

MARQUETTE UNIVERSITY
DEPARTMENT OF ELECTRICAL AND
COMPUTER ENGINEERING

GRADUATE STUDENT
HANDBOOK

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II. GRADUATE STUDENT CLASSIFICATIONS

A. Academic Status

A graduate student may be classified as full-time, half-time or less than half-

E. Independent Study and Seminar Courses

Independent study courses (EECE 6995 Independent Study) may be offered on occasion from individual faculty members. Independent study courses must be approved in advance using the *Approval for Independent Study Course 6995* form and an *Independent Study Course Contract (EECE 6995)* form. Students taking EECE 6995 courses must have a grade point average of at least 3.25 and a minimum of 6 completed credit hours at Marquette. Approval is required in advance from the course director, the student's advisor, and the DGS.

Independent study courses must be curricular in nature, covering specific material not available within existing courses. Independent study courses are specifically *not* allowed for research activities and experimental work.

Similarly, research seminar courses (EECE 6953 Research Seminar) may be offered on occasion from individual faculty members.

The total number of independent study (EECE 6995), research seminar (EECE 6953) credits and Cooperative Education (EECE 8986) that may be applied to one student's degree program(s) is limited to a maximum of 6 credit hours in the M.S. Plan A (Thesis option) program, a maximum of 6 credit hours in the Ph.D. program, and an overall maximum of 9 credit hours total for a combined M.S./Ph.D. program. Students in the M.S. Plan B (Course option) program cannot apply independent study or research seminar credits toward their degree program.

F. Undergraduate Students in Graduate Courses

An undergraduate senior may, with appropriate permissions, register for a 5000-level graduate course for either undergraduate credit or future graduate credit. Refer to the Marquette University *Graduate Website* for details on obtaining approval.

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no grade less than a C. These courses are not used to meet regular degree requirements and are not included in graduate grade point average calculations, but their completion is necessary to be eligible for graduation.

J. Graduation Application

Each student planning to graduate in the current semester must file a *Graduation Application* with

- (1) A completed application form and fee.
- (2) Transcripts from all current and previous colleges/universities, except Marquette.
- (3) Three letters of recommendation.
- (4) GRE Scores (general test only).
- (5) A statement of purpose indicating the student's reasons for seeking the master's degree and declaring the student's general area of interest.
- (6) (For international applicants only) TOEFL score or other acceptable proof of English proficiency.

Admission is not official until the student is notified in writing of acceptance by the Graduate School. Admission cannot be made final until an official transcript has been received indicating the conferral of an undergraduate degree.

Students who fail this examination on their first attempt are permitted to take it a second time, with department approval. It is the obligation of the student to arrange a time and place on campus for the comprehensive examination suitable for all committee members, and to meet all appropriate deadlines indicated in the Graduate School academic calendar.

4. Master's Committee Membership

Each master's committee consists of at least three members, mutually selected by the student and his/her advisor. The advisor is the committee director and must have a regular faculty appointment in EECE at Marquette University. At least two members of the committee (including the director) must have regular faculty appointments in EECE at Marquette University. Any committee member from outside the University needs to meet the Graduate School committee requirements.

D. Plan B (Course Option)

1. Course Requirements

Thirty (30) semester hours, at least 21 of which must be in EECE, are required. At least 18 credits of the total program coursework and at least 12 credits of the EECE coursework must be taken at the strictly graduate level (6000 level).

Students in the M.S. Plan B program may not apply independent study (EECE 6995) or research seminar (EECE 6953) credits. Special permission by the DGS could be given for a maximum of three cooperative education (EECE 8986) credits toward their degree program.

document, <https://www.marquette.edu/electrical-computer-engineering/documents/wqe-ms-comp-rules.pdf> available from the EECE office and webpage.

E. Five-Year B.S./M.S. Program

1. Program Eligibility

The EECE Department offers a Five-Year B.S./M.S. Program where eligible students may obtain both a Bachelor's degree and a M.S. EE degree in five years. Students with a GPA of 3.5 or better in their Mathematics, Science and Engineering courses are eligible to apply to this program in their junior year. This program is available to undergraduate students in EECE or Physics.

Students wishing to participate in the Five-Year Program must apply and be admitted to the program before their senior year, using the same procedures outlined in Section V.A, with the exception that GRE test scores are not required. Students need to fill out an *Application for Graduate Admission and Financial Aid* form (available from the Graduate School) and follow the guidelines in both the Marquette Graduate Bulletin and this document for admission to the program. On the application, in the section "Graduate School Plans", students should check "B.S. to M.S."

