MASTER OF SCIENCE IN ELECTRICAL ENGINEERING

The Master of Science in Electrical Engineering degree is well-suited for students interested in gaining advanced knowledge in electrical engineering topics related to their specific area of interest.

Program Requirements

Program Requirements

- Student's Advisory Committee (https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/electrical-computer/electrical-ms/#students-advisory-committee)
- Degree Plan (https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/electrical-computer/electrical-ms/#degree-plan)
- Credit Requirements (https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/electrical-computer/electrical-ms/#credit-requirement)
- Limitations on Credits and Coursework (https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/electrical-computer/electrical-ms/#limitations)
- Research Proposal (https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/electrical-computer/electrical-ms/#proposal)
- Final Examination (https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/electrical-computer/electrical-ms/#final-examination)
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  - Expiration (https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/electrical-computer/electrical-ms/#final-exam-expiration)
- Thesis (https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/electrical-computer/electrical-ms/#thesis)

Student's Advisory Committee

On-Campus and Distance Education Degree Programs

After receiving admission to graduate studies, students will consult with the graduate program concerning selection of a chair and members (if applicable) for an advisory committee representative of the student's field(s) of study and research.

A thesis option Master of Science in Electrical Engineering student's advisory committee will consist of no fewer than three members, where the chair or co-chair must be from the student's major department. For all thesis option master's degrees, at least one or more of the members must have a primary appointment with an academic unit external to the student's major department. The chair, in consultation with the student, will select the remainder of the advisory committee.

A non-thesis option degree student's advisory committee will consist of no fewer than one member, where the chair must be from the student's major department. Typically, an advisory committee chair will be assigned to the student.

Only members of the Graduate Committee Faculty located on Texas A&M University campuses may serve as chair of a student's advisory committee. Other members of the Graduate Committee Faculty – including those located off-campus or outside the university (if permitted by program, department, and college/school policy) – may serve as a co-chair or member, but not as chair.

The advisory committee as a group – and as individual members – are responsible for advising students on academic matters. These duties include the responsibility for approving a student's proposed degree plan; research proposal (if applicable); thesis, dissertation, or record of study (if applicable); and conducting examinations (if required). The advisory committee members' approval of a degree plan indicates their willingness to accept the responsibility for guiding and directing a student's entire academic program and for initiating all academic actions concerning a student. Additionally, in cases of academic deficiency, the advisory committee is responsible for initiating recommendations to the academic unit and the Graduate and Professional School.

The chair of an advisory committee, who usually has immediate supervision of a student's degree program, has the responsibility for calling meetings at any time considered desirable.

If the chair of a student's advisory committee is unavailable for an extended period of time in any academic period during which the student is involved in activities relating to an internship, thesis, or professional paper – and is registered for courses such as 684 (Professional Internship), 691 (Research), 692 (Professional Study) or 693 (Professional Study) – the Department Head or interdisciplinary degree Program Chair (if applicable) may appoint an alternate advisory committee chair during the interim period.

If a student's advisory committee chair is on an approved leave of absence – and the student wants the chair to continue to serve in this role – a written request must be submitted by the Department Head, or interdisciplinary degree Program Chair (if applicable), to the Associate Provost and Dean of the Graduate and Professional School, for the faculty member who is on an approved leave of absence to be allowed to continue serving as chair of the advisory committee – without a co-chair – for up to one year. The request must confirm that the faculty member is able to engage in the required duties as chair during the leave of absence. Extensions beyond the one-year period (if necessary) may be granted with additional approval of the Associate Provost and Dean of the Graduate and Professional School.

If a student's advisory committee chair voluntarily separates from the university, and the student is nearing completion of the degree, the chair may continue to serve in this role – at the student's request – for up to one year. Two options are available:

1. The chair may continue, with a co-chair, without additional approval by the Graduate and Professional School. The student must select a current member of the Graduate Committee Faculty – from the student's academic program and located

near the Texas A&M University campus site – to serve as co-chair of the advisory committee.

2. The chair may continue, without a co-chair, with approval by the Graduate and Professional School. A written request must be submitted through the Graduate Committee Faculty Office to the Associate Provost and Dean of the Graduate and Professional School by the Department Head or interdisciplinary degree Program Chair to allow the faculty member to continue as chair, without a co-chair, of the advisory committee.

