

BYU

MECHANICAL ENGINEERING GRADUATE STUDIES

MASTERS STUDENT HANDBOOK



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INTRODUCTION

This student handbook contains a summary of policies and procedures that Masters graduate students in the Department of Mechanical Engineering are expected to know and follow in the course of obtaining a degree; however, it does not cover every conceivable situation. Students are invited to counsel with their Graduate Committee Chair, the Graduate Advisor, or the Graduate Coordinator about special circumstances. Since timing is often important, students should discuss any concerns as early as possible.

LEARNING OUTCOMES ESTABLISHED FOR THE MASTERS PROGRAM

1. Program graduates will develop an advanced understanding of the governing principles which serve as the basis for the practice of mechanical engineering and have the ability to apply these principles in the design and analysis of a system or process to meet specified needs.
2. Program graduates will participate in the creation of new knowledge and/or will advance the state of the art in a specific sub-discipline of mechanical engineering through the completion of a thesis project. The thesis project may contain elements of design, experimentation, and analysis and will require innovation and creativity.
3. Program graduates will develop technical writing and oral presentation skills.
4. Program graduates will demonstrate a pattern of living consistent with high ethical and moral standards.

STEPS FOR COMPLETING THE MASTERS PROGRAM

Apply online

Apply online through the [Graduate Studies website](#). Applicants must have a BS in Mechanical Engineering or a related program (engineering, physical, or mathematical science) from an ABET or equivalent accredited institution. Applicants with a degree in a related program, or from a non-ABET accredited program may be admitted provisionally and may need to take some of the undergraduate courses as outlined in the Policies & Procedures section of this handbook (See P&P 1). A minimum GPA of at least 3.0 is required for an application to be considered for admission. The average GPA for students admitted during recent years can be viewed in the [graduate catalog](#). Applicants with a BS in a related program may be admitted provisionally and may need to take some or all of the undergraduate courses as outlined in the Policies & Procedures section of this handbook (See P&P 1). In addition to the application, the Department of Mechanical Engineering requires three letters of recommendation from people who are familiar with the candidate's abilities and potential to succeed in completing a MS degree program. An unofficial transcript, resume, and brief personal statement of intent are also required.

The Statement of Intent

The Statement of Intent serves three major purposes: a) to facilitate admissions decisions, b) to guide the application to potential thesis advisors in the area of the applicant's interest, and c) when applicable, to identify applicants applying for the joint MS/MBA program. The primary audience of the Statement of Intent is the admissions committee which is composed primarily of professors in the Department of Mechanical Engineering and potential research advisors.

Considerable latitude is granted in the content and organization of the Statement of Intent. However, the following information is expected to be included:

- The purpose of pursuing a graduate degree in mechanical engineering at Brigham Young University. This may include why the student has decided to pursue a graduate degree in mechanical engineering and how it fits into his/her career goals. Consideration may be given as to why the student is applying to study at Brigham Young University.
- The intended area of study within mechanical engineering. This may be as broad or as narrow as is applicable to the student's current status. For example, if the student has already committed to complete research with a particular professor, that should be stated. If he/she is interested in a particular sub discipline (e.g. thermal science, design, materials, etc.), that should be stated also. On the other hand, if the student is still exploring various fields, he/she may list several areas that are of the most interest. The information provided in the Statement of Intent does not commit the student to a particular research area but helps guide the application to potential research advisors.
- If applicable, any intent to apply for the joint MS/MBA. Students applying for the Joint MS/MBA program must mention this in the Statement of Intent. Other than this required statement, the remainder of the Statement of Intent should focus on the MS portion of the dual program. In unusual situations where an applicant has received prior permission from the department to apply for a non-thesis MS, the applicant must indicate such approval in the Statement of Intent.

Other information may also be applicable, including the following:

- Description of special preparation, abilities, or motivation that will contribute to success in graduate studies. This may include prior experiences that have prepared the student for graduate study and a career. Examples include prior research experience, publications, patents, and related employment.
- Special considerations that are not addressed elsewhere in the application. If there were special circumstances that explain problems or inconsistencies in the student's records, they may be included.
- Other information the applicant feels may be helpful in making admissions decisions. Students should be careful to provide information that is relevant to the application process. Evaluators prefer shorter, focused Statements of Intent over those that are too long.

Take required entrance exams

All applicants must take the general GRE exam. Average scores for students admitted during recent years can be viewed in the [catalog](#). Students with scores below these numbers may want to consider retaking the GRE. Applicants should sit for the GRE exam at least six weeks prior to the application deadline. GRE scores are also used for consideration of department scholarships.

If English is not the student's native language, or a four-year bachelor's degree, or higher, from an educational institution within the United States has not been earned, the student must also take the TOEFL or IELTS. [University minimum scores](#) are required. Scores for the entrance exams must be sent directly to Brigham Young University. Applicants should take the TOEFL or IELTS exam at least six weeks prior to the application deadline.

Verify all required information has been submitted by deadline

Applicants for fall semester must submit a complete application by January 15th. Applicants for winter semester must submit a complete application by September 1st. Students who apply for fall semester may attend spring or summer term upon departmental approval, after acceptance into the graduate program.

Select graduate committee

Students are encouraged to contact potential advisors (committee chair) during the admission process. Students can preview the profiles of [faculty members](#) and [research areas](#) being conducted within the department.

