

GRADUATE MANUAL

DEPARTMENT OF MECHANICAL ENGINEERING

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Last Revised: Spring 2018 (Draft)

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1 INTRODUCTION

1.1 Purpose of this Handbook

This document is intended to familiarize you, as a graduate student in the Department of Mechanical Engineering, with the requirements, policies and procedures involved throughout your graduate experience. The rules and regulations provided in this manual govern our academic programs and describe the duties and responsibilities of graduate students in the department. Graduate students should become familiar with the information presented here,

as well as with general Graduate School requirements outlined in the Graduate School Announcements¹ and the policies and procedures outlined in the Graduate School Policy Handbook². If the answer to a question cannot be obtained from this manual or the Graduate Student Announcements, the answer should be sought by asking: the Graduate Student Services Program Coordinator, the Graduate Director, or the Graduate School, preferably in that order.

Students must read this manual and return a signed copy of the [Form 15](#) (see Appendix) the Graduate Student Services Program Coordinator. Signing this form indicates that the Graduate Manual has been read in its entirety by the student.

1.2 Contact Information

The Graduate Student Services Program Coordinator is the initial contact for graduate students arriving on campus. The Director and the Coordinator are the authorities on regulations and procedures pertinent to the graduate programs and should be contacted whenever questions or problems occur. In addition to the Graduate Program Director and the Graduate Student Services Program Coordinator, graduate students within the department may also need to work with the Travel/Purchasing Representative and the Payroll Representative.

Graduate Program Director:	Dr. Joshua Summers jsummer@clemson.edu 203 EIB 864-656-3295
Graduate Student Services Program Coordinator:	Ms. Trish Nigro pnigro@clemson.edu 102B EIB 864-656-0999
Payroll	Kathryn Poole kathryp@clemson.edu 102A EIB 864-656-5638
Travel/Purchasing	Kathleen Grant grant5@clemson.edu 100 EIB 864-656-2484

2 ENTERING THE GRADUATE PROGRAM

2.1 Admission Requirements

2.1.1 Acceptance categories

Students are accepted into the program as either full, provisional or conditional status. Each indicates a different level of performance on the admission criteria.

2.1.1.1 Full Status

Your credentials equal or exceed every minimum admission criterion prescribed for the applied-for degree.

2.1.1.2 Non-Degree Status

There are two types, both are based on our desire to better assess a student's capability. The first is for part-time students (full time engineers). We use a single semester of course work to determine the ability to succeed. The second is for non-engineering undergraduates who need to take some ME undergraduate courses first based on their background. If course deficiencies are specified as a condition of your admission, it is important that you take the necessary courses early in your program to provide you with background for graduate-level courses. Normally, you remove these deficiencies by taking and passing the required courses during a regularly scheduled course offering. These courses do not count toward the total number of semester hours of graduate credit required for graduation.

¹ www.registrar.clemson.edu/html/catalogGrad.htm

² www.clemson.edu/graduate/students/policies-procedures/index.html

2.1.2 *Direct admission to the PhD program*

Students having a BS degree, but not having an MS degree, may apply directly to the PhD program. These students must satisfy the MS core course requirements (Table 4.1 and Table 4.3) before degree completion and may receive a one semester delay in deadlines associated with the PhD qualifying examinations. If the student fails the PhD Qualifying exam, the student is permitted to continue as a master's student but is ineligible to re-apply to any PhD program in ME. Students enrolled in the MS program will be accepted directly into the PhD program prior to the completion of an MS degree with the written consent of their advisor.

2.1.3 *Combined Bachelor/Master of Science (BS/MS) program*

Mechanical Engineering undergraduates at Clemson University may begin their Master of Science (MS) degree program in Mechanical Engineering while completing their Bachelor of Science (BS) degree and use a limited number of courses to satisfy the requirements of both their degrees. The following are required:

Undergraduates must have an overall GPA of 3.4 or better and must have completed their junior year courses prior to taking graduate courses for the BS/MS program. Graduate Record Examination (GRE) scores are not required as part of the initial application. However, GRE scores help determine graduate assistantships and fellowships.

Up to 12 semester credit hours from any 6000-8000 level courses may be used to satisfy the requirements of their BS degree and also be used for their MS degree. Technical electives may be used.

Since approval of the plan of study (GS2 form) by the student's graduate advisory committee is required, students should consult with their academic advisors before selecting courses to be included in their graduate program.

- Students in the combined degree program are conditionally accepted to the MS degree program until completion of their BS degree requirements. Students with this conditional acceptance are not eligible for a graduate assistantship until the conditional acceptance is removed.

Undergraduate students who are interested in the combined program should discuss it with the Graduate Director and their undergraduate academic advisor. Applications for this program should be made during the junior academic year. Currently, a paper application is required that is available from the undergraduate advising team.

2.2 **South Carolina residency**

The Office of Residency Classification handles all the information regarding domicile requirements for residency status. If you are interested in establishing South Carolina residency, review the up-to-date information.³ Questions should be addressed to the Office of Residency Classification G-01 Sikes Hall, (864) 656-2281.

2.3 **Tuition and Fees**

For current tuition and fees, please refer to the Financial Aid Website.⁴ General payment plan information can also be found at Financial Aid Website⁵.

Graduate assistants will receive an e-mail from Student Billing Questions. It will list instructions for you to sign up for a payment plan online through IROAR. This should be accomplished before tuition is due. Your payments will be deducted from the first five full paychecks of the semester.

For more information about academic costs, financial aid and making payments contact the Office of Student Financial Aid (G-01 Sikes Hall) or Student Financial Services (G-08 Sikes Hall).

2.4 **Username and TigerOne Card**

2.4.1 *Username*

Upon acceptance, you will be assigned a Clemson University computer user identification. This is a permanent, unique identifier that you will use every time you access the Clemson computer network. It is also referred to as your "username" or "USERID". More information on usernames and passwords can be found on the CCIT webpage.⁶

³ <https://www.clemson.edu/financial-aid/residency/requirements.html>

⁴ <http://www.clemson.edu/finance/student-financials/tuition-fees/>

⁵ <http://www.clemson.edu/finance/student-financials/billing.html>

⁶ http://www.clemson.edu/ccit/help_support/new_to_cu/

2.4.2 *TigerOne Card*

Soon after you arrive, you will want to obtain your TigerOne Card. This is your official Clemson University photo ID card and gives you access to a variety of services throughout campus and around town. Information on how to obtain your TigerOne Card is online.⁷

2.5 Registration

Course registration should be done with guidance from your research advisor. If you do not yet have a research advisor, for MS students, you will be initially designated as non-thesis for the first semester. In this case, you will need to register for four courses. These courses depend on your area of interest. Students can, with approved advising from the Director, modify these after the departmental orientation. More information on how to register for courses can be found on the Registration Portal.⁸ Students are expected to make continuous progress toward their degrees and, therefore, to be enrolled for graduate credits each semester during the academic year until requirements are completed.

Full-time student status is at least 9 hours, although students should normally enroll in 12 hours during the academic year and 6 hours during each summer session. Graduate research assistants and graduate teaching assistants are required to register for a minimum of 9 and a maximum of 12 credit hours during the academic year. Students falling below 9 credit hours may lose their assistantship. Therefore, students on assistantships are strongly encouraged to enroll in 12 credit hours. The minimum registration for unsupported students is 1 credit hour.

Students should prepare a program of study with the counsel of their major advisor prior to their second semester by completing form GS-2 Graduate Degree Curriculum. Any deviation from courses listed on form GS-2 must be approved by the student's advisor and a new GS-2 must be resubmitted and approved. Information on submitting the GS2 form can be found at Graduate School Website⁹. The Department requires an earlier deadline for the GS2 form than the Graduate School. Registration may be blocked if the GS2 form is not completed. Also, funding may be delayed if the GS2 form is not completed.

Students are referred to the Clemson Registrar's web site for the Graduate Catalogs. Click on the catalog year and Courses of Instruction for course descriptions.¹⁰

3 THE GRADUATE PROGRAM

3.1 Academic Requirements

3.1.1 *Maintaining academic standing*

A graduate student must maintain a minimum overall average of B (3.0) for all courses taken. If at any time you fail to satisfy this requirement, you will be automatically placed on probation for one semester during which time you will not be eligible for financial aid/assistantship. The first time a student is placed on probation is referred to as level PR1. A student on level PR1 status must enroll in 9 credit hours of course work the following semester and bring her GPA to 3.0 or higher. A student may be granted status PR2 for a second semester with a GPA lower than 3.0. Decisions are based on probability of academic recovery within Graduate School regulations. In addition, a failing grade (D or F) in a course in your major area may be cause for dismissal regardless of your overall average.

