# 2024-2025
# Mechanical and Materials Engineering Graduate Student Handbook

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# Dates and Deadlines

The University Graduate School (UGS) website has a list of all the deadlines for M- & D-forms to be submitted for a given semester of graduation. (https://gradschool.fiu.edu/ ) These dates are for when the **form needs to be at UGS**. Most forms will need to be reviewed and approved by major professor, thesis/dissertation committee, GPD and the dean's office before going to UGS. This will take a lot of time, so talk to everyone in the approval process and **start at least 5 weeks before the date shown on the UGS website**.

# Masters Degree (MS)

A masters degree student, must choose between the thesis option and the non-thesis option by the time of choosing a major professor, which is within the first six months. Students supported by the department or a faculty member's grant, must do a thesis.

## MECHANICAL ENGINEERING MS STUDENT

See the following website for course listings for the MS degree:
https://catalog.fiu.edu/programs/MECHEG:MS

### THESIS OPTION

#### Requirements

- 2 math/numerical methods courses (6 credits)
- 4 courses in your major (12 credits)
- 2 courses outside your major (6 credits)
- Thesis credits (a minimum of 6 credits)
  Suggestion - register in your second year and do not take all thesis credits at once. These tend to take at least two semesters to complete.
- Graduate seminar EML6935 (0 credits)
  Must attend 14 seminars; Register in semester the 14th seminar will be attended.
- Minimum of 6 credits of 6xxx coursework not including thesis.
- Can take one Independent Studies EML6908 outside area of expertise

- Must turn in M-forms to meet UGS requirements (see https://gradschool.fiu.edu/students/#studentforms for forms)
- Must turn in thesis completion form and exit survey before graduating
- Must be registered for at least one thesis credit once beginning to register for thesis credits.
- Must be registered for a minimum of one credit in the semester of planed graduation.
- At least one semester before graduation, see GPD to verify that graduation goes according to plan.
- Must graduate with a minimum of 3.0 GPA; no course with C-
- EML 6910 **does not** count toward any requirements at masters level.

## NON-THESIS OPTION

### Requirements

- 2 math/numerical methods courses (6 credits)
- 4 courses in your major (12 credits)
- 2 courses outside your major (6 credits)
- One EML6908 course for project (3 credits)
- One Elective course (3 credits)
- Graduate seminar EML6935 (0 credits)
  Must attend 14 seminars; Register in semester the 14th seminar will be attend.
- Minimum of 9 credits of 6xxx coursework
- Can take EML6908 a second time but not in area of expertise.

- Must turn in non-thesis completion form and exit survey before graduating
- Must be registered for a minimum of one credit in the semester of planed graduation.
- At least one semester before graduation, see GPD to verify that graduation goes according to plan.
- Must graduate with a minimum of 3.0 GPA; no course with C-
- EML 6910 **does not** count toward any requirements at masters level.

## ROBOTICS FOR MECHANICAL ENGINEERS TRACK (NON-THESIS)

### Requirements

- 2 ME math/numerical methods courses (6 credits)
- 4 Track-specific courses (12 credits)
- 4 Track-elective courses (12 credits)
  of which one must be EML6908 course for project
- Graduate seminar EML6935 (0 credits)
  Must attend 14 seminars; Register in semester the 14th seminar will be attended.
- Minimum of 9 credits of 6xxx coursework

- Must turn in non-thesis completion form and exit survey before graduating
- Must be registered for a minimum of one credit in the semester of planned graduation.
- At least one semester before graduation, see GPD to verify that graduation goes according to plan.
- Must graduate with a minimum of 3.0 GPA; no course with C-.
- EML 6910 **does not** count toward any requirements at masters level.

## COMBINED BS/MS OPTION

This option follows the thesis or non-thesis options listed above, except:

- 6 credits of the MS program act as electives for the BS program; must score a B or better per course and be at the 5xxx level or higher

- Student is not considered a grad student for the MS program until completing all courses for the BS program and applying for graduation from the BS degree.
- The student will have 3 major semesters (Spring/Fall) to complete the MS degree
- If the BS/MS degree is not completed, the 6 credits will count toward one degree only.