With the exception of students enrolled in Interdisciplinary Graduate Studies (See P&P 2 in the Policies & Procedures section of this handbook), the graduate committee chair (advisor) will be selected from the Department of Mechanical Engineering. He or she will provide information regarding the availability of RA or TA funding (See P&P 3). He or she will also assist in developing a Program of Study, and supervise research and the completion of a thesis. Two additional committee members must be identified. Generally these committee members are BYU professors having graduate faculty status. On occasion it may be desirable to include a professional who may not be on faculty at BYU, i.e., someone who has documented substantial and consequential research effort in a specific area. Such committee members are approved through petition. Students should work with their committee chair in selecting other members of the committee who have the background that will be helpful in contributing to or evaluating the student's research. All committee members will assist in advising the student concerning course work, degree requirements, and research.

Meet registration requirements

Students should:

1. Register for at least 2 credits in the semester of admission (Fall or Winter). International students must register for 9 credits.
2. Following the semester of admission, students must continue to register for at least 2 credits per semester. Spring/Summer terms are considered one semester. It is recommended that thesis credits (Me En 699R) be split up: one credit for spring term and one credit for summer term.
3. Register for at least six hours in an academic year.
4. Distribute research credit hours (Me En 699R) reasonably throughout the graduate program, concurrent with the research being conducted.
5. Fulfill residency requirement: at least two consecutive semesters of six or more hours of registration while living and conducting research in the general vicinity of the university, where the student has ready access to the research facilities.
6. Complete all requirements within five years of enrollment in the program.

Submit Program of Study

(ADV Form 3). It is important for students to submit a Program of Study as soon as possible so that they can identify a proper course of study that will support their specific interests and lead to timely graduation. Registration for the second semester should not occur until a Program of Study has been submitted. Registration typically opens mid-semester. Students must submit their Program of Study prior to this; otherwise, a HOLD will be placed on the student's registration.

The Program of Study form and all other forms required for a graduate degree program are available online from the [Graduate Studies Office](#). In consultation with the graduate committee chair, students should list the coursework necessary to complete the degree program. A total of 30 hours is required, 6 of which are thesis hours (Me En 699R) and 24 are coursework, half of which must be ME coursework.

A list of approved courses is available in the Policies and Procedures section of this guide (See P&P 4). Audit courses, online courses, and/or independent study courses are not accepted; however, courses may be transferred from another university under the following circumstances: a) the course must be acceptable to the committee during the first semester in the program; b) It must be a graduate level number; c) It may be no more than 25% of the graduate program; d) It cannot be conferences and workshops, correspondence, home study, etc.

The Program of Study must be approved and signed by the graduate committee before submitting it to the graduate advisor, who will then obtain final approval by the graduate coordinator.

Students may change the Program of Study courses or the graduate committee members by completing a *Request for Program of Study Change* (ADV Form 3b). This form may be submitted at any time during the degree program; however, approval from

the graduate committee and the graduate coordinator should be obtained *prior* to taking coursework not on the previously approved Program of Study.

Note: In order to graduate students must have a 3.0 GPA on their program of study courses. In no instance is a D credit accepted.

Receive Biannual Evaluations

The progress of each graduate student will be evaluated twice each year, in January and May. The student's graduate committee chair rates each student as making satisfactory, marginal, or unsatisfactory progress. The committee chair may consult with other members of the graduate committee when determining this rating. The committee chair reports the student's progress to the graduate advisor. Students whose progress is rated as marginal or unsatisfactory will receive notification to meet with the graduate advisor and sign the evaluation. The evaluation given to a student will include:

- Specific tasks the student must complete in order to maintain or regain a satisfactory rating
- Clear deadlines established for each of the specified tasks
- A recommendation of faculty member(s) they can contact for more information or support

Marginal progress may include the following:

- Failure to submit a Program of Study and establish a graduate committee by the end of first semester
- Failure to submit a prospectus by the end of second semester
- Poor performance in research or registering for thesis hours when little or no work has been performed
- Minimal contact with the committee chair

Unsatisfactory progress may include the following:

- Failure to submit a Program of Study since prior evaluation
- Failure to submit a prospectus since prior evaluation
- Failure to resolve any problems or fulfill any requirements indicated in a previous marginal or unsatisfactory evaluation
- Minimal or no contact with the committee chair
- Poor performance in research or registering for thesis hours when little or no work has been performed
- Program of Study GPA below 3.0 or Program of Study course grade below 2.0
- Unacceptable ethical or professional behavior

If a student receives a marginal or unsatisfactory rating and has not improved his or her performance in accordance with the actions outlined on a previous evaluation, by the time of the next evaluation, the student should meet with his committee chair to determine possible recourse, if any, to termination. Students who feel their rating is in

error may file an academic grievance according to the Academic Grievance Policy in the Policy and Procedures section of this handbook. (See P&P 5)

The biannual evaluation is used by the department to satisfy criteria for continuing funding. It is also used by the BYU Financial Aid Department to determine eligibility for financial aid.

Submit prospectus

The Prospectus must be submitted by the end of the second semester. A prospectus defense may be held at the request of the committee. The purpose of the prospectus is to define the scope of the thesis project. The prospectus establishes the minimum requirements for completion of the thesis and helps prevent the student from undertaking an unrealistic project. When written early in the program, the prospectus provides focus that will help expedite completion of the thesis. (See P&P 6 for an outline, title page, and approval page of the prospectus) The student will be granted post-prospectus status and receive the accompanying pay raise, if applicable, once the prospectus approval page has been approved and submitted to the graduate advisor. If the prospectus is not submitted on a timely basis funding may be temporarily withheld.