The awarding of an advanced degree does not merely attest to completion of academic requirements in courses, seminars and research activities, but also to the acquisition of acceptable professional standards, including standards of ethics (see the University's Academic Integrity policy). Violations of professional standards may result in disciplinary action, including dismissal from the program.

3.1.2 *Maximum enrollment*

The upper limits on graduate student enrollment per semester, as outlined in Table 3.1, refer to graduate and undergraduate credits combined and should be attempted only by the most qualified students. Should the six-week and three-week sessions run concurrently, the total credits are not permitted to exceed the upper limit for the six-week session. Graduate students paid solely on an hourly basis are not classified as graduate assistants but are subject to the

⁷ <https://www.clemson.edu/campus-life/tigerone/>

⁸ <http://www.registrar.clemson.edu/portal/>

⁹ <http://www.clemson.edu/graduate/students/plan-of-study/index.html>

¹⁰ <http://www.registrar.clemson.edu/html/catalogGrad.htm>

same limitation in credit loads. All requests for permission to exceed these limits must be requested by memo and approved by the Chair of the Department of Mechanical Engineering and the Dean of Graduate School.

Table 3.1: The upper limits on graduate student enrollment per semester

Student Category	Maximum Credit Hours		
	Semester	6-Week Session	3-Week Session
Full-time Students	15	6	3
1/4-time Graduate Assistants	12	5	3
1/2-time Graduate Assistants	9	4	2
3/4-time Graduate Assistants	9	3	1
Persons employed full time	9	3	1

Quarter-time, half-time and three-quarter-time graduate assistants are defined as those who contribute an average of 10, 20 and 30 clock hours per week, respectively, of service to the University for the entire semester. A person employed full time is defined as anyone employed five full working days per week regardless of the employer(s). A graduate student who becomes employed full time while the assistantship is in force must notify the Graduate School and the department providing the assistantship.

3.1.3 Seminar Series

The ME Graduate Student Council, the Department of Mechanical Engineering, and several research groups sponsor seminars throughout the year. Announcements will be made via email, flyers, and website postings. All graduate students are invited and encouraged to attend as many seminars as possible.

3.1.4 Honors and Awards

Every year the faculty of the Department of Mechanical Engineering will have the opportunity to nominate students for three graduate student awards, which are listed below. These nominations are due to the Scholarships, Awards, and Honors (SAH) Committee early in the Spring semester. Faculty members are encouraged to create strong packages at the time a student has demonstrated excellence, rather than waiting for solicitations by the SAH Committee. Several College level awards are also available.

3.1.5 Withdrawing from courses

As a graduate student in the Department of Mechanical Engineering, you are strongly encouraged to consult your major advisor before dropping any course for which you are enrolled in. If you drop a course when you have an assistantship, and your course load drops below nine credit hours, your assistantship may be revoked for that semester.

3.1.6 Withdrawing from the program/University

If for any reason you decide to withdraw from the program, inform your Major Advisor, then the Program Director, who will inform you of the procedures to be followed to officially withdraw from the University. Failure to follow the procedures may result in your owing tuition and other fees to the University. This applies to both domestic and international students.

3.1.7 Policy on transfer to another institution or program

The relationship between a faculty advisor and a graduate student is a unique one. Regardless of the form of financial support (and even without support) students must maintain a professional relationship with both their advisor and their peers. Early departure from a program can result in substantial delays to the research including its delivery to the sponsor.

As such, students are expected to complete the degree program that was started at Clemson. Any request to transfer to another program or institution during the work towards a specific degree must be approved by the academic advisor before any departmental letter of release will be provided. Only the Department Chair may sign a letter of release but will not do so without the consent of the academic advisor.

3.1.8 Policy on intellectual property

All computer programs written, data generated, discoveries made, derivations developed, etc., by a Clemson graduate student are the property of Clemson University, not of the student.

3.2 Forms on Degree Progress

You will be required to complete the following forms through the course of your studies. Up-to-date versions of the forms can be found on the Graduate School website¹¹ including specific deadlines¹².

Table 3.2: Forms to Complete in Mechanical Engineering

Form ID	Required By	Approximate Deadline*	To be Signed By
GS2*	Graduate School	Before the end of first Semester	Advisory Committee members ME Graduate Program Director ME Department Chair Dean of College Dean of Graduate School
GS5**	Graduate School	At least six months prior to graduation	Advisory Committee members
Diploma Application	Graduate School	Within first four weeks graduating semester	Online submission; user ID required
GS7M/GS7D***	Graduate School	Two weeks prior to graduation	Advisory Committee members
* Plan of study ** Admission to Doctoral Candidacy (for PhD students only) *** Final comprehensive exam and thesis/dissertation approval form			

3.3 Advisory Committee

Each graduate student must have a faculty advisor who will also be the chair of the student's advisory committee. The advisor must be a regular member of the Department of Mechanical Engineering faculty.

3.3.1 The Major Advisor

Students are expected to become familiar with the instructional and research activities within the department, particularly before the selection of an academic advisor. It is encouraged that you meet with faculty within your research area to gain information. An academic advisor should be selected during the first semester of study if possible. Students not having an advisor should contact the Graduate Director to discuss course enrollment options. Normally, the academic advisor also serves as the graduate research advisor for the student, as well as the chairman of the advisory committee. This person must be a tenured/tenure-track faculty member in the program awarding the degree.

The selection of the Major Advisor is one of the most important decisions a graduate student will face. The major Advisor helps plan the curriculum and guides the student's research activities and the preparation of her thesis, dissertation, or special project report. A change of Major Advisor will be permitted only under the most unusual circumstances.

3.3.2 Advisory Committee

Each graduate student will have an advisory committee comprised of a majority of Mechanical Engineering faculty. The student, in concert with the research advisor, will initiate a recommendation to establish the advisory committee. The advisory committee must consist of at least three faculty members for the MS degree and four for the PhD degree. If the student has declared a minor, at least one member of the committee must be from the faculty of the program offering the minor. The advisory committee must be appointed before registration occurs for the second semester of graduate study. The Advisory Committee will approve the curriculum (study plans), supervise the graduate program, administer the comprehensive and/or final examinations, and initiate the recommendation for awarding the degree. The Major Advisor will serve as the chair of the Advisory Committee.

The graduate student is responsible for forming the Advisory Committee and keeping them apprised of her progress.

¹¹ www.grad.clemson.edu/forms/GeneralForms.php

¹² www.grad.clemson.edu/Deadlines.php

3.3.3 *Plan of study (GS2)*

All new students are required to attend orientations held by the Department of Mechanical Engineering and the Graduate School to acquaint themselves with instructional and research activities of the department as well as with general regulations. Information from these orientations will help the student select a more specific research area and will allow them to choose their advisory committee members more responsibly.

Departmental policy requires that MS students submit a GS2 prior to the time it is required by the Graduate School. The form should be submitted before registration for the second semester of each student's program of study. Students who do not properly file the GS2 risk failing to receive proper advice from their faculty committee members and may face undue difficulties, including fines or delays in graduating. Students will not be permitted to enroll in courses for their second semester of study without a GS-2 form on file.

The GS2 represents a contract between the student, the advisor and the University. The Graduate School will use the Plan of Study in determining whether or not the student has met the graduation requirements when the application for a degree is made. It should be noted that study plans can be changed as degree programs proceed. Information on how to submit the Committee and Plan of Study is available on Graduate School website¹³. The GS2 form may be changed at any time; however, requests for changes in the plan of study must be processed before the requested change actually takes place. Retroactive change requests may not be acceptable. A revised GS2 form must also be approved by all committee members and by the Department Chair. Revised GS2s must be on file in the Enrolled Student Services Office.

3.4 **Assistantships/Financial Support**

3.4.1 *Employment paperwork*

Students with assistantships will need to meet with the graduate student coordinator who will provide them with an offer letter. They will then meet with the Mechanical Engineering employment assistant to complete payroll paperwork and verify reduction of fees. Two forms of identification are needed to fill out the I-9 form which verifies citizenship: A valid driver's license, original social security card or passport or birth certificate. Payment will be issued on a two-week lag on a semi-monthly basis. Students with assistantships will need to submit weekly "time captures" online as required by the University HR office

3.4.2 *Social Security number*

If you are an international student receiving an assistantship, you need to meet with the graduate student coordinator. You will see the payroll representative to complete payroll paperwork. If you are a new international student and need a social security card, an Employment Verification form & International Hire request will be completed. The new student uploads the Employment Verification form in the Sunapsis Student Portal along with immigration/check-in documents. It will be processed within two business days. Check status & when form is ready, go to International Services, 108 Long Hall to pick it up. Continuing students may take their Employment Verification form to International Services at 108 Long Hall.