## MATERIALS SCIENCE AND ENGINEERING MS STUDENT

See the following website for course listings for the MS degree:
**https://catalog.fiu.edu/programs/MTSCEG:MS**

### THESIS OPTION

#### Requirements

- 3 required core courses (9 credits)
- 5 courses in your major (15 credits)
- Thesis credits (a minimum of 6 credits)
  Suggestion - register in your second year and do not take all thesis credits at once. These tend to take at least two semesters to complete.
- Graduate seminar EML6935 (0 credits)
  Must attend 14 seminars; Register in semester the 14th seminar will be attended.
- Minimum of 6 credits of 6xxx coursework not including thesis.
- Can take one EML6908 course
- May take up to 6 credits outside the department

- Must turn in M-forms to meet UGS requirements (see https://gradschool.fiu.edu/students/#studentforms for forms)
- Must turn in thesis completion form and exit survey before graduating
- Must be registered for at least one thesis credit once beginning to register for thesis credits.
- Must be registered for a minimum of one credit in the semester of planed graduation.
- At least one semester before graduation, see GPD to verify that graduation goes according to plan.
- Must graduate with a minimum of 3.0 GPA; no course with C-.
- EML 6910 **does not** count toward any requirements at masters level.
- UGS website (https://gradschool.fiu.edu/calendar-deadlines/#masters ) shows the dates by which different **M-forms must be at UGS**.

### NON-THESIS OPTION

#### Requirements

- 3 required core courses (9 credits)
- 6 courses in your major (18 credits)
- One EML6908 course for project (3 credits)
- Graduate seminar EML6935 (0 credits)
  Must attend 14 seminars; Register in semester the 14th seminar will be attend.
- Minimum of 9 credits of 6xxx coursework.
- May take up to 9 credits outside the department.

- Can take EML6908 a second time but not in area of expertise.

- Must turn in non-thesis completion form and exit survey before graduating
- Must be registered for a minimum of one credit in the semester of planed graduation.
- At least one semester before graduation, see GPD to verify that graduation goes according to plan.
- Must graduate with a minimum of 3.0 GPA; no course with C-.
- EML 6910 **does not** count toward any requirements at masters level.

# Doctor of Philosophy (PhD)

## MECHANICAL ENGINEERING PHD STUDENT

See the following website for course listings for the PhD degree:
https://catalog.fiu.edu/programs/MECHEG:PHD

Choose a major professor
- Within first semester, if entering the PhD program with a completed masters degree
- Within the first year, if entering the PhD program with a bachelor's degree

A student entering with only a **Bachelor's Degree** or an incomplete **Masters Degree**:

### Requirements

- Must complete a minimum total of 75 credits of coursework and dissertation credits.
- Must complete at least 45 credit hours with at least 24 credits being coursework, if transfer credits are awarded with approval of your major professor.
- Must complete at least 15 credits of PhD Dissertation Research. (EML 7979)
- During the **second semester**, the student must choose a dissertation committee of 4 of Graduate Faculty members, in order to submit the D-1 form
  - Two (2) must be from academic department offering the degree.
  - One (1) must be from another academic department at FIU.
  - Fourth member may be from the two categories listed above or from outside the institution who has been reviewed and approved by academic department and University Graduate School. See FIU policy # 380.030. (https://policies.fiu.edu/files/780.pdf)
- All D-forms are submitted electronically through MyFIU.
- Must pass the qualifying examination within the fourth major semester of entering the PhD program.
- Must submit the D-2 as soon course work requirements are completed, 60 credits have been earned and at least one semester before the D-3.
- Must start taking dissertation credits as soon as approved to do so by UGS.
- Must submit and defend a dissertation proposal.
- Must submit form D-3 to UGS, at least 3 semesters before defense of dissertation.

- Must submit a dissertation and defend it, along with forms D-5 and the ETD forms. D-5 cannot be submitted in the same semester as the D-3.
- UGS website (https://gradschool.fiu.edu/calendar-deadlines/#doctoral ) shows the dates by which different **D-forms must be at UGS**.
- Must submit the Annual Evaluation Report to UGS every year before May 31.

## Course Work

- Minimum of 21 credits of 5000 level coursework not including dissertation.
- Minimum of 12 credits of 6000 level coursework not including dissertation.
- Maximum six (6) credits of EML 6908 Independent Study as part of your coursework.
- Maximum six (6) credits of EML 6910 Supervised Research as part of your coursework.
- Six (6) credits of math/numerical methods related courses given by the department.
- Must take 9 credits of coursework in a breadth area.
- May transfer up to 6 credits from another accredited institution taken within 6 years of start of the PhD program.
- Graduate Seminar (EML 6935) should be registered every semester until the advancement to candidacy. (D-2)

A student entering with a completed **MASTER'S DEGREE**:

## Requirements

- May transfer up to a maximum of 30 credits of coursework as equivalent work for the masters degree from an accredited institution as a block. Maximum of 24 credits if transferred class-by-class.
- Must complete the equivalent of at least 45 credits coursework/ transfer credits if awarded, with approval of your major professor
- Must complete at least 15 credits of dissertation work, EML7979
- During the **first semester**, in order to submit the D-1 form, the student must choose a dissertation committee of 4 of Graduate Faculty members
    - Two (2) must be from academic department offering the degree.
    - One (1) must be from another academic department at FIU.
    - Fourth member may be from the two categories listed above or from outside the institution who has been reviewed and approved by academic department and University Graduate School. See FIU policy # 380.030. (https://policies.fiu.edu/files/780.pdf)
- Must pass the qualifying examination within the second major semester of entering the PhD program.
- All D-forms are submitted electronically through MyFIU.
- Must submit the D-2 as soon course work requirements are completed, 60 credits have been earned and at least one semester before the D-3.
- Must start taking dissertation credits as soon as approved to do so by UGS.
- Must submit and defend a dissertation proposal.
- Must submit form D-3 to UGS, at least 3 semesters before defense of dissertation.
- Must submit a dissertation and defend it, along with forms D-5 and the ETD forms. D-5 cannot be submitted in the same semester as the D-3.
- UGS website (https://gradschool.fiu.edu/calendar-deadlines/#doctoral ) shows the dates by which different **D-forms must be at UGS**.
- Must submit the Annual Evaluation Report to UGS every year before May 31.

## Course Work

As part of the coursework, whether transferred or taken at FIU:

- Minimum of 12 credits of 6000 level coursework not including dissertation.
- Maximum six (6) credits of EML 6908 Independent Study as part of your coursework.
- Maximum six (6) credits of EML 6910 Supervised Research as part of your coursework.
- Six (6) credits of math/numerical methods related courses given by the department.
- Must take 9 credits of coursework in a breadth area.
- May transfer up to 6 credits from another accredited institution taken within 6 years of start of the PhD program.
- Graduate Seminar (EML 6935) should be registered every semester until the advancement to candidacy. (D-2)

# MATERIALS SCIENCE AND ENGINEERING PHD STUDENT

See the following website for course listings for the PhD degree:
https://catalog.fiu.edu/programs/MTSCEG:PHD

Choose a major professor

- Within first semester, if entering the PhD program with a completed masters degree
- Within the first year, if entering the PhD program with a bachelor's degree

A student entering with only a **BACHELOR'S DEGREE** or an incomplete **MASTER'S DEGREE**:

## Requirements

- Must complete a minimum total of 75 credits of coursework and dissertation credits.
- Must complete at least 45 credit hours with at least 24 credits being coursework, if transfer credits are awarded with approval of your major professor.
- Must complete at least 15 credits of PhD Dissertation Research. (EML 7979)
- During the **second semester**, the student must choose a dissertation committee of 4 of Graduate Faculty members, in order to submit the D-1 form
  - Two (2) must be from academic department offering the degree.
  - One (1) must be from another academic department at FIU.
  - Fourth member may be from the two categories listed above or from outside the institution who has been reviewed and approved by academic department and University Graduate School. See FIU policy # 380.030. (https://policies.fiu.edu/files/780.pdf)
- Must pass the qualifying examination within the fourth major semester of entering the PhD program.
- Must submit the D-2 as soon course work requirements are completed, 60 credits have been earned and at least one semester before the D-3.
- Must start taking dissertation credits as soon as approved to do so by UGS.
- Must submit and defend a dissertation proposal.
- Must submit form D-3 to UGS, at least 3 semesters before defense of dissertation.
- Must submit a dissertation and defend it, along with forms D-5 and the ETD forms. D-5 cannot be submitted in the same semester as the D-3.
- UGS website (https://gradschool.fiu.edu/calendar-deadlines/#doctoral ) shows the dates by which different **D-forms must be at UGS**.

- Must submit the Annual Evaluation Report to UGS every year before May 31.

## Course Work

- Minimum of 21 credits of 5000 level coursework not including dissertation.
- Minimum of 12 credits of 6000 level coursework not including dissertation.
- Maximum six (6) credits of EML 6908 Independent Study as part of your coursework.
- Maximum six (6) credits of EML 6910 Supervised Research as part of your coursework.
- All students must take
    - EMA 5001 Physical Properties of Materials (Required core course for MSMSE)
    - EMA 5106 Thermodynamics and Kinetics of Materials (Required core course for MSMSE)
    - EMA 5507C Analytical Techniques of Materials Science (Required core course for MSMSE)
    - Of the remaining coursework, 3 courses must form a cohesive specialization in one of the specialty areas.
- Must take 9 credits of coursework outside the Materials Science and Engineering area
- May transfer up to six (6) credits from another accredited institution taken within 6 years of start of the PhD program.
- Graduate Seminar (EML 6935) should be registered every semester until the advancement to candidacy. (D-2)