Attend Seminar

The ME Department Graduate Seminar Series is held during fall and winter semesters only. All graduate students are required to attend 8 seminars from this series each semester for two semesters, ideally during the first year of their graduate program. A maximum of 2 seminars each semester may be substituted from: 1) The Weidman Center Leadership Seminar Series, 2) The College Lecture Series, or 3) Graduate Seminars within the Colleges of Engineering and Technology, Physical and Mathematical Science, and Life Sciences. At the beginning of each semester an orientation (not considered one of the required seminars) will be held for new students."

Complete research and write thesis

All work toward the thesis should be open for public review and publication. Any exceptions must have written approval from the department and college in advance of any work performed. It is possible to delay release of a thesis for up to one year for publication purposes. For patent purposes students may request the thesis be secured, using ADV form 8e.

Students must follow university/college thesis guidelines when formatting their document. A template can be obtained on the [ME webpage](#). It is the student's responsibility to make sure the proper formatting guidelines have been followed (see P&P 7). Students should plan on submitting their best draft of the thesis to their Committee Chair one month prior to their defense.

Apply for graduation

Application for graduation can be accessed online through MyBYU > School > Apply for Graduation. In order to apply students must have:

- a. Completed all course work or are currently taking remaining classes
- b. Submitted a current ecclesiastical endorsement
- c. Received verbal permission from the committee chair

After applying for graduation, students should meet with the graduate advisor to discuss steps of completion toward graduation.

Defend and finalize thesis

In order to schedule a defense, students must complete Departmental Scheduling of Final Oral Examination (ADV Form 8c), and obtain committee member signatures thereon. These signatures certify that the student and the thesis are ready for the oral exam; therefore, it is essential that students submit their thesis to the committee for their review several days before trying to obtain their signatures.

Care should be given in establishing the date and time of the defense with all members of the committee. This requires advance planning. Once scheduled, the date cannot be changed. Defending between semesters/terms is not permitted. For exact oral exam deadlines see Graduation Deadlines (ADV Form 8-2).

Once committee members have signed ADV Form 8c, students need to submit this form to the graduate advisor no later than two weeks in advance of the exam date. She will enter the date of the oral exam in AIM. The graduate advisor will also perform a preliminary format review of the thesis, requiring the student to print a double-sided copy of the thesis.

At the defense, members of the graduate committee will serve as the examining committee. Spouses, parents, and friends are welcome to attend the oral examination; small children should not attend. Refreshments are neither required nor expected. The examination always follows a set format:

- The student's research is presented.
- The general audience is excused.
- Questions are asked by committee members.
- The decision (pass, pass with qualifications, recess or fail) is announced.

The presentation should last about 30 minutes. Consideration should be given to the following expectations:

1. A well thought-out, well-organized, cogent summary of the student's work including:
 - a. An explanation of how the current work relates to the student's discipline
 - b. The rationale behind the project in the context of available literature
 - c. If the student has been part of a research team or lab, an explanation of the student's intellectual contribution to the project and a description of how the student's work fits into the broader research conducted in this lab

- d. The questions or issues the current work was designed to address
- e. The way the design, method, and/or approach addressed those questions
- f. The analysis of data gathered
- g. The results, outcomes, final products, or performance
2. An interpretation of results, findings, contributions, insights, and conclusions and their significance. What does this work add to existing knowledge?
3. A discussion of implications the work suggests for future research or creative endeavor
4. A discussion of any applied or clinical implications suggested by the work
5. Thoughtful, well-founded responses to all questions the committee members might ask

It is likely that the graduate committee will request revisions of the thesis. Students should discuss the revisions with committee members and do their best to comply with the requests. Students should allow at least a full week following their defense to finish all remaining requirements before leaving campus.

Submit revised thesis to graduate committee and graduate advisor

After revisions to the thesis have been approved by committee members, students should give a hard copy of the thesis to the graduate advisor who will do a final review of formatting. After the review, the graduate advisor will give the student *Approval for Submission of Dissertation, Thesis, or Selected Project* (ADV Form 8d) in order for him/her to obtain the department approval signature from the graduate coordinator.

Submit thesis to college office

Students must then submit a hard copy of their thesis and *Approval of Submission of Dissertation, Thesis, or Selected Project* (ADV Form 8d) to the college administrative assistant in 270 CB. She will check the format again and obtain the dean's approval signature. The college office will not be able to process these documents immediately; therefore, students must plan in advance in order to meet specified deadlines. See Graduation Deadlines (ADV Form 8).

Upload thesis for binding

After receiving college approval, students are required to order two bound copies of the thesis, one for their committee chair and one for the ME department display case. The designated colors are blue cover with gold lettering. Students may also order additional copies for their own use. All copies may be ordered through [BYU Print and Mail Services](#). Students are responsible for payment of all copies.

Upload ETD

Students are required to submit an electronic version of their thesis (ETD) to the library. Current instructions for preparing and submitting an ETD are available at <http://etd.byu.edu/>. The ETD will be reviewed by the department graduate advisor and the college administrative assistant.

Note: All fonts must be embedded and all blank pages must be removed from the PDF of the thesis prior to submitting the ETD.

Submit final documentation to the Office of Graduate Studies

After final ETD approval, students must submit a copy of the title page of their thesis and ADV Form 8d to the Office of Graduate Studies in the FPH.