2. Requirements

Students in the program may take graduate courses in their junior or senior undergraduate year (up to 12 credits total, minimum grade of B required). Up to nine graduate credits count toward both degrees. The remaining courses and credits toward the M.S. degree are completed during the fifth year. For students following Plan A (Thesis Option), work on the thesis research should begin during the summer between the junior and senior undergraduate years.

Undergraduate students wishing to take courses for graduate credit must fill out a *Permission to Enroll in a Graduate Course* form, available from the Graduate School. This is done for both 5000-level and 6000-level courses. Students in the Five-Year Program wishing to apply course(s) toward both degrees must check the box "5-year program" in the "Additional Information" section of the form. Permission forms for courses applied only to the M.S. degree should check the box "I do not intend to use this course to satisfy undergraduate requirements". For 5000-level courses, students must also fill out a "Graduate Credits Requested for Undergraduate Course" form. In addition, the program requires all students to attend the EECE 6952 Department Colloquium for two semesters in their fifth year.

Once the undergraduate degree is completed, students must fill out a *Master's Degree Transfer of Credit Request* form to formally transfer the coursework taken into their M.S. program. All coursework taken as an undergraduate must meet -3(up t)6(o(nt6f)JT≈4(l)-4(y)11(t)1(gr)-3nseferg-4(oq)11(u)11

F. General Electric Healthcare Master's Program

This program is available only to employees of G.E. Healthcare Edison program and includes the courses EECE 6090 Advanced Engineering I, EECE 6092 Advanced Engineering II, and EECE 6094 Advanced Engineering III.

1. Students in Master's Plan A or Plan B may receive credits for EECE 6090, EECE 6092 and EECE 6094 as general electives to partially fulfill their course requirements.
2. EECE 6090, 6092, and 6094 cannot be used towards course requirements in a Ph.D. program.

G.E. Healthcare employees wishing to enter the program must apply using the same procedures outlined in Section V.A, with the exception that GRE test scores are not required. Students need to fill out an Application for Graduate Admission and Financial Aid form (available from the Graduate School) and follow the guidelines in both the Marquette Graduate Bulletin and the EECE Department's Graduate Student Handbook (available from the department office or online) for admission to the program. On the application it should be noted that applicants are applying as part of the G.E. Healthcare Edison program.

G. Time

- (3) Three letters of recommendation
- (4) GRE Scores (general test only).
- (5) A statement of purpose indicating the student's reasons for seeking a doctoral degree and declaring the student's general area of interest.
- (6) (For international applicants only) TOEFL score or other acceptable proof of English proficiency.

Admission is not official until the student is notified in writing of acceptance by the Graduate school.

Admission is valid for one year beyond the desired entry date requested on the application for admission.

Ph.D. (with B.S.) program (for *qualified* students with only a B.S. degree): requires a total of 48 post-baccalaureate's credit hours of coursework, plus an additional 12 dissertation credits.

Changes to the program of study may be made using the *Doctoral Program Planning Form Amendment*.

3. Doctoral Written Qualifying Examination

Doctoral students are required to take the EECE Doctoral Written Qualifying Examination, (WQE) by the end of their third semester of study. The WQE is a written exam, administered once a year in January, which the student must pass to become a doctoral candidate and continue in the program.

For the EECE WQE rules click the following www.marquette.edu/electrical-computer-engineering/documents/wqe-ms-comp-rules.pdf

Copies of the rules and focus areas are posted on the departmental website and hard copies are available in the EECE department office.

Master's students taking the WQE exam do so voluntarily and will not have their M.S. programs affected by the results of the exam. Passing the exam does not automatically admit students to the doctoral program nor guarantee admittance; they must still apply and be accepted. However, if and when they are accepted, such students will have already met the WQE requirements and will be advanced to doctoral candidacy as soon as they identify a research advisor, complete a Doctoral Program Planning form, and meet course and residency requirements. Failing the exam while an M.S. student *does* count against the limit of two maximum attempts at the WQE.