For both options, extensions beyond the one-year period (if necessary) may be granted with approval of the Associate Provost and Dean of the Graduate and Professional School.

Although individual members may be replaced by petition for valid reasons, all members of a student's advisory committee cannot resign *en masse*.

Degree Plan

On-Campus and Distance Education Degree Programs

Upon commencement of graduate studies, an advisory committee will evaluate the student's previous education, and outline a program of study and/or research topics(s) based upon the student's degree objectives. Graduate students, in consultation with the advisory committee, will then develop a degree plan which includes those courses to be applied toward a particular degree and formally establish the advisory committee.

The degree plan must be created, submitted, and approved through the online Document Processing Submission System (https://ogsdpss.tamu.edu/) (DPSS). The degree plan must be submitted prior to the deadline imposed by the student's college or school and approved by the Graduate and Professional School no later than 90 days prior to the last day for completion of a Final Examination. Students must select the appropriate program option(s) when submitting a proposed degree plan.

Coursework included on the degree plan is subject to the requirements and restrictions detailed in the Credit Requirements and Limitations on Credits and Coursework sections in each degree program page, or as required by the student's advisory committee and/or academic unit. Coursework included on the degree plan may not satisfy requirements for more than one degree, except for approved combination degree programs.

Changes to an approved degree plan, if deemed necessary by the advisory committee, may be made through a petition to the Graduate and Professional School. No changes can be made to a degree plan once a student's Final Examination Request or Final Examination Exemption Request is approved by the Graduate and Professional School.

Degree program time limits apply to courses listed on a degree plan. For additional information, students should check the Time Limits section under Additional Requirements.

Credit Requirements

On-Campus and Distance Education Degree Programs

All graduate students must complete sufficient semester credit hours to satisfy their degree requirements.

A minimum of 32semester credit hours of approved courses and research is required for the thesis option Master of Science in Electrical Engineering.

A minimum of 30 semester credit hours of approved coursework is required for the non-thesis option.

Coursework may be completed in one or a combination of academic units. Ordinarily, students will devote the major portion of their time on work in one or two closely related fields of study; but other work may be required in supporting areas of interest.

Limitations on Credits and Coursework

On-Campus and Distance Education Degree Programs

Credit hour requirements for all graduate degrees at Texas A&M University are subject to the following limitations:

1. To receive a graduate degree, students must earn one-third or more of the credits through the institution's own direct instruction. These limitations also apply to joint degree programs.
2. Transfer credits may be used to meet the credit hour requirements under the following limitations:
   a. The maximum number of credit hours which may be considered for transfer credit is the greater of 12 credit hours or one-third (1/3) of the total hours of a degree plan.
   b. Graduate and/or upper-level undergraduate courses (400-level only) taken in residence at an accredited United States or international institution (recognized by the Office of Admissions), with a final grade of B or greater, may be considered for transfer credit if – at the time the courses were completed – the courses would be accepted for credit toward a similar degree for a student in degree-seeking status at the host institution.
   c. An official transcript from the institution at which the transfer coursework was taken must be sent directly to the Office of Admissions. Coursework credit submitted for transfer from any institution must be shown in semester credit hours or equated to semester credit hours.
   d. Up to 1 hour of credit may be obtained for each five-day week of coursework for graduate courses of three weeks' duration or less taken at other institutions. Each week of coursework must include at least 15 contact hours.
   e. Grades for courses completed at other institutions are not included in computing the GPA.
   f. Coursework in which no formal grades were given, or in which grades other than A or B were earned (for example, CR, P, S, U, H, etc.), is not accepted for transfer credit.
   g. Courses completed at Texas A&M University and appearing on the degree plan with grades of D, F or U may not be absolved by transfer work.
   h. Except for officially approved cooperative doctoral programs, credit for thesis or dissertation research – or the equivalent – is not transferrable.
   i. Courses used toward a degree at another institution may not be applied for transferred graduate credit.
   j. Courses used toward a certificate, but not applied to an awarded degree, may be considered for transfer. If the course to be transferred was taken for a certificate or prior to the conferral of a degree at the transfer institution, a letter from the registrar at that institution stating that the course was not applied for credit toward the degree must be submitted to the Graduate and Professional School.