Submit Check-out Clearance

Before students permanently leave the BYU campus they must receive clearance from the ME Projects Lab and the Checkout Room.

Submit Exit Survey

Students are given a survey to complete. Comments are used to further strengthen the graduate program. These comments are kept confidential.

Walk for Commencement and Convocation

Students wishing to walk during Commencement and Convocation can order their cap and gown [through BYU Alumni](#). Students are permitted to walk early as long as they have had their oral examination before the graduation ceremonies. Students must submit the *Permission to Walk Early* form to the Advisement Center in 242 CB. This form can be obtained from the graduate advisor at the time of scheduling the defense.

POLICIES & PROCEDURES

P&P 1 – Admission Policy for Students with a BS in Related Programs

Students with a BS in programs other than Mechanical Engineering or from a non-ABET accredited program may be admitted provisionally and may need to take some of the following undergraduate courses during their first year. The applicant should work with the potential graduate committee chair and the graduate coordinator to determine exactly which courses will be required. Please note that none of these courses can be added to the Program of Study or count toward the MS.

Math 302, 303, and Stat 201	11 hours
Ce En 204	3 hours
Me En 321 and 372	6 hours
Me En 335	3 hours
Me En 312 or 340	3 hours
Me En 273	3 hours
Me En 362	3 hours

P&P 2 – Interdisciplinary Graduate Studies

Recognizing that there are exciting and emerging areas of research that cross traditional disciplinary boundaries, ME Department Faculty are interested in providing a pathway for interdisciplinary graduate study that may not coincide with the specific primary research interests of existing ME department faculty members, but yet still falls within the discipline of mechanical engineering. The following guidelines are in place to enable interdisciplinary graduate study while helping students successfully meet ME degree requirements and facilitating program administration.

- Application for Interdisciplinary Graduate Study ideally occurs at the time of application to the ME Graduate Program, but *must* occur prior to completion of the student's first semester of their graduate degree.
- All graduate committee chairs of Mechanical Engineering students must meet the requirements for graduate faculty status in the Mechanical Engineering Department.
- Graduate committees with a chair whose faculty appointment is outside the ME Department must have a majority of the committee who are ME Department faculty.
- Graduate committees with a chair whose faculty appointment is outside the ME Department must have a host department advisor who is an ME Department faculty member.
- ME Department-allocated funds are designated to support graduate students who have graduate committee chairs with faculty appointments in the ME Department.
- Interdisciplinary graduate study students will be limited to an approximate upper limit composition not exceeding 5% of the MS students and 5% of the PhD students in the ME Department.

- Graduate committee chairs whose appointments are outside the ME Department can only advise up to one ME graduate student at any given time.
- An ME Department host advisor can only serve as host department advisor to one ME graduate student at any given time.
- The student must provide evidence that full funding support is available for the anticipated duration of the proposed graduate degree (minimum of 18 months for an MS student, minimum of 3 years for a PhD student).
- Interdisciplinary students must abide by all policies and procedures described in the ME Graduate Studies Student Handbooks (except as noted and approved on ADV Form 1).

Approval Procedures

- 2 Required Forms:
 - ADV Form 1: Request for Interdisciplinary Graduate Study
 - ME Department Checklist for Interdisciplinary Graduate Study
- Host Department Advisor reviews both forms with the student
- ME Department Graduate Advisor Review
- ME Graduate Coordinator Review
- ME Department Chair Approval
- The following approvals needed for ADV Form 1 can only be obtained *after* ME Department Chair approval:
 - Dean, College of Engineering and Technology
 - Chair, Department of Committee Chair
 - Dean, College of Committee Chair
 - Dean, Office of Graduate Studies

Checklist for Interdisciplinary Graduate Study

Student Responsibilities

- ☐ Complete the “Request for Interdisciplinary Graduate Study” (ADV Form 1)
- ☐ Specifically identify the “purpose of the proposed interdisciplinary study” as requested on the form, including a justification as to why the proposed research is best accomplished as an interdisciplinary study, rather than as a traditional graduate study program in the ME Department.
- ☐ Specifically identify the “study requirements and curriculum” as requested on ADV Form 1, including a “persuasive justification” for any changes from the ME Department’s regular Program of Study requirements.
- ☐ Specifically identify a professor in the ME Department who will serve as the host department advisor. This professor will serve on the committee and will help ensure compliance with ME Department policies and standards.
- ☐ Ensure that a majority of the graduate committee are faculty members in the BYU Department of Mechanical Engineering.
- ☐ Ensure that the student, committee chair, and the host department advisor sign the Mechanical Engineering Checklist for Interdisciplinary Graduate Study (below).
- ☐ Discuss the request with the ME Department Graduate Advisor to ensure that ADV Form 1 is completed correctly and that the ME Department maximum participation rate as noted above has not already been met.

Committee Chair Responsibilities

- ☐ Provide a current CV. A faculty member serving as the committee chair of a BYU Mechanical Engineering graduate student must meet the graduate faculty standards of the ME Department.
- ☐ In consultation with the host department advisor, develop an advisement plan that allows for adequate supervision of the mechanical engineering components of the proposed interdisciplinary research.
- ☐ Ensure that all ME Department procedures for graduate study, as outlined in the ME Graduate Studies Student Handbooks (except as noted and approved on ADV Form 1) are met.
- ☐ In consultation with the host department advisor, complete the ME Department biannual evaluations of student progress.