To apply for a Social Security Card, you must be in the United States for at least 10 days. Take the Signed Employment Verification letter, original immigration documents, plus clear legible copies of your documents to the Social Security office¹⁴ (located at 4 Civic Center Boulevard Extension, Anderson, SC). Ask for a receipt letter when submitting your application. Once you have your receipt letter, you can make an appointment with International Employment through Genbook for your International Hire Request approval. For your international hire request to be approved, you need to make an appointment with International Employment online at Genbook¹⁵ (office located at ASB Bldg, 108 Perimeter Road), to complete your international employment and tax forms.

Print & complete the international employment forms packet¹⁶, sign and date the forms. Take the following items to your appointment with International Employment.

- Completed Clemson forms
- Unexpired foreign passport

¹³ <https://www.clemson.edu/graduate/students/gs2-hints.html>

¹⁴ <http://socialsecurityhop.com/offices/social-security-office-anderson-sc-29624-south-carolina>

¹⁵ <http://www.genbook.com/bookings/slot/reservation/30204286?bookingSourceId=1000>

¹⁶ http://www.clemson.edu/employment/international/int_employment_pack.html

- I-94 card
- SEVIS form I-20 (F1 visa) or SEVIS form DS-2019 (J-1 visa) with a complete copy of each.
- A signed U.S. Social Security card (if received)

Once the International Hire Form is approved, the hiring paperwork will be submitted. After being hired, you will need to complete the direct deposit information on the Employee Self Service website.

Financial support is awarded based on availability of funds and academic merit. If a student changes her subject area after support has been extended, support eligibility is reviewed, and funding may or may not be provided. PhD students and MS students pursuing research (thesis) are given priority for financial support. A graduate student pursuing Mechanical Engineering degree changing status from thesis to course option (non-thesis) may lose financial support.

Graduate students are eligible for financial support if they are (1) enrolled in full-time graduate studies, (2) in good academic standing, i.e., not on probation, and (3) making satisfactory progress toward their degree. Graduate Assistants receiving funding pay a reduced fee for tuition and fees. To receive the reduced tuition and fees for a particular semester, a qualified student must be on the department payroll by the end of the second week of that semester.

Graduate students must maintain a cumulative 3.0 average in all graduate-level courses (6000-level and above). Students who fail to meet these requirements become ineligible for graduation and are placed on academic probation. Students placed on academic probation are required to enroll in at least nine credit hours of course work towards their degree requirements in the semester immediately following their placement on probation (not including summer sessions). Failure to raise the student's cumulative GPA to a 3.0 or above at the end of this semester will result in dismissal from the program. Students whose cumulative GPA (inclusive of all semesters till date) is below a 3.0 will not receive any state funds. Also, a student who receives an "F" during any semester is not eligible for state funds for the next semester (without the consent of the Department Chair).

3.4.3 *Assistantship Opportunities*

- Graduate Assistants are employed for up to a half-time basis (average up to 20 hours per week) during a specified appointment period as indicated on the offer letters.
- Students must be enrolled full-time (9 graduate level credits) to receive funding.

3.4.3.1 Graduate Research Assistantships (GRA):

- GRA's are employed to assist professors in their research activities.

3.4.3.2 Graduate Laboratory Assistantships (GLA):

- GTA's (GLA) are responsible for grading lab reports and attending GTA (GLA) meetings as needed.

3.4.3.3 Graduate Grading Assistantships (GGA):

- GGA's assist with faculty with grading materials in undergraduate and graduate courses.
- GGA's are not expected to grade exams and are not expected to exceed their assigned hours. Deviations from these expectations should be discussed with the assigned faculty and with the Director immediately.

3.4.3.4 Graduate Fellowships Holders:

- Students must be enrolled full-time (9 graduate level credits).

3.4.3.5 Offer Letter:

The responsibilities and details of an individual's financial support are included in his or her official offer letter from the Department Chair. This letter requires the individual's signature indicating an acceptance of the terms. GLA's are notified later of their teaching duties. To maintain the assistantship, students must complete the duties in a satisfactory manner and make satisfactory progress towards their degree.

3.4.4 *Employment-related information*

3.4.4.1 Work injury protocol

Should you be injured during the course of your employment responsibilities, you must immediately report the injury to your supervisor. Your supervisor should then immediately call the workers' compensation insurance company. Their medical manager will gather information about the accident and direct you to a healthcare facility or physician for treatment. No coverage will be provided for work-related claims unless reported by your supervisor before you

receive medical treatment at the authorized provider. In the event of severe injury/emergency, call 911 first, and then execute the above procedures.

3.4.4.2 Reduction of pay

Normally, your agreed-upon workload will be submitted as hours worked for each payroll period. However, if the amount of work you perform consistently deviates below the required workload, your pay will be reduced accordingly. Due to the procedure in which time sheets are currently used, it may be necessary to implement any pay reductions in the pay period following the one in which the work deficiency actually occurred. Pay also may be withheld from students who violate the vacation policy. More information on holiday leave, leave without pay, and maximum work hours can be found in the Clemson University Graduate Manual.¹⁷

3.5 Internships and Co-ops

3.5.1 Master's Thesis and PhD students:

Thesis students will be allowed to do internships and co-ops at the discretion of their major advisor.

3.5.2 Master's non-thesis option:

Due to the suggested timeline of the non-thesis MS degree program, completing an internship is not recommended as it extends this timeline for graduation. The approval for such an internship is at the sole discretion of the student's advisory committee.

4 PROCEDURES FOR STUDENTS SEEKING GRADUATE DEGREES

4.1 General Requirements for Mechanical Engineering Program

4.1.1 Typical Minimum Degree Requirements

The typical requirements for MS and PhD programs in Mechanical Engineering are outlined in Table 4.1 **Error! Reference source not found.**

Table 4.1: Mechanical Engineering minimum degree requirements

Program	MS Thesis	MS Non-Thesis	PhD****
Total Hours of Courses*	24 hours	33 hours	Same as MS Thesis with no MS***
Core Courses Required	EM – 4 courses TFS – 5 courses DSC – Dept. Core DM – Dept. Core	EM – 4 courses TFS – 5 courses DSC – Dept. Core DM – Dept. Core	EM – 4 courses** TFS – 5 courses** DSC – Dept. Core** DM – Dept. Core**
Written Requirements	6 hours Thesis (Grad School)		18 hours Dissertation (Grad School)
Exams	Thesis Defense	N/A	Qualifying
Residency			15 credit hours completed on campus in 12 month period (petition for exceptions will be reviewed by Graduate School)
<p>* At least half of the courses must be above the 6000 level (i.e., 8000 & 9000 level). Half or more of the courses must come from ME, and at least half of ME courses must be above 6000.</p> <p>** Applies to MS students and PhD students not having an MS degree.</p> <p>*** All PhD students enrolling in the PhD program on or after 1/2013 will be required to take a minimum of 12 credit hours of course work.</p>			

¹⁷ <https://www.clemson.edu/graduate/students/policies-procedures/index.html>

**** A minimum of 30 and 60 credit hours must appear on the GS2 for PhD students having an MS and those not having an MS, respectively. This includes courses and research credits (ME 9910)

4.1.2 Core course requirements

Mechanical Engineering degree seeking master's students and PhD students not having a master's degree are required to satisfy departmental core course requirements listed in Table 4.2. At least three of these courses must be taken to meet the departmental core.

Table 4.2: Departmental Core Courses

ME 8010	Foundations of Fluid Mechanics	ME 8310	Convective Heat Transfer
ME 8100	Macroscopic Thermodynamics	ME 8370	Theory of Elasticity I
ME 8180	Intro to Finite Element Analysis	ME 8460	Intermediate Dynamics
ME 8200	Modern Control Engineering	ME 8610	Material Selection for Design
ME 8290	Energy Methods	ME 8700	Design Methodology

There are four "Subject Area Groups" for the purpose of defining core course requirements: Design and Manufacturing (DM), Dynamical Systems and Controls (DSC), Engineering Mechanics (EM), and Thermal and Fluid Sciences (TFS). Typically, students align with their advisor's subject area group. Recommended courses for each group are illustrated in Table 4.3. Non-thesis MS students also need to have an assigned advisor and advisory committee with an approved GS2 form on file that meets departmental core course requirements.

Table 4.3: Mechanical Engineering recommended core courses for each subject group

DM/DSC	EM	TFS
<ul style="list-style-type: none"> No Group Cores (Dept. Core) 	<ul style="list-style-type: none"> ME 8370; ME 8460 or ME 8010; ME 8180 or ME 8520; Approved Math or Physics course 	<ul style="list-style-type: none"> ME 8010 ME 8100 ME 8120 ME 8310; MTHSC (6000 and above) or Physics 8110 or Phys 8120

Core course requirements must be met by all MS and PhD students not having an MS degree. All PhD students, whether having an MS degree or not, are required to take a minimum of 12 credit hours of graduate level course work. Any changes to course requirements, such as waivers or substitutions, must be approved by the Department Chair. Requests should be made in a timely manner and should be pre-approved by the Department Chair. Courses taken prior to the request are subject to rejection by the Chair.