A student entering with a completed **MASTER'S DEGREE**:

- May transfer up to a maximum of 30 credits of coursework as equivalent work for the masters degree from an accredited institution as a block. Maximum of 24 credits if transferred class-by-class.
- Must complete the equivalent of at least 45 credits coursework/ transfer credits if awarded, with approval of your major professor
- Must complete at least 15 credits of dissertation work, EML7979
- During the **first semester**, in order to submit the D-1 form, the student must choose a dissertation committee of 4 of Graduate Faculty members
    - Two (2) must be from academic department offering the degree.
    - One (1) must be from another academic department at FIU.
    - Fourth member may be from the two categories listed above or from outside the institution who has been reviewed and approved by academic department and University Graduate School. See FIU policy # 380.030. (https://policies.fiu.edu/files/780.pdf)
- Must pass the qualifying examination within the second major semester of entering the PhD program.
- Must submit the D-2 as soon course work requirements are completed, 60 credits have been earned and at least one semester before the D-3.
- Must start taking dissertation credits as soon as approved to do so by UGS.
- Must submit and defend a dissertation proposal.
- Must submit form D-3 to UGS, at least 3 semesters before defense of dissertation.
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- UGS website (https://gradschool.fiu.edu/calendar-deadlines/#doctoral ) shows the dates by which different **D-forms must be at UGS**.
- Must submit the Annual Evaluation Report to UGS every year before May 31.

## Course Work

As part of the coursework, whether transferred or taken at FIU:

- Minimum of 21 credits of 5000 level coursework not including dissertation.
- Minimum of 12 credits of 6000 level coursework not including dissertation.
- Maximum six (6) credits of EML 6908 Independent Study as part of your coursework.
- Maximum six (6) credits of EML 6910 Supervised Research as part of your coursework.
- All students must take
    - EMA 5001 Physical Properties of Materials (Required core course for MSMSE)
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    - EMA 5507C Analytical Techniques of Materials Science (Required core course for MSMSE)
    - Of the remaining coursework, 3 courses must form a cohesive specialization in one of the specialty areas.
- Must take 9 credits of coursework outside the Materials Science and Engineering area
- May transfer up to six (6) credits from another accredited institution taken within 6 years of start of the PhD program.
- Graduate Seminar (EML 6935) should be registered every semester until the advancement to candidacy. (D-2)

# QUALIFYING EXAMINATION

The qualifying exam must be passed by

- Within second major semester if entering the program with a masters degree.
- Within the fourth major semester if entering the program with a bachelor's degree.

The qualifiers is a proposal style exam in which the student writes a 15 page NSF proposal and defends the proposal in an oral presentation given to his/her PhD committee.

The topic of the proposal is provided by the students PhD Advisor and the student is given a set amount of time to write the proposal. An exam defense date is then coordinated with the PhD committee and the student must provide the proposal to the committee **two weeks prior** to that date.

The student will be evaluated using metrics developed by the MME Graduate Committee that focuses on fundamental understanding of the topic, development of a research plan and technical merit of the proposed content.

The student can either pass the exam, pass conditionally or fail the exam. If the student fails the exam, they have a second opportunity, based on a different topic. Should the student fail the exam a second time, the student will not be allowed to continue in their PhD program. In the event of a conditional pass, the student will have to address the shortcomings as laid out by the committee and resubmit their work.

A proposal development course will typically be offered in the summer as an Individual Study to assist students in understanding the proposal development process.

## STAGES OF A PHD STUDENT'S GRADUATE CAREER

Examinations and Proposal and Final Defense Student must demonstrate graduate knowledge acquisition in five incremental stages in order to be awarded a Ph.D. in Mechanical Engineering. (https://catalog.fiu.edu/programs/MECHEG:PHD)

Stage I – Formation of the Dissertation Committee
Stage II - Qualifying Exam (QE)
Stage III - Admission to Candidacy
Stage VI - Proposal Defense
Stage V -Final Defense
In the semester prior to his/her taking the QE, student must declare intention to take QE and must declare a major field or area of research.

**I. Formation of the Dissertation Committee**

- Students entering the program with a masters degree must select a dissertation advisor during their first semester of study. These students must also select a dissertation committee and submit the D-1 form during their first semester. Students entering the program with a bachelor's degree must select a dissertation advisor and submit the D-1 form by the end of their second semester.

**II. Qualifying Exam (QE)**

- A student who is admitted to the Ph.D. program with a bachelors degree must take the QE no later than the beginning of the 4th major semester after admission, and a student who enters the Ph.D. program with a masters degree must take and pass the QE no later than the beginning of the 2nd major semester after admission. Students may petition for exceptions from the departmental graduate committee by one major semester at a time. A student who fails the QE may retake the exam once only.