Host Department Advisor Responsibilities

- ☐ In consultation with the proposed graduate committee chair, develop an advisement plan that allows for adequate supervision of the mechanical engineering components of the proposed interdisciplinary research.
- ☐ Submit form ADV Form 1, this checklist, and the advisement plan to the ME Department graduate advisor, along with a verbal recommendation regarding the application.
- ☐ Ensure that all ME Department procedures for graduate study, as outlined in the ME Graduate Studies Student Handbooks (except as noted and approved on ADV Form 1) are met.

- ☐ Ensure that the thesis work meets ME Department standards for graduate work.
- ☐ In consultation with the student's graduate committee chair, complete the ME Department biannual evaluations of student progress.

Signatures

I understand that I am responsible for abiding by all policies and procedures for graduate study in the Department of Mechanical Engineering, as outlined in the ME Graduate Studies Student Handbooks except as noted and approved on ADV Form 1: Request for Interdisciplinary Graduate Study.

_____ Student Signature	_____ Date
_____ Student's Graduate Committee Chair Signature	_____ Date
_____ Host Department Advisor Signature	_____ Date

P&P 3 – Financial Support

The Department of Mechanical Engineering offers several opportunities to help qualified students with the cost of their graduate education. The majority of full-time graduate students receive financial support during their studies. Most financial support is in the form of employment such as research assistants and teaching assistants. Fellowships based on academic potential and performance, are also available. Satisfactory progress in the program is required to maintain eligibility for funding support. Support is also contingent on availability of funds. With the exception of some teaching assistantships, most financial support is generally determined prior to beginning the graduate program.

Fellowships

Department of Mechanical Engineering Research Fellowship. A limited number of research fellowships are awarded to highly competitive applicants, with priority given to PhD candidates. These fellowships are intended to supplement other support. They are awarded based on academic potential as part of the admission process and no further action is required by the student to be considered for a research fellowship.

College PhD Fellowship – First Year. A limited number of fellowships are awarded to highly qualified first-year PhD students. These fellowships are intended to supplement other support. They are awarded based on academic potential as part of the admission process and no further action is required by the student to be considered for PhD Fellowships.

Teaching Assistant (TA) Fellowship. A limited number of TA Fellowships are awarded to qualified students. Students are nominated by their committee chair for a TA Fellowship, and selection is based on qualifications, performance, and department needs. TA fellowships are typically part-time positions, with approximately half the effort dedicated to performing teaching assistant duties for an assigned course, and the other half dedicated to research directed by the student's graduate committee chair.

Graduate Assistantships

Research Assistantship. Graduate research assistantships are offered by individual faculty to students they advise. Assistantships are based on student research ability, student research performance, and availability of funds. Research assistantships are supported by external research contracts or grants, administered by faculty. Students may check with individual faculty to determine availability of these opportunities.

Teachings Assistantship. Graduate teaching assistantships are offered by professors who have teaching assistant needs. The department gives first priority to graduate students for teaching assistantships; however, the professor teaching the class has final authority to hire the teaching assistant for the class. Assistantships are based

on student teaching ability and teaching performance. Students may check with individual faculty to determine availability of these opportunities.

University Policies regarding Research and Teaching Assistants

1. A teaching assistant is a representative of the department and university and is expected to be professional in appearance and in executing his or her duties.
2. When employed as a research assistant or a teaching assistant, continuing students must be registered for two or more hours during fall and winter semesters, and one or more hours during spring and summer terms. Newly admitted students must be registered for two credits in the first semester or term of admission.
3. Full-time graduate students who are U.S. citizens may work up to 28 hours a week during fall and winter semesters if the work is related to their Program of Study. They may work only 20 hours a week if the work is not related to their Program of Study. During spring and summer terms and holidays, graduate students who are U.S. citizens may work up to 40 hours per week provided the average hours per week during the ACA measurement period does not exceed 28 hours. For new part-time employees, the ACA measurement period is the first 12 months of employment. For continuing part-time employees, the measurement period will begin with the first pay period on or after October 15th of the current year, through the last pay period before October 14th of the following year. Breaks in employment between 4 and 26 weeks will be credited with the average hours worked during the measurement period.
4. Federal regulations will not allow international students to work more than 20 hours per week during full-time school; however, they may work up to 40 hours during their breaks provided the average hours per week during the ACA measurement period does not exceed 28 hours. The first break does not occur until after two semesters of fulltime enrollment.

Note: In all cases the number of hours worked should be authorized by the committee chair. Because of budget and time constraints the number of hours authorized is often significantly less than the maximum hours outlined above.

Tuition Scholarships

Tuition scholarships are available to qualified graduate students based on student performance and availability of funds. The scholarships are awarded by individual faculty and students may check with their graduate committee chair to determine availability.

Other Funding Opportunities

Fellowships

Department of Energy Computational Science Graduate Fellowship (DOECSGF) provides support to students pursuing doctoral degrees in fields of study that use high performance computing to solve complex science and engineering problems.

National Defense Science and Engineering Graduate (NDSEG) Fellowships are intended for students at or near the beginning of their graduate studies in science, technology, engineering and mathematics fields. Fellowships are awarded to applicants who intend to pursue a doctoral degree.

National Science Foundation's Graduate Research Fellowship Program (NSF GRFP) supports outstanding graduate students in NSF-supported science, technology, engineering, and mathematics disciplines who are pursuing research-based MS and PhD degrees at accredited US institutions.