5 MASTER'S DEGREE PROGRAM IN THE DEPARTMENT

5.1 Master of Science Degree in Mechanical Engineering Program

Within the Department of Mechanical Engineering, the Master of Science (MS) degree program in mechanical engineering has two options: (a) the MS thesis option and (b) the MS non-thesis option. Further, part-time students (full time professional engineers), can complete a MS degree through evening coursework. As of Spring 2018, the time limit to complete a master's degree from matriculation to graduation is six years.

5.1.1 MS thesis option

The purposes of the MS thesis: Students enrolled in the MS thesis option must prepare and defend an MS thesis. The purposes of the MS thesis are to demonstrate the capability of the student to: (1) formulate engineering problems within a research project; (2) utilize engineering knowledge relevant to a meaningful resolution of a specific problem; (3) effectively plan and carry out the work leading to the completion of the project; and (4) report (orally and in writing) the results of the project in concise, precise professional style.

5.1.1.1 Thesis preparation guidelines/regulations:

The MS degree candidate (thesis option) must prepare her thesis as an electronic manuscript and submit it to the Graduate School (see website¹⁸). Regulations concerning the mechanics of thesis preparation, including format, font type and size, margins, are defined by the Graduate Council of Clemson University.

5.1.1.2 Thesis submittal to committee and defense scheduling:

The student should complete, with the research advisor's approval, a final draft of the thesis at least two weeks before the thesis presentation and defense (the final examination). Hard and electronic copies of the final draft approved by the research advisor must be submitted to the advisory committee at least two weeks before the thesis defense. It is within the right of the advisory committee member to refuse to meet for the thesis defense without a two-week review period.

The student is required to submit the thesis title, abstract, date, time, and place along with committee members by email to the ME Graduate Student Services Program Coordinator at least two weeks prior to their defense. Thesis defense notices must be sent to ME Graduate Student, and faculty by the ME Graduate Student Services Program Coordinator at least ten working days before the defense.

The research advisor/committee chair will approve scheduling of the thesis defense. See the Graduate School Announcements¹⁹ for details pertaining timing requirements for the thesis defense (final exam).

5.1.1.3 Thesis presentation and defense:

The thesis defense (the final examination) is administered by the student's advisory committee and immediately follows the thesis presentation. All faculty members and students are invited to attend thesis presentation. Thesis defense, on the other hand, is open only to Clemson University faculty.

After the defense is completed, Form GS-7 signed by all members of the advisory committee is submitted by the committee chairperson to the ME Graduate Student Services Program Coordinator. This form is next forwarded to the Graduate School.

5.1.2 *MS non-thesis option*

Mechanical Engineering students enrolled in the MS non-thesis are not required to pass a final examination (GS-7). These students should check the box on the GS-2 form labeled MS non-thesis no GS-7 required. Satisfying the constraints of Table 4.1 and a GPA of ≥ 3.0 in all graduate courses meets the requirements for graduation candidacy.

A non-thesis advisory committee will typically comprise of the departmental leadership team, with the Graduate Director serving as the chair. Students can form alternative committees with the approval of the Graduate Director. Non-thesis students have the option to change their advisory committee on rare and justifiable occasions, however it is not advised. Thesis students who intend to switch to non-thesis must seek their major advisor's approval. The advisory committee need not be changed, unless instructed otherwise by the major advisor.

The time required for the full time MS non-thesis degree is expected to be 12 months (two semesters and one summer). Delays, including internships, may impact visa status.

5.1.3 *Both MS thesis and MS non-thesis options*

Form GS-2 must be on file by the end of the semester preceding the one on which the degree is to be conferred.

Form GS-4 is the application for the diploma and it must be filed early in the final semester (see the Graduate School announcements for specific dates). The GS-4 form must be completed and filed for each semester in which the student plans to graduate. If the student plans to graduate in May but cannot complete the necessary requirements and changes to August, then a new GS-4 form must be completed and filed for August. Graduate Deadlines can be found on the Graduate School's website²⁰. A late fee will be assessed for a student whose Form GS-4 is submitted after the deadline dates specified in the Graduate School Announcements. If the student has questions about graduation, or she is not certain about what is required for graduation, the student should call the Graduate Enrolled Services at (864)656-5339 (students with last names beginning with A-L) or (864)656-5341 (students with last names beginning with M-Z). Students must be enrolled during the semester they plan to graduate.

¹⁸ <http://www.grad.clemson.edu/Manuscript.php>

¹⁹ <http://www.grad.clemson.edu/forms/RecentCatalogs.php>

²⁰ <https://www.clemson.edu/graduate/students/deadlines.html>

5.1.4 *Master's student checklist*

Table 5.1 **Error! Reference source not found.** provides a checklist of milestones in the Master of Science degree program for the thesis option.

Table 5.1: Checklist of milestones for Master of Science students (thesis option)

What	When	How
Selection of research advisor	Before fifth week of first semester	Student provides ME Graduate Student Services Program Coordinator with name of research advisor
Preparation of study program	Before seventh week of first semester	Student does it in consultation with research advisor
Selection of advisory committee and filing of study plan	Before on-line registration for second semester	Student must submit online Form GS-2 in iRoar
Admission to candidacy for degree and application for diploma; cap and gown rental	By the end of the third week of the semester in which degree is expected	Student must apply to graduate in iRoar
Submittal of first draft and final version of thesis report	First draft must be submitted at least four weeks before date of thesis presentation and defense; final draft approved by research advisor must be submitted at least two weeks before defense	Student must submit
Thesis Presentation and Defense	At least three weeks prior to date on which degree is expected (see Graduate School schedule for last possible date)	After examination is completed, Form GS-7 is filed by committee chairperson with ME Graduate Student Services Program Coordinator. The form is next forwarded to the Graduate School.
Clear Office Space and Return Keys	Before leaving campus	Student must file Check-Out Form signed by research advisor to ME Graduate Student Services Program Coordinator

Error! Not a valid bookmark self-reference. provides those for the non-thesis option. Refer to the Graduate School's website for actual deadline dates.

Table 5.2: Checklist of milestones for Master of Science students (non-thesis option)

What	When	How
Selection of advisor/advisory committee chairperson	Before fifth week of first semester	Student provides ME Graduate Student Services Program Coordinator with name of advisor
Preparation of study program	Before seventh week of first semester	Student does it in consultation with advisor
Selection of advisory committee and filing of study plan	Before on-line registration for second semester	Student must submit online Form GS-2 in iRoar
Admission to candidacy for degree and application for diploma; cap and gown rental	By the end of the third week of the semester in which degree is expected	Student must apply to graduate in iRoar
Clear Office Space and Return Keys	Before leaving campus	Student must file Check-Out Form signed by research advisor to ME

		Graduate Student Services Program Coordinator
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6 DOCTORAL DEGREE PROGRAM IN THE DEPARTMENT

6.1 Doctoral Degree in Mechanical Engineering Program

6.1.1 PhD qualifying examination

6.1.1.1 Purpose and scope

The purpose of the PhD qualifying examination is to:

- Provide students with an opportunity to review core disciplines in mechanical engineering and, optionally, in another research related area (approximately 75% at the undergraduate and 25% at the graduate level);
- Provide an assessment as to whether students possess attributes of a doctoral candidate by demonstrating understanding of and the ability to apply fundamental principles; and
- Evaluate a student's potential for satisfactorily completing the doctoral program.

6.1.1.2 Exam selection and scheduling

With the approval of their advisory committee, students must select three exams, at least two in Mechanical Engineering with a possible third from another area administered from departments in our College as it relates to a student's specialization. Exams may be selected from topics found in Table 6.1.

Table 6.1: Qualifying Exam Topics by Subject Area

DM	DSC	EM	TFS	General ME
Engineering Design	Dynamics and Vibrations	Solid Mechanics	Heat Transfer	Engineering Mathematics
Manufacturing Processes	Systems and Controls	Engineering Materials	Thermodynamics	
			Fluid Mechanics	

Exams must be taken only after admission into the Mechanical Engineering graduate program. Full time PhD students must take three exams before the second semester (Fall/Spring). Full time PhD Direct students must take three exams before the third semester (Fall/Spring). Part-time PhD students must take three exams before the start of their fourth semester. Students must pass at least one exam in the first round of testing to continue in the program. Students must have passed all three exams by the semester following their first round of exams in order to continue in the program. Students who fail to attend an exam for which they signed up will be given an F for that exam. In the event of extenuating circumstances, an advisor may request a one semester delay in taking the qualifier exams for a student. Such requests are expected to be rare. Examples of such circumstances include backgrounds in fields significantly different from mechanical engineering and significant medical or personal problems. Requests should be made in writing and submitted to the Graduate and Research Committee for approval.