**III. Admission to Candidacy**

- Candidacy status indicates that a doctoral student is ready to commence working on the dissertation. A student is admitted to candidacy upon successfully completing all required course work and passing the Comprehensive Examination. After completion of coursework credits and the Comprehensive Exam, form D-2 must be turned in.

**IV. Proposal Defense**

- The dissertation proposal will be presented by the student in the form of a Graduate Seminar in which he/she must submit a proposal for his/her dissertation.
- Students must declare their proposal subject within 6 months after taking and passing the Comprehensive Exam. After completion of proposal defense, form D-3 must be turned in.

**V. Final Defense**

- There will be a public defense at a graduate seminar. The defense can be failed no more than once.

- The final defense should be presented no later than the 4th year after the masters degree and no later than the 6th year after the bachelor's degree.
- Following the successful defense of the dissertation, as determined by a majority vote of the student's examining committee, the dissertation must be forwarded to the Dean of the College of Engineering and Computing and the Dean of the University Graduate School for their approval.
- All dissertations submitted in fulfillment of the requirements for graduate degrees must conform to University guidelines (see "Regulations for Thesis and Dissertation Preparation Manual"). One final and approved copy of the dissertation must be delivered to the Chairperson of the Department of Mechanical Engineering and one to the advisor, in addition to the copies required by the University Graduate School.

# FINAL REQUIREMENTS FOR GRADUATING PHD AND MS STUDENTS

If you plan your courses correctly you should complete your MS within 1.5-2 years and your PhD within 4-4.5 years (for those with a masters coming into the program).

- Contact the Graduate Program Director at least one semester before graduation so that completion requirements can be checked.
- Apply for graduation In the last semester. Check for deadline on UGS website.
- Turn in an exit survey and a thesis completion form (for those completing a thesis or dissertation) or a non-thesis completion form (for those doing a masters project).
- Return your Panther ID as it is a key to open electronic locks and return all keys to the key bank.
- You will need to settle all your funding holds as you will NOT receive your degree when your financial records are not clear.
- You will need to return all library books borrowed and all textbooks borrowed from faculty members.
- You will need to leave a forwarding email and forwarding address in case we need to send you anything received by the department in your name.

Keep in touch and tell us how you are doing.

## Fulltime Status For Graduate Students

By FIU policy, (https://policies.fiu.edu/files/759.pdf; https://policies.fiu.edu/files/783.pdf) full-time status for graduate students is defined as

- Nine (9) credits in fall and spring semesters.
- Six (6) credits in summer semester.
- For PhD students that have advanced to candidacy, (approved D-2 on file) three (3) credits of dissertation research is considered full-time enrollment, except for the purposes of graduate assistantships.

## TA Responsibilities

- TAs may be asked to grade homework and exam assignments, give weekly problem-solving sessions, substitute teach when course instructor is ill or on travel; TAs will hold regularly weekly office hours for students in their courses.
- Office hours with undergraduate students to be strictly followed by TAs.
- If the course involves laboratory sessions, the TA can help students perform experiments, answer technical questions, and ensure safety protocols are followed.
- If a teaching assistant (TA) cannot be physically present at school and the TA's presence is required for lab sessions or office hours, another TA could cover them temporarily with instructor approval. The TA should inform the instructor as soon as possible.
- If a teaching assistant (TA) does not follow the rules or guidelines set for the course, it's important to address the situation with instructor and advisor promptly to maintain course quality.
- Other duty may be assigned in agreement with the instructor and advior.
- Faculty will evaluate TAs every semester.
- If a TA's GPA drops below 3.3, he/she will not be offered a TA position again and is not qualified for RA.

## Annual Evaluation

- Every PhD student with more than 17 credits must complete the annual evaluation on-line.
- Access on my.fiu.edu –> Tasks Tab –> To Do List: No forms or signatures – approvals are done on-line
- The evaluation must be completed by May 31st for the prior summer, fall and spring semesters.
- Information regarding accomplishments for the year are provided to the dissertation committee. Specific details regarding this process depends on the preferences of each advisor.

## Responsible Conduct in Research (RCR)

- "TheRCR CITI Online Trainingis required for **all graduate students filing a Doctoral Dissertation Proposal Milestone and a Thesis Proposal (M2) Form submission with the University Graduate School (UGS)**."
- You will have to attach a copy of your certificate of completion to your M-2 or D-3 application.

GOOD LUCK IN YOUR ACADEMIC CAREER HERE AT FIU!