NASA Space Technology Research Fellowships (NSTRF) are awarded to students pursuing MS or PhD degrees who show significant potential to contribute to NASA's goal of creating innovative new space technologies for our Nation's science, exploration and economic future.

The [BYU Office of National Scholarships, Fellowships, and Programs](#) provide information and search resources to help students identify opportunities. Some fellowship applications are due before graduate school applications, so early planning is advised.

The Graduate Research Fellowship (GRF) is sponsored by BYU Graduate Studies, and is designed to support innovative research and creative works conducted by graduate students under the guidance of faculty advisors. Information on this and other scholarships for graduate students can be found on the [Graduate Studies website](#).

Traveling Awards

Research Presentation Award (RPA). The BYU Graduate Student Society offers a Research Presentation Award, which is for the purpose of assisting students with traveling and presenting at conferences. The application, submission deadlines, and eligibility requirements can be found on the [Graduate Student Society webpage](#).

Loans

Graduate students who are U.S. citizens are eligible for Stafford loans. Information regarding eligibility requirements can be obtained from the Financial Aid Office, D-148.

Graduate students may request verification of their enrollment status as full-time or part-time students, for loans or other purposes, from the Records Office, B-150 ASB. Registration for 8.5 or more credits during a semester (4.5 during spring or summer) constitutes full-time enrollment; however, students who have: a) finished their coursework, b) are making satisfactory progress, c) are enrolled for at least two hours per semester, and d) are devoting 40 or more hours per week to fulfilling graduate degree requirements, can be certified as full-time students. This requires that a *Petition for Graduate Full-Time Status* (ADV Form 2a) be submitted to the Office of Graduate Studies.

P&P 4 – Approved Courses for MS-Thesis Program of Study

Me En	any class 500 or higher
Ce En	any class 500 or higher
Ch En	any class 500 or higher
Chem	any class 500 or higher
CS	any class 500 or higher
Ec En	any class 500 or higher
Math	any class 500 or higher
Phscs	any class 500 or higher
Stat	any class 500 or higher
Bio 580	Scanning Electron Microscopy
MBA 670	Innovation and Entrepreneurship
IT 548	Mechatronics
Mfg 531	Advanced CAM Programming
Mfg 532	Manufacturing Systems
Mfg 555	Composite Materials and Processes
Mfg 672	Design for Manufacturing
Mfg 574	Advanced Tool Design
Mfg 580	Manufacturing Simulation

Special Topics Courses Guidelines

ME EN 595R – Special Topics in Mechanical Engineering

This is for courses that are taught at a graduate level and that may or may not receive a permanent number. Graduate and undergraduate students may enroll.

ME EN 695R – Special Problems for Master's Students

This is for the rare case when MS students seek credit for approved mentored projects unrelated to their thesis research. This should be seldom used and should be carefully scrutinized by the graduate committee.

ME EN 795R – Selected Topics in Mechanical Engineering

This is for graduate courses not having a permanent number. Only graduate students may enroll.

Note: If any course on the Program of Study is not on the above list, the student must receive specific approval from his or her committee and if necessary, submit a petition to the graduate advisor. In no instance may a student include more than 9 credits of 400 level courses on the Program of Study.

The University catalog, listing all graduate courses, plus semester offerings can be viewed through [the registrar's office](#).

P&P 5 – Joint MS/MBA Program

The Mechanical Engineering Department and the Marriott School of Management offer a joint program leading to a master of science (MS) degree in mechanical engineering and a master of business administration (MBA) degree. The program provides advanced training in Mechanical Engineering along with management skills of the MBA program. The degrees are received simultaneously, and conferred separately by the two departments. Students must apply to both the mechanical engineering MS program and the MBA program, meeting the requirements of each department and specifying their intention to participate in the joint program in each statement of intent.

The program generally takes about three years to complete; however, some students prefer a four-year program (2 years for each degree) to provide adequate time for the MS thesis research and to increase possibilities of research funding. Students wanting to finish in three years find it beneficial to start the MS program during spring term. Specific requirements are the same as those listed for the Mechanical Engineering MS degree, with the following guidelines:

- Of the 30 credits required for the MS, 6 credits are for the thesis, and 24 credits are for approved coursework. Half the coursework must be in ME.
- A total of 12 credits are allowed to be counted toward both degrees. MBA 670, Innovation and Entrepreneurship, is required. An additional 9 credits from the ME Program of Study (ADV form 3) can be listed on the MBA Program of Study.
- Some credits from the ME Program of Study must be taken concurrently with the MBA program in order to meet university requirements; otherwise, the 12 credits will not count toward both degrees.
- The schedule below lists coursework during Fall and Winter; however, it is possible to take classes during Spring or Summer, as offered.

Year 1

Spring/Summer

MS Thesis Research (2 hours)

Fall and Winter

MS Thesis Research (2 hours)

MS Coursework (12 hours)

Spring/Summer

MS Thesis Research (2 hours)

MS Thesis Defense

Year 2

Fall

MBA Core

Winter

MBA Core; MBA 670

Year 3**Fall and Winter**

MBA Core; MBA Electives;
MS coursework (9 hours)

Recommendations

- The Committee Chair is selected during the admission process. Most financial assistance is related to the thesis work and is administered by individual professors.
- It is strongly recommended that the thesis be completed and defended before beginning the MBA Core classes. It is difficult to stop the research and start it again later.
- Starting during Spring or Summer Term allows time to begin the thesis research early. To begin research Spring or Summer term, students should apply for Fall Semester. Students may also apply for Winter semester if graduated.