Each exam will be written and last no more than two hours. The exams will be scheduled in the morning and in the afternoon on Monday and Tuesday of the first week of the Fall and Spring semesters; before classes begin.

6.1.1.3 Grading – PhD qualifying exam

All problems on all exams will be graded by all members of an examining committee. Grades of Pass (P), Marginal (M) or Fail (F) will be assigned for each written exam based on the consensus of each examining committee. Grading of the written exams will be completed, and the results will be available by 12:00pm on Monday of the second week of the semester.

6.1.1.4 Procedures after exam is graded

- Students receiving a P grade on all exams may continue in the PhD program.
- Students receiving an F grade on all three exams will not be permitted to continue in the PhD program.
- Students who have received F grades on one or two exams must either re-take exams for which an F grade was received or take different exam(s) during the next semester when exams are offered. Switching to a

different exam still constitutes a second attempt. Taking an exam for the first time because of not taking three exams during the first attempt, still constitutes a second attempt.

Students receiving an M (marginal) grade on any exam will be given a short (nominally 30-minute) oral exam by the respective examining committee. Oral exams will be scheduled in an expedient manner and results will nominally be made available by the end of the second week of the semester. The sole purpose of the oral exam is for the examining committee to obtain additional information to determine the final outcome of the student's written exam. Hence, the scope of questions during the oral exam should be limited to the subject matter covered on the written exam. Upon completion of the oral exam, the examining committee will assign one of the following grades:

- Pass (P) – student has passed the exam.
- Conditional Pass (CP) – student has passed the exam subject to conditions, e.g. taking a graduate-level course selected by the examining committee and passing it with a grade of A. This grade should be given only on rare occasions.
- Fail (F) – student has failed the exam.

Students who received an F grade on a second attempt on any examination will not be permitted to continue in the PhD program.

6.1.1.5 Appeal procedure

The qualifying exam process provides for re-examination mechanisms for students who fail one or two exams on their first attempt. Failure of three exams on first attempts or one or more exams on second attempts dictates that students may not continue in the PhD program. It is the consensus of the faculty of the Department of Mechanical Engineering that outcomes of the qualifying exam process will not be the subject of appeal, except where it is the consensus view of a student's advisory committee that procedures set forth were not followed.

6.1.2 *PhD comprehensive examination*

Comprehensive examinations are given only at the recommendation of the student's advisory committee and after completion of most of the required course work. General requirements and a description of the PhD Comprehensive Examination are given in the Graduate School Announcements (www.grad.clemson.edu). Satisfactory completion of the comprehensive examination must occur no more than five semesters and at least twelve months prior to the date of graduation (as of Fall 2018, per ME departmental policy). In the Department of Mechanical Engineering the comprehensive examination may only be taken after an advisory committee has been selected, a graduate degree curriculum has been approved using Form GS-2, and the Qualifying Examinations have been successfully completed.

The exam must be passed by the end of the fifth semester in which student status is full-time and a GS5 Form must be filed with the Graduate Student Services Coordinator:

- In extenuating circumstances, the advisor may request a delay from the student's advisory committee for the student to take the exam during the sixth semester.
- A student's advisory committee may request the comprehensive exam be taken earlier.
- Time begins when a student enrolls in the PhD program. Students become PhD candidates after they pass the Comprehensive exam and their GS5 Form has been processed.
- Grading of the first taking of the exam will be "Pass", "Fail", or "Marginal". A student who receives a grade of Fail will be dismissed from the program. A student who receives a Marginal has one more chance to take and pass the exam.

Advisory committees often direct that a student take the comprehensive examination after preparing, or in conjunction with presenting, the research proposal. The precise format is determined by the advisory committee and may be oral and/or written. The comprehensive examination typically focuses on the student's research area, but also may cover additional material to obtain objective evidence of an adequate intellectual mastery of major and minor specializations. The research proposal should be provided to the committee at least two weeks prior to the examination/defense.

6.1.3 *PhD final oral examination*

With the approval of the research advisor, a student should normally complete a draft of the dissertation at least five weeks before the date of the final oral examination. Final copies approved by the advisor must be presented to advisory committee members no less than ten business days before the final oral examination. It is within the right of the committee member to refuse to meet without a two-week review period. The committee chairperson will schedule the

final examination, which must be given no later than three weeks before the date on which the degree is to be conferred. The last date for the final examination is published in the Graduate School Announcements.

The student is required to submit the dissertation title, abstract, date, time, and place along with committee members by email to the ME Graduate Student Services Program Coordinator at least two weeks prior to their defense. Dissertation defense notices must be sent to ME Graduate Student, and faculty by the ME Graduate Student Services Program Coordinator at least ten working days before the defense.

Information relating to final oral examination scheduling and requirements is contained in the Graduate School Announcements (www.grad.clemson.edu). Additional information can be obtained from the Graduate Director.

6.1.4 Submittal of the dissertation to the graduate office

Please refer to the Graduate School's website on the process of the manuscript submission²¹.

All theses and dissertations shall be prepared in accordance with guidelines established by the Graduate School²². This guide provides advice on preparing an acceptable and effective thesis or dissertation. You should consult this guide before beginning the writing phase of your graduate research. Pay attention to formatting requirements.

It is required that you fully complete your thesis or dissertation before leaving the University. Only under special circumstances, and with consent from their major advisor, will students be allowed to complete their manuscript after leaving the University.

6.1.5 Patent, copyright/publishing information

Clemson University and the Department of Mechanical Engineering retain full ownership rights to any inventions, discoveries, developments and/or improvements, whether or not patentable (inventions), which are conceived, developed or reduced to practice, or caused to be conceived, developed or reduced to practice by graduate students during the course of their research activities conducted as part of any Graduate School curriculum. Any such invention will be handled by the University in the same manner as set forth in The Faculty Manual of Clemson University²³.

You will retain copyright ownership of your thesis/dissertation. However, the right to publish research will be maintained by the Department of Mechanical Engineering. Copyright ownership of any research publications will be determined by University policy and by the policies of organizations responsible for publishing or distributing copyrighted materials.

All graduate students should keep a formal notebook for recording research procedures and results. Students are urged to study the recommendations for maintaining proper research records that are listed at the University's Patent Policy page²⁴

All data, research notebooks and related materials, such as slides, pictures, graphs, or publication reprints, generated by any graduate student within the department are the property of the department and will remain in the department after your graduation/departure. You must collect these materials and submit them to your Major Advisor before you graduate/depart. The major advisor will have final authority on the disposition of any or all these materials.

6.1.6 Application for the diploma

The formal application procedure for the diploma is governed by the Graduate School and published in the Graduate School Announcements. A nominal diploma fee must be paid at the time of application if mailing is required and arrangements should be made for cap and gown rental. The GS 4 is required for each semester the student plans to graduate. If the graduation date is changed a new GS4 Form will need to be completed each time.

6.1.7 Time required for the doctoral degree

The Graduate School places restrictions on the maximum time allowed to obtain a graduate degree. Refer to the Graduate School's Handbook²⁵ for updated policies and details.

A minimum of 12 credit hours of course work is required (for students entering the PhD program on or after January 2013). Committees are encouraged to require courses other than those that directly support the dissertation defense. A minimum of 18 semester hours of doctoral research credit are required. Work in the minor field or fields, if required,

²¹ <http://www.clemson.edu/graduate/students/theses-and-dissertations/index.html>

²² www.grad.clemson.edu/Manuscript.php

²³ <http://www.clemson.edu/campus-life/student-conduct/file-sharing.html>

²⁴ <https://www.clemson.edu/research/grants-contracts/policy%20guide/propertymanagement.html>

²⁵ <http://www.clemson.edu/graduate/students/policies-procedures/index.html>

normally comprises from 12 to 24 hours in courses carrying graduate credit. In general, the degree will be awarded when the academic and research advisor(s) are satisfied that the research program is complete and that all other formal requirements have been met. Typically, doctoral degrees are completed within three to four years. The Graduate School has an eight-year limit, from entrance to program to graduation, for PhD students. Waivers can be requested for exceptional situations.

