described on pages II-11 to II-13.

The 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 will 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: This section aims to explain why the proposed research is relevant and needed.

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 a considerable depth of knowledge in the student's specialty area and a clear understanding of the research methods needed to complete the dissertation research successfully. The oral presentation will begin with a presentation by the student on their dissertation topic and will be followed by questions and suggestions from the Ph.D. Qualifying Exam Committee.

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

4.4 Ph.D. Dissertation Defense

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

After completing 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 Student Affairs Officer at least 10 days before the scheduled defense so that it can be advertised to the public for at least one week. No exceptions will be made for late abstracts. Dissertation Committee members should fill out *Final Defense PhD* electronically through R'Grad.

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).

Students also need to submit a Signature Approval Page (Dissertation or Thesis) on R'Grad in which the Ph.D Dissertation Committee either approves or denies the final written Dissertation.

5 MISCELLANEOUS DEPARTMENT INFORMATION

5.1 Student ID Card – Card & Key Access

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

5.2 Building Access

Once a student has their ID card, they should register with the systems administrator to request access to the building. Winston Chung Hall is locked at 5:30 PM and does not reopen until 7:30 AM.

5.3 Office and Desk Space

Office and desk space, if available, is assigned to full-time students by the department. 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. For more information about office or desk space, please contact MEgradadmin@engr.ucr.edu.

5.4 Machine Shop

The machine shop facilities are located on 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.

To work in the shop, students must complete the UCR's EH&S online Safety Laboratory training, review and sign the Machine Shop Chemical Hygiene Plan, and pass the basic shop safety test. Students must complete the training and pass the test to use the lathe and the mill. 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.

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

5.5 Mail

Incoming mail and intercampus notices may be picked up from mailboxes in the mailroom, A304 Bourns Hall. Outgoing intercampus 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 residences. *The department is not responsible for missing items. Please do not send personal mail to the department.*

5.6 Copying

The department has only one copier 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.

5.7 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 email forwarding and need to coordinate this with the Systems group. Exceptions may be made case-by-case basis, and all requests must originate from the supervising active faculty member.***

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