P&P 6 – Graduate Student Academic Grievance Policy

Despite the well-meaning efforts of students and faculty, there may be occasions when a graduate student feels his/her work has been unfairly or inadequately evaluated. Usually such differences can be amicably resolved on an informal basis between the student and the faculty member involved. If, for any reason, the faculty member is not available or the student believes that the grievance will not be dealt with fairly or will create the possibility of retribution, the student may direct the grievance to the department chair.

Please contact the graduate advisor for the complete Grievance Policy.

P&P 7 – MS-Thesis Prospectus Procedures

Outline. The prospectus should follow the general outline described below. There is a five-page limit for the body of the prospectus (problem statement through the anticipated contributions sections). An example outline is below.

- Title page
- Signature page
- Problem Statement
 - Provide an overview of the problem.
 - Finish with an objective statement.
 - Address the question: What work is being done?

- Background
 - Briefly review the most relevant literature.
 - Provide motivation for the proposed thesis topic.
- Address the questions: What have others done? Why is it important? What are the challenges?
- Research objectives
 - Briefly list the objectives. The reader should be able to make this list based on the background section.
- Proposed Research
 - Describe the technical approach.
 - Describe the scope of the project and note any delimitations if necessary.
 - Describe the equipment and facilities required to complete the project.
 - Describe any collaborative efforts.
- Anticipated Contributions
 - Describe any publications, (including publication venues) patents, or other scholarly products that are anticipated to result from the proposed project.
- References

TITLE

by

Student Name

A prospectus submitted to the faculty of
Department of Mechanical Engineering
Brigham Young University

Date



DEPARTMENT OF
MECHANICAL ENGINEERING

PROSPECTUS APPROVAL

Prospectus submitted by:

Student

Date

This prospectus has been approved by each member of the Graduate Committee:

Committee Chair

Date

Committee Member

Date

Committee Member

Date

P&P 8 – Formatting Guidelines for Thesis

A template containing the following formatting can be obtained from the graduate advisor.

FONT

Times New Roman 12 pt. consistency throughout text. 10 or 11 pt. is allowed for tables and figures.

MARGINS

Preliminary Pages (Title page, Abstract page(s), Acknowledgment page)

- 1 inch on all sides

Table of Contents, List of Figures, List of Tables, Body Pages,

- 1 inch on all sides

Chapter title pages, Reference title page, Appendix title pages

- 2 inches at top
- 1 inch at bottom and sides

PRINTING

Document should be printed double-sided for the bound copy

Note: Title page, Abstract page, Acknowledgment page, Table of Contents, List of Figures, List of Tables, Chapter title pages, References and Appendices must begin on the front side of a page.

PAGE NUMBERING

- Page numbers are centered at the bottom of the page.
 - Counting begins with the Title page; however, back pages are not counted until the Table of Contents.
 - Page numbers do not appear on the page until the Table of Contents (iv).
 - Use Roman Numerals (i, ii, iii ...) for the Table of Contents and the pages thereafter until Chapter 1.
 - Use Arabic numbers (1, 2, 3 ...) beginning with Chapter 1.
- Be sure numbers appear on ALL pages once numbering begins.

SPACING

- Double-space text of body and acknowledgements.
- Single-space abstract, references, captions, quotes, chapter titles, headings, and subheadings.
- Table of Contents, List of Figures, and List of Tables can be single-spaced or double spaced.

- Double-space four times before chapter titles (72 pts).
- Double-space three times after chapter titles (48 pts).
- Double-space twice before subheadings (24 pts).
- Double-space once after subheadings (0 pts).
- Double-space once between two subheadings (0 pts).
- Double-space twice before and after figures (24 pts).
- Double-space twice before and after tables (24 pts).
- Double-space *once* before and after equations (0 pts).
- Do **not** leave a single line of text, a single-line equation, or a subheading alone on the top (widow) or bottom (orphan) of a page.
- Do **not** leave more than about 5 lines of white space remaining on a page unless it's the end of a chapter.

FIGURES

- Figures are normally diagrams, graphs, maps, or charts.
- Center figures on the page.
- Center captions below the figure. If two lines are needed, the caption should be left justified at margin.
- A figure should be placed after the paragraph of reference. If it will not fit on the same page, continue the text and place the figure at the top of the next page.

TABLES

- Tables contain numerical or statistical information.
- Center tables on the page.
- Center captions above the table, not to exceed the width of the table. If more than one line is needed, center the lines in an inverted pyramid, example:

Table 6.3 Comparison of roll rotation plots when node was displaced,
And an X-direction off-axis force was applied.
- If placed in the landscape position, the top of the table should be on the left side of the page, with the caption above the table. The page number is placed underneath the table.