6.1.8 *Endowed Teaching Fellows policy*

6.1.8.1 Intent and Objectives

The Endowed Teaching Fellows program is established within the Department of Mechanical Engineering in order to promote PhD students who have the potential and desire to pursue an academic career. Through the Endowed Teaching Fellows program, the Department will help such students acquire in-class teaching experience with the intent of making them more competitive when applying for a faculty position. The Teaching Fellows program is a two-semester program for each Endowed Teaching Fellow. During the first semester, the Fellow will be advised and will team teach a section of a required undergraduate Mechanical Engineering course with a Faculty Mentor. During the second semester, the Fellow will teach one section of the same course alone. The Fellow will receive a stipend supplement. It is permissible for the Faculty Mentor to be the Fellow's advisor. However, a mentor other than the advisor is suggested in order to maximize the Fellow's exposure to different perspectives on the academic enterprise.

6.1.8.2 Announcement

The Graduate Research Committee (GRC) will announce the call for nominations for the Endowed Teaching Fellows program to all PhD students and Mechanical Engineering faculty via email at the beginning of each Fall and Spring semester, contingent on the availability of funds. The announcement will contain this Teaching Fellows Policy and the relevant due dates.

6.1.8.3 Eligibility

To be considered for an Endowed Teaching Fellowship the student applicant:

- Must be a PhD student who has passed the PhD Qualifying Exam.
- Must have completed at least two semesters as a graduate student at Clemson prior to the submission of their application package.
- Must have a graduate GPA of 3.5 or higher at the time of submission of their application package.
- Must be perceived by each member of the student's advisory committee as having high potential to be successful in academia.
- Must possess good communication skills.

6.1.8.4 Application

To apply for the Endowed Teaching Fellowship, the student must submit the following to the respective subject area group Chair and the Chair of the Graduate Research Committee:

- Letter of interest and statement of career plans.
- Resume.
- Academic record.
- A nomination statement written by the student's academic advisor and signed by each member of the student's advisory committee stating that the student has high potential to be successful in academia.

Students who fail to submit one or more of the above or fail to meet the application dead line will not be considered.

6.1.8.5 Considerations by the Subject Area Group

Each subject area group will conduct a meeting where the qualifications and potential of each applicant in that subject area are discussed. This will be followed by a closed ballot. Ballots will permit a yes or no vote for each applicant. The subject area group will provide the Chair of the Graduate Research Committee with a ranked list of the applicants indicating ties, if any. The subject area groups are free to forward to the Chair of the Graduate Research Committee any other comments about the candidates that they deem relevant.

6.1.8.6 Considerations by the Graduate Research Committee

The Graduate Research Committee reviews both the application packages and the ballots it receives from the subject area groups. Candidates that the Graduate Research Committee considers having made the final cut are required to give a brief oral presentation to the Graduate Research Committee to assess their communication and potential

teaching skills. The Graduate Research Committee contacts these candidates with details on the exact length and topic of the oral presentation as well as location and time of the presentation. Open discussion regarding the qualifications and the potential of each applicant are held by the Graduate Research Committee. This is followed by a closed ballot vote to rank the candidates. Ballots will permit a yes or no vote for each applicant. Ballots will be tallied by the chair of the Graduate Research Committee to provide a ranked list of the applicants indicating ties, if any. All subject area group and Graduate Research Committee ballots and ranked lists are given to the Department Chair.

6.1.8.7 Selection by the Department Chair

Final selection of Endowed Teaching Fellows is made by the Department Chair.

7 FINAL CHECK-OUT

When you leave the University due to graduation or any other reason, you must do the following pertaining to the department:

- Turn in all keys to departmental staff members in the Machine Shop.
- Return all equipment and supplies to appropriate locations.
- Be sure that any portion of the laboratory and/or office that you occupied is clean and ready for another occupant.
- Return all borrowed materials (books, journals, etc.) to their appropriate location.
- Inform the Graduate Student Services Program Coordinator that you are leaving and have complied with all regulations and schedule an exit interview.
- Complete the departmental Graduate Student Final Check-Out Form. No student will be cleared with the Graduate School until the check-out form has been completed.

8 GENERAL POLICIES

8.1 Responsible Research Conduct

8.1.1 *Student Responsibilities*

The Department of Mechanical Engineering expects each graduate student to approach their graduate study in a professional manner. Each course typically requires ~10 hours per week, assistantships range from 10-20 hours per week, and research will require 20-30 hours per week. Specific expectations of the advisor should be clarified by the student at the beginning of their program.

8.1.2 *Academic Integrity*

A university is a community of scholars dedicated to the inquiry into knowledge. It follows as a basic tenet that students will conduct themselves with integrity in academic pursuits. In instances where the academic standards may have been compromised, Clemson University has a responsibility to protect this process and to respond appropriately and expeditiously to charges of academic misconduct.

A summary of the Graduate School's policy on academic integrity follows. For a complete text of the policy, including rules and procedures, and specifics related to former students, academic research and revocation of academic degrees, see the "Appeals and Grievances" section of the Graduate School website²⁶ and the Graduate School Announcements.²⁷

8.1.2.1 Definitions, explanations and examples of violations of academic integrity

8.1.2.1.1 Cheating

Cheating involves giving, receiving or using unauthorized aid on any academic work submitted for grading including coursework, laboratory assignments, research projects, comprehensive and qualifying examinations, theses and dissertations or using computer center account numbers that belong to another person without the permission of the account owner. Unauthorized aid includes collaborating with classmates or others when explicitly prohibited, using online paper mills or paying individuals to prepare research papers, reports or projects, submitting identical work to

²⁶ www.grad.clemson.edu/policies/Appeals.php#misconduct

²⁷ www.registrar.clemson.edu/html/catalogGrad.htm

satisfy the requirements of more than one class without the approval of the faculty, or using textbooks, notes, the web and other sources when instructed to work alone.

8.1.2.1.2 Fabricating/falsifying information

Fabricating or falsifying information involves actions such as making up data that were not collected, stating that studies were conducted that were not, indicating that original source material was read when information was obtained from secondary or tertiary sources, making up references not used or identifying sources that were not consulted.

8.1.2.1.3 Facilitating violations of academic integrity

Facilitating violations of academic integrity involves students intentionally assisting others to violate the principles of academic integrity (for example, allowing friends access to their work, or instructing students on ways to solicit aid on papers, projects, take home exams, tests for state and national licenses, etc.)

8.1.2.1.4 Failing to cite contributors

Failing to cite an author or multiple authors involves not giving credit to individuals who have contributed significantly to a work (paper, research project, poster, etc.) and claiming the final product as one's own.

8.1.2.1.5 Plagiarizing

Plagiarizing is theft of the work accomplished by someone else. It includes copying words, phrases, sentence structure, computer code or files, images, or ideas from any source and attributing the work to one's own efforts. Blatant examples of plagiarism include failure to use quotation marks, to indent text of more than three lines and failure to cite consulted sources either in footnotes, endnotes or within the body of the text of a document. More subtle examples of plagiarism include paraphrasing or using others' conceptual frameworks for developing creative works without acknowledgement or permission or citing a source within the text but then directly quoting the materials without the use of quotations marks or text indentation. More information about plagiarism and examples can be found online²⁸.

8.1.2.1.6 Thwarting others' progress

Thwarting others' progress involves editing, deleting or otherwise destroying computer files that belong to another person or intentionally stealing or destroying property which prevents others from using it to gain needed information to complete assignments, for example, library materials on reserve, materials on loan by a faculty member or reports and documents made available for student use by external companies, state and federal agencies, etc.

8.1.2.2 Levels of seriousness of violation

At the graduate level, it is expected that students exhibit sophistication in understanding the tenets of academic integrity. Even so, some types of violations are more serious in nature than others and that some types of violations require deliberate, calculated actions on the part of the student. The Graduate School's policy categorizes academic integrity violations into four levels, ranging from an unawareness or minor misunderstanding, to an intention to defraud or otherwise engage in criminal-type activity. Each level of violation carries one or more sanctions, from verbal reprimand to permanent dismissal from the University; repeated violations, irrespective of the level, may result in more severe sanctions as well.

8.1.2.3 Graduate Academic Integrity Committee

The authority to resolve cases of violations of academic integrity by enrolled graduate students is vested in the Graduate Academic Integrity Committee (GAIC). The GAIC consists of four tenured faculty members from each of the five colleges, one graduate student from each college. An associate dean of the Graduate School serves as the non-voting administrative coordinator for the GAIC.

8.1.2.4 Procedures

It is the responsibility of every member of Clemson University to enforce the academic integrity policy. Students and staff members should report violations of this policy to the faculty member for the affected course (including the research advisor or internship/practicum/co-op supervisor). When, in the opinion of anyone outside the University, there is evidence that a student has committed a violation of academic integrity, that person should bring the allegation to the attention of the associate dean of the Graduate School. The associate dean will contact the appropriate faculty representative of the student's program (consistent with the alleged violation).