Eligibility for Ph.D. Written Qualifying Exam

All EECE M.S. Thesis Option or Ph.D. graduate students are eligible to register for and take the Doctoral WQE at any time. It is highly recommended that Ph.D. students and M.S. students planning to apply to the Ph.D. program plan their coursework in accordance with the exam requirements and take the exam as soon as they have taken the recommended courses.

Time Requirement for Doctoral Written Qualifying Exam

Full-time Ph.D. students are required to take the WQE by the end of their third semester in the doctoral program.

4. Doctoral Committee Membership

Each doctoral committee consists of at least five members, mutually selected by the student and his/her advisor. The advisor is the committee director and must have a regular faculty appointment in EECE at Marquette University. At least four members of the committee (including the director) must have regular or adjunct faculty appointments at MU and at least three must have regular primary faculty appointments in EECE at Marquette University.

5. Doctoral Dissertation Outline and Proposal

Ph.D. candidates are required to complete an *Outline for Dissertation* and present an oral dissertation proposal to their committee by the end of their fourth semester of study. The dissertation outline must clearly convey the original research contribution of the proposed work. Following the dissertation proposal, the outline is approved via the *Outline for*

Dissertation, Thesis form, by the dissertation advisor, the committee members, the DGS, and the Graduate School.

After the outline is approved the student may register

B. Academic Review

The department evaluates the academic performance of all students at the close of each semester and/or academic year. In order to graduate, a grade point average of at least 3.0 is required, so all graduate students are expected to maintain a grade point average of at least 3.0. Details regarding failure to meet this criterion, including warnings, academic probation and dismissal, are outlined in the Marquette University *Graduate School Website*.

Satisfactory academic work is not determined exclusively by course grades, but by an overall assessment of academic performance. Grades are, however, an important factor in the evaluation process. Multiple C's, or a single F, are indications of serious academic concern, which may require the student to suspend graduate studies and successfully complete a remedial course before continuing in the program.

C. Appeals

As specified in the Marquette University *Graduate School Website*, students have the right to appeal the imposition of any sanctions due to unsatisfactory academic performance or findings of academic dishonesty. Responsibility to decide the validity of appeals rests with the Dean of the Graduate School advised by the Board of Graduate Studies. Appeals should be made in writing to the Dean of the Graduate School.

D. Grade Appeals

As specified on the Marquette University *Graduate School Website*, grade appeals for graduate courses are heard by the school or college that teaches the course. The grade appeals process for courses taught by the College of Engineering is published on the COE web site, and students who wish to appeal their grade in an EECE course should consult this document and follow the outlined process. Students are strongly advised to discuss grading concerns with their course instructor and their academic advisor prior to making an official appeal.

E. Academic Honesty Policies

Any student who is found to have engaged in violating academic honesty policies is subject to appropriate academic discipline, as specified by the *College of Engineering Academic Honesty Policy*, and the *Marquette University Academic Honesty* and *Marquette University Research Misconduct* policies.

VIII. FINANCIAL AID

Five major categories of financial aid are available to degree-status graduate students in Electrical and Computer Engineering: scholarships, fellowships, teaching assistantships, research assistantships, and loans. Students admitted on probation are not eligible for financial aid but may be considered once probation has been removed. The term of financial aid is normally an academic year (10 months), but in some instances may be one semester (5 months), or one year (12 months). Only very limited amounts of financial aid are available during the summer.

Graduate students receiving financial aid may accept no outside employment and must be enrolled full-time either by virtue of course work or continuous enrollment. Master's students receiving any

For specific information on loans and other resources available to graduate students attending Marquette, contact the Office of Student Financial Aid.

APPENDIX A. SUMMARY OF PROGRAM REQUIREMENTS

The following sections briefly summarize the requirements for each of the graduate programs. Students are also urged to consult with the DGS for questions they may have regarding program

Other requirements include:
Comprehensive Exam
Graduation Application

C. Doctoral Degree

Ph.D. (with M.S.) program: a total of 24 post-master's credit hours of coursework, plus an additional 12 dissertation credits. (A master's degree is considered to be the equivalent of 24 coursework credits, so that this course work requirement is the equivalent of 48 credits beyond the bachelor's degree, exclusive of dissertation credits.)

Ph.D. (with B.S.) program (for qualified students with only a B.S. degree): a total of 48 post-baccalaureate's credit hours of coursework, plus an additional 12 dissertation credits. Students must complete the course requirements for the M.S. degree to continue in the program. If the student wants to actually earn the M.S. degree along the way, he or she