ADDENDUM 1 – GRADUATION CHECKLIST AND TIMELINE

- ☐ Choose a committee chair during the application process
- ☐ Submit program of study prior to second registration
- ☐ Submit thesis prospectus by end of second semester
- ☐ Complete all provisions during first year (if admitted provisionally)
- ☐ Fulfill seminar attendance requirement during first year
- ☐ Complete all courses on program of study prior to applying for graduation
- ☐ Apply for graduation in semester of defense by university deadline
- ☐ Meet with graduate advisor after applying for graduation
- ☐ Submit best draft of thesis to committee chair one month prior to defense
- ☐ Submit defense draft to all committee members at least several days prior to scheduling defense
- ☐ Schedule oral exam *at least* two weeks prior to exam and by university deadline
- ☐ Review thesis format with graduate advisor prior to oral exam
- ☐ Pass oral exam
- ☐ Obtain department and college approval of thesis by university deadlines
- ☐ Submit PDF of thesis to Print and Services
- ☐ Submit EDT
- ☐ Submit ADV Form 8d to the Office of Graduate Studies by university deadline
- ☐ Submit request to secure thesis, ADV Form 8e, to the Graduate Studies Office (if applicable)
- ☐ Submit Check-out Clearance
- ☐ Submit Exit Survey
- ☐ Update address on My BYU for receipt of diploma
- ☐ Convocation and Luncheon

ADDENDUM 2 – COPY MACHINE POLICY

The ME department copy machine is not to be used for personal use nor should it be used to copy theses/dissertations. The copy machine may be used for RA and TA duties; however, students should not use the copy machine themselves. The secretaries will handle students' requests.

ADDENDUM 3 – BYU HONOR CODE

Complete information concerning the Honor Code at Brigham Young University can be found at: <http://honorcode.byu.edu>. All who represent BYU are to maintain the highest standards of honor, integrity, morality, and consideration of others in personal behavior. As a matter of personal commitment, faculty, administration, staff, and students of BYU seek to demonstrate in daily living on and off campus, those moral virtues encompassed in the gospel of Jesus Christ. BYU students should seek to be totally honest in their dealings with others. They should complete their own work and be evaluated based upon that work. They should avoid academic dishonesty and misconduct in all its forms, including but not limited to plagiarism, fabrication or falsification, cheating or other academic misconduct.

Plagiarism

Intentional plagiarism is a form of intellectual theft that violates widely recognized principles of academic integrity as well as the Honor Code. Such plagiarism may subject the student to disciplinary action administered through the university Honor Code Office. Intentional plagiarism is the deliberate act of representing the words, ideas, or data of another without providing proper attribution to the author through quotation, reference, or footnote.

Inadvertent plagiarism usually results from an ignorant failure to follow established rules for documenting sources or from simply being insufficiently careful in research and writing. Although not a violation of the Honor Code, inadvertent plagiarism can result in academic sanctions being imposed by an instructor. Students who are in doubt as to whether they are providing proper attribution have the responsibility to consult with their instructor and obtain guidance.

Examples of plagiarism include:

Direct Plagiarism—verbatim copying of an original source without acknowledging the source.

Paraphrased Plagiarism—paraphrasing, without acknowledgment, of ideas from a source that the reader might mistake for your own.

Plagiarism Mosaic—borrowing of words, ideas, or data from an original source and blending this original material with one's own without acknowledging the source.

Insufficient Acknowledgment—partial or incomplete attribution of words, ideas, or data from an original source

Plagiarism may occur with respect to unpublished as well as published material. Acts of copying another student's work and submitting it as one's own individual work without proper attribution is a serious form of plagiarism.

Fabrication or Falsification

Fabrication or falsification is a form of dishonesty where a student invents or distorts the origin or content of information used as authority. Examples include:

1. Citing a source that does not exist.
2. Attributing to a source ideas and information that are not included in the source.
3. Citing a source for a proposition that it does not support.
4. Citing a source in a bibliography when the source was neither consulted nor cited in the body of the paper.
5. Intentionally distorting the meaning or applicability of data.
6. Inventing data or statistical results to support conclusions.

Cheating

Cheating is a form of dishonesty wherein a student attempts to give the appearance of knowledge or skill that the student has not obtained. Examples include:

1. Copying from another person's work during an examination or while completing an assignment.
2. Allowing someone to copy from you during an examination or while completing an assignment.
3. Using unauthorized materials during an examination or while completing an assignment.
4. Collaborating on an examination or assignment without authorization.
5. Taking an examination or completing an assignment for another person or permitting another person to take an examination or to complete an assignment for you.

Other Academic Misconduct

Academic misconduct includes other academically dishonest, deceitful, or inappropriate acts that are intentionally committed.

Examples of such acts include but are not limited to:

1. Inappropriately providing or receiving information or academic work so as to gain unfair advantage over others.
2. Planning with another to commit any act of academic dishonesty.
3. Attempting to gain an unfair academic advantage for oneself or another by bribery or by any act of offering, giving, receiving, or soliciting anything of value to another for such purpose.
4. Changing or altering grades or other official educational records.
5. Obtaining or providing an un-administered test or answers to an un-administered test.
6. Breaking and entering into a building or office for the purpose of obtaining an unauthorized test.

7. Continuing work on an examination or assignment after the allocated time has elapsed.
8. Submitting the same work for more than one class without disclosure and approval.

ADDENDUM 4 – DISCRIMINATION AND/OR HARASSMENT

Brigham Young University does not allow unlawful discrimination based on race, gender, color, national origin, religion, age, veteran status, or disability in the academic or employment setting. This includes unlawful sexual harassment, which is a violation of university standards as well as state and federal laws and may be considered grounds for discipline. Persons who believe they have been unlawfully discriminated against or unlawfully sexually harassed should contact:

Equal Opportunity Office
D-282 ASB
Provo, UT 84602-1220
801/422-5895

ADDENDUM 5 – CONTACT INFORMATION

This student handbook provides a comprehensive summary of the policies and procedures that govern the graduate programs in the Department of Mechanical Engineering. When questions arise that are not addressed in this handbook, students should contact the Graduate Advisor or the Graduate Coordinator for assistance.

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