When, in the opinion of the faculty member, a student has committed a violation of academic integrity, the faculty member will fully document the charge in writing in a statement delivered in a sealed envelope to the associate dean of the Graduate School. At the same time, at his or her discretion, the alleging faculty member is encouraged, but is

²⁸ www.plagiarism.org/learning_center/what_is_plagiarism.html

not required, to privately inform the student charged of the nature of the allegation. Within three working days from the date the associate dean has received a formal charge of an alleged violation, he or she will provide the student with a copy of the charge and the procedures of the GAIC. Those procedures vary depending on the level of the violation and whether the student chooses to pursue a hearing. For more information about the procedures, refer to the Graduate School Announcements at www.registrar.clemson.edu/html/catalogGrad.htm.

8.2 Departmental Policy on Ethics

The effectiveness of the research infrastructure throughout the world is based on the personal and professional integrity of the people involved. The central assumption to all research endeavors is that researchers have done what they say they have done. The Department of Mechanical Engineering is part of that infrastructure and the research conducted here must withstand the highest scrutiny. Consequently, we must all ensure that our scholarly work is conducted and reported with the highest ethical standards. We must be careful in our recordkeeping and diligent in our efforts to always attribute credit where it belongs. We must guard against any activity that would bring the integrity of the department or the individuals within it into question. Among the activities to be avoided are:

- Falsification of data – ranging from fabrication to deceptively selective reporting of results or methods, including the purposeful omission of conflicting data with intent to falsify results.
- Plagiarism – representation of another's work as one's own.
- Misappropriation of others' ideas – the unauthorized use of privileged information, however obtained.

8.3 The Honor Code

This Honor Code was initiated by engineering students in the College of Engineering and Science with the advice and approval from the faculty. The document reflects mutual trust between the students and faculty at Clemson University. By living under the guidance of the Code, we are contributing to our personal success as well as the success of all engineers associated with the College of Engineering and Science.

As members of the College of Engineering and Science, we recognize that lasting excellence is achieved only through honor, demanding standards for personal integrity that reflect the standards of conduct expected of all engineers. All undergraduate and graduate engineering students, faculty members, and administrators in the College of Engineering and Science are expected to abide by the ethical standards defined herein. These standards are based on the following principles:

Engineers, both students and professionals, must be of honorable and trustworthy character. It is dishonest to claim credit for work which is not the result of one's own efforts.

Students, faculty members, and administrators are bound by a mutual trust to uphold the principles and enforce the policies of the Honor Code. This makes it the duty and responsibility of all members of the College of Engineering and Science to report promptly any suspected violations of the Code.

The Honor Code establishes a standard of academic integrity. As such, this code demands a firm adherence to a set of values. This Honor Code requires that all graduate students exercise honesty and ethical behavior in all their academic pursuits, whether these undertakings pertain to study, coursework, research or teaching.

We recognize that our graduate students have very diverse cultural backgrounds. Because of this, the term ethical behavior is defined as conforming to accepted professional standards of conduct, such as codes of ethics used by professional societies in the United States. This regulates the behavior in which their professions are conducted. The knowledge and practice of ethical behavior is the full responsibility of the student. Graduate students may, however, consult with their advisor, Department Chair, Graduate Director, the International Student Office, or the Graduate School for further information of what is expected of them.

8.4 University Harassment Policies

It is the policy of Clemson University to conduct and provide programs, activities and services to students, faculty and staff in an atmosphere free from harassment. Harassment is unwelcome verbal or physical conduct, based upon race, color, religion, sex, sexual orientation, gender, national origin, age, disability, status as a military veteran or protected activity (e.g., opposition to prohibited discrimination or participation in the statutory complaint process), that unreasonably interferes with the person's work or educational performance or creates an intimidating or hostile work or educational environment. Examples may include, but are not limited to, epithets, slurs, jokes or other verbal, graphic or physical conduct.

Harassment of University faculty, staff, students or visitors is prohibited and shall subject the offender to appropriate disciplinary action, including dismissal from the program.

Employees or students who feel they are victims of any form of discrimination are encouraged to consult the Office Access & Equity (E-103 Martin Hall, (864) 656-3181) for advice and assistance in resolving complaints.

In the event a graduate student wishes to appeal the resolution of the Office of Access & Equity, the student must submit a written request for an appeal to the dean of the Graduate School, who in turn will convene an ad hoc committee that will review the process and/or sanction. The committee membership will come from faculty and students already appointed to the Graduate Council.

8.4.1 Sexual Harassment

Title VII of the Civil Rights Act of 1964, as amended, provides that it shall be unlawful discriminatory practice for any employer, because of the sex of any person, to discharge without just cause, to refuse to hire, or otherwise discriminate against any person with respect to any matter directly or indirectly related to employment. Harassment of any employee on the basis of sex violates this federal law. The Equal Employment Opportunity Commission has issued guidelines as to what constitutes sexual harassment of an employee under Title VII.

Unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature constitute sexual harassment when any of the following occurs:

- Submission to such conduct is made explicitly or implicitly a term or condition of an individual's employment or academic standing;
- Submission to or rejection of such conduct by an individual is used as a basis for employment or for arriving at academic decisions affecting an individual;
- Such conduct unreasonably interferes with an individual's work or academic performance, or creates an intimidating, hostile or offensive working or academic environment.

Sexual harassment of University faculty, staff or students is prohibited and shall subject the offender to dismissal or other sanctions after compliance with procedural due process requirements. In the event a claim of sexual harassment arises, the claimant may use University grievance procedures that have been established for faculty, staff and students as appropriate. This policy also prohibits an employee from sexually harassing a superior and a student from sexually harassing a faculty member.

8.4.2 Amorous Relationships

Amorous relationships that might be appropriate in other circumstances can be inappropriate when they occur between a faculty member, officer or supervisor of the University, and any student or subordinate employee for whom she has a professional responsibility.

Those in positions of authority inherently carry the element of power in their relationships with students or subordinates. It is imperative that those with authority neither abuse, nor appear to abuse, this power entrusted to them.

Officers, supervisors and members of the teaching staff should be aware that any romantic involvement with a student or subordinate employee could make them liable for formal action if a complaint is initiated. Even when both parties have consented to such a relationship, it is the officer, supervisor or faculty member who may be held accountable for unprofessional behavior. Difficulties can also arise from third parties who may feel that they have been disadvantaged by such relationships. Graduate assistants, research assistants, tutors and teaching assistants who are professionally responsible for students would be wise to exercise special care in their relationships with students they instruct, advise, or evaluate.

Any questions concerning these statements or Clemson University's Policy on Sexual Harassment should be directed to the Office Access & Equity (864.656.3181).

8.5 Administrative Policies and Procedures

8.5.1 Drugs, alcohol, smoking

University policies with respect to drug, alcohol, and smoking apply and are enforced²⁹. As a reminder, tobacco use, smoking, and e-cigarettes or similar products are banned from all University property.

8.5.2 Personal mail

The department is not to be used as your mailing address. The department assumes no responsibility for personal deliveries to Fluor Daniel EIB. Outgoing mail, both U.S. and campus mail, can be placed in the appropriate receptacles in the reception area. You must provide adequate postage for any U.S. mail. International mail must be taken to the U.S. Post Office.

8.5.3 Keys and keycards

Key and keycard requests should be initiated by your Advisor to the Graduate Coordinator. The key(s) issued to you are for your use only, they must never be loaned to anyone else. Failure to observe this rule will result in your key privilege being withdrawn. All keys require a deposit of \$100 due at the time of assignment. Keys must be returned before the student leaves. The deposit will be returned at the time the key is returned to the department. There is a fee for each key not returned to the department.

8.5.4 Building security

Building security is everyone's responsibility. You should make sure to lock your office and laboratory doors when you leave. In the evenings and on weekends building doors should not be propped open at any time. Do not bring personal items of value into the building. Do not allow people in the building if they do not have card access, especially during sporting events. Thefts can occur. Do not be careless about building security. You may be the next theft victim.

On football weekends the Fluor Daniel building will be locked. Persons entering or leaving Fluor Daniel building on those days should ensure that all doors are locked behind them. Report building problems or if there is anything wrong outside of normal office hours to your Major Advisor and/or the department chair after you have called the University Security Office at (864) 656-2222.

8.5.5 Office supplies

The department does not furnish office supplies to graduate students, although office supplies can be requested for lab spaces through the Graduate Coordinator. Entrance to the supply room is by key only and students must be accompanied by a staff or faculty member.

8.5.6 Departmental copy machines

Copy machines are located throughout the building and are available for graduate student use for research purposes. A code is required for access which must be approved by student's advisor. This code can be obtained from the student's advisor.

8.5.7 ASME Membership

Application forms for membership in ASME may be obtained from the ASME advisor. Graduate students are encouraged to associate with the national society, as well as the Greenville section. Information on ASME can be found on the ASME website³⁰.

8.5.8 Departmental machine shop

The department maintains a well-equipped machine shop staffed by departmental technicians in G09 Flour Daniel EIB. Any request for services of the departmental technician must be made in writing. Under no circumstances is anyone to use any of the department's machine shop equipment without prior authorization and instruction from the technician as to proper use of the equipment.

8.5.9 Procurement procedures

Graduate students will be held responsible for the purchase of any equipment they order without proper authorization. All purchases by graduate students will need written authorization from their advisor before initiating any purchase.

²⁹ <http://www.clemson.edu/studentaffairs/student-handbook/universitypolicies/alcohol-and-other-drugs-policies.html>

³⁰ <https://www.asme.org/>

Faculty advisor may authorize the purchase via email or other written notice with an account number to a Fiscal Analyst.

8.5.10 Faculty offices

Please observe faculty office hours when posted and arrange appointments in advance. Do not enter a faculty office without knocking on the door and wait to be invited in before opening the door.

8.5.11 Graduate student offices

Graduate student offices will be assigned after the start of the semester. Priority is given to GRA, GLA, GGA, and then unsupported research students. Office space is limited, and not all students will have desks. If a student is assigned a desk, it is this student's responsibility to maintain the area clean and organized. No cooking is allowed in student offices; the graduate lounge is equipped with a microwave and a sink for such a purpose. As this is shared space, all students are expected to act professionally and courteously towards others always.

8.5.12 Student travel

Department-specific travel information and guidelines from the Clemson University Travel Guidelines Index have been incorporated into this section. The complete Guidelines Index, including authority references and guidelines specific to University administration, is available at www.clemson.edu/procurement (CU Dept Info, Travel Guidelines). Summarized departmental procedures are as follows:

1. Complete "Request to Travel" form, obtain appropriate signatures (PI or faculty member responsible for the account number to which it will be charged) and submit to Travel/Purchasing representative.
2. Enter travel status according to guidelines outlined herein.
3. Upon completion of travel, complete "Travel Worksheet", obtain appropriate signatures, and submit to Travel/Purchasing representative for reimbursement.

8.5.13 Inclement weather

Cancellation of classes due to inclement weather is determined by University Administration and announced through local radio and television stations. The policy on Inclement weather can be found on the Clemson website³¹. With distributed campuses, please check with course instructor for contingency plans.

8.5.14 Mechanical Engineering Graduate Student Council

The mission of the graduate student council is to represent the views and recommendations of the ME graduate student body to the Department of Mechanical Engineering in a manner that will mutually improve both entities. We seek to build this community to enhance students' experiences, meeting their needs as students and researchers. Please contact the Graduate Director for more information.

8.5.15 Political and religious activities

The University cannot engage in political and religious activities. Therefore, it is departmental policy that no political or religious signs will be displayed in Fluor Daniel. Nor should University email lists/systems be used to transmit political or religious messages.

8.6 University Resources

8.6.1 Grievance policy and ombudsman information

Academic grievances are handled through the Graduate School³². It is advisable to visit the Ombuds Office³³ prior to filing a grievance.

8.6.2 Counseling services

The demands of graduate school can sometimes seem overwhelming. If you feel you or a colleague could benefit from talking to a counselor, about grad school stress or any other issue, you may be eligible to receive services from the Counseling and Psychological Services program (CAPS), located in Redfern Health Center. To learn about their current programs, visit the CAPS website³⁴ or call them at (864) 656-2451.

³¹ <https://www.clemson.edu/cusafety/inclement-weather.html>

³² <https://www.clemson.edu/studentaffairs/student-handbook/universitypolicies/academic-grievance.html>

³³ <https://www.clemson.edu/administration/ombudsman/>

³⁴ <http://www.clemson.edu/campus-life/student-health/caps/>

8.6.3 *Emergencies*

Call the emergency services (9-1-1) or Clemson University Police Department at (864)656-2222 for all major emergencies: fire, medical, police. They will ensure that the proper authorities are dispatched. In case of fire, exit the building immediately. Use stairwells; do not use the elevator.

8.6.4 *Graduate Student Government*

The Graduate Student Government (GSG) is a University-wide organization of all graduate students for promoting graduate student interests. At the start of each fall semester, departmental GSG representatives are elected. The biweekly senate meetings are open to all graduate students. See the Graduate School Announcements for more information or contact the GSG office at (864)656-2697. Your active participation in the Graduate Student Government is encouraged.

8.6.5 *Copy services*

Printing and Plotting information can be found on the CCIT website³⁵.

8.6.6 *University health services*

The Redfern Student Health Center on campus provides health services to University students. Redfern offers a variety of services including: outpatient ambulatory care for illnesses and injury, health education on women's health issues, nutritional counseling, dermatology, and orthopedic clinics. Students are seen at Redfern throughout the day by appointment. A walk-in clinic is available to students who do not have an appointment. ASK A NURSE telephone services are also available.

If you have questions about services provided, call Redfern Health Center at (864) 656 2233; if you would like to schedule an appointment to see a doctor at Redfern, call the appointment line at (864) 656 1541. For service hours or other information, see Redfern website.

8.6.7 *Campus parking*

Parking on campus is restricted and requires a permit that can be purchased at Parking Services (ph. (864)656-2270) or via their website³⁶.

8.7 Professional Development

There are many opportunities for you to develop professionally in addition to your course work and research. These include presenting talks and/or posters at regional and national conferences, becoming a student member of professional organizations, and preparing for your eventual job search³⁷.

The Michelin Career Center provides information about market conditions and gives assistance in acquiring knowledge about your career opportunities and job requirements. The Center hosts career fairs each fall and spring and offers workshops in a variety of career-related topics. The Center also provides information about internships and part-time and summer work. For more information, see their website at career.clemson.edu or call (864) 656-6000.

8.8 Safety and Hazardous Materials

Safety is everyone's business. Graduate students are expected to adhere strictly to all safety regulations.

8.8.1 *Eye and face protection*

Eye and face protection devices that meet OSHA requirements and American National Standards for industrial eye protection should be the minimum eye protection used for activities where there may be flying or falling particles or chemical splashes. **Either safety or prescription glasses with side shields must be worn in any laboratory as appropriate**, unless an exception has been made by the departmental representative. Visitors to any laboratory must wear safety or prescription glasses, preferably with side shields. The wearing of contact lenses is strongly discouraged. Soft contact lenses are susceptible to absorption of vapors and may aggravate some chemical exposures, particularly if they are worn for extended periods. Manufacturers of soft lenses generally recommend they not be used in certain atmospheres.

³⁵ <https://ccit.clemson.edu/support/current-students/printing-plotting/>

³⁶ <http://www.clemson.edu/campus-life/parking/>

³⁷ <https://www.clemson.edu/graduate/students/professional-development/index.html>

8.8.2 *Body protection*

Protection of the body from contact with solid and liquid contaminants will require some protective clothing. Such protective clothing may include boots, gloves, pants, coats and head covers. Complete protection of the skin from contact with gases and vapors requires full-body protection such as an encapsulating suit. Whenever in a laboratory, all students, faculty and staff must ensure that arms, legs and torso are covered at all times. For example, you can wear either (a) long pants and a long-sleeved shirt, (b) a knee-length, long-sleeved laboratory coat, or (c) long pants and a waist-length laboratory coat. In addition, you must use rubber and plastic aprons whenever corrosive or irritating chemicals are handled. Because plastic aprons can accumulate static electricity, avoid their use in areas where flammable solvents could be ignited. Discard and replace protective clothing if it cannot be effectively decontaminated. Select clothing materials for resistance to the chemicals to which they will be exposed, and for appropriate resistance to permeations.

8.8.3 *Footwear*

Wear closed-toed shoes at all times (i.e., sandals, flip flops, and bare feet are not permitted). Shoes made of impermeable material such as leather are strongly recommended. Sneakers offer little protection against falling objects or chemical spills. High-heeled shoes pose a hazard and are not to be worn when working in laboratories.

8.8.4 *Hazardous waste management*

Information on Hazardous waste management can be found online³⁸.

9 CONFIRMATION OF REVIEW

All students must complete the online form confirming receipt, review, and understanding of this manual. The online form can be provided by the Graduate Coordinator.

³⁸ <http://www.clemson.edu/research/safety/hazardouswaste/>

FORM 15: ACKNOWLEDGMENT OF CONTENTS

(Place in student's departmental record)

I have read, understand, and will comply with the policies and procedures contained in the Manual for Graduate Students of the Department of Mechanical Engineering.

Signature: _____

Name (Please print): _____

Clemson Email: _____

Date: _____