   k. Credit for internship coursework in any form, or taken by extension, is not transferable.
   l. Courses for which transfer credits are sought must be approved by the student's advisory committee and the Graduate and Professional School.
   m. A student who has earned 12 credit hours of graduate credit in residence at Texas A&M University may be authorized to transfer courses in excess of the limits upon the advice of the advisory committee and with the approval of the Graduate and Professional School.
3. The maximum number of credit hours taken in post-baccalaureate non-degree (G6) classification at Texas A&M University which may be considered for application to the degree plan is 12.
4. Only grades of A, B, C and S are acceptable for graduate credit.
5. Graduate courses on a degree plan may not be taken on an S/U basis except for 681 (Seminar), 684 (Professional Internship), 690 (Theory of Research), 691 (Research), 692 (Professional Study), 693 (Professional Study), 695 (Frontiers in Research), 697 (Methods), 791 (Doctoral Capstone) or SOPH 680 (Public Health Capstone).
6. Approval to enroll in any professional course should be obtained from the Department Head or interdisciplinary degree Program Chair (if applicable) in which the course will be offered before including such a course on a degree plan.
7. No more than 50 percent of the non-research coursework required for an in-person degree program may be completed through distance education courses.
8. No graduate credit may be obtained by continuing education, correspondence study, extension, or for any course of fewer than three weeks duration.

Some academic units may have additional or more restrictive requirements.

The foregoing limitations apply to all graduate programs. Exceptions will be permitted only in unusual cases, when petitioned through the student's advisory committee, and approved by the Graduate and Professional School.

Credit hour requirements for master's degrees are subject to the following additional limitations:

Thesis Option Students

1. A maximum of 12 credit hours may be used, in any combination of the following, on a thesis master's degree plan:
   a. No more than 8 credit hours in any combination of the following:
      i. no more than 8 credit hours of 684 (Professional Internship) and
      ii. no more than 8 credit hours of 691 (Research).
   b. No more than 8 credit hours of 685 (Directed Studies).
   c. No more than 3 credit hours of 690 (Theory of Research).
   d. No more than 3 credit hours of 695 (Frontiers in Research).
2. Certain zero-credit courses may be allowed on a thesis master's degree plan:
   a. A zero-credit 681 (Seminar) course may be used.
   b. Other courses – including 684 (Professional Internship), 685 (Directed Studies), and 691 (Research) hours – are not eligible for zero credit.
3. A maximum of 9 credit hours of advanced undergraduate courses (300- or 400-level only) may be considered for application to a master's degree plan.

Non-Thesis Option Students

1. A student pursuing a non-thesis option master's degree may not enroll in 691 (Research) courses for any reason. Under special circumstances, however, students in a non-thesis Master of Arts or Master of Science degree program may request application of 691 hours on a degree plan under the following conditions:
   a. The Department Head or interdisciplinary degree Program Chair (if applicable) for the program may approve an exception for a student who changes to a non-thesis option MA or MS degree program from a PhD (after at least one year of study) or a thesis option MA or MS degree.
   b. If approved, a maximum of 8 credit hours in combination of 685 (Directed Studies) and 691 (Research) may be used.
   c. Colleges/schools, departments, and interdisciplinary degree programs may establish additional requirements.
2. A maximum of 12 credit hours may be used, in any combination of the following, on a non-thesis master's degree plan:
   a. No more than 4 credit hours in any combination of the following:
      i. no more than 2 credit hours of 681 (Seminar),
      ii. no more than 4 credit hours of 684 (Professional Internship), and
      iii. no more than 3 credit hours of 685 (Directed Studies).
   b. No more than 8 credit hours in any combination of the following:
      i. no more than 4 credit hours 684 (Professional Internship),
      ii. no more than 3 credit hours of 685 (Directed Studies), and
      iii. no more than 8 credit hours of 691 (Research), if permitted.
   c. No more than 3 credit hours of 690 (Theory of Research).
   d. No more than 3 credit hours of 695 (Frontiers in Research).
3. Certain zero-credit courses may be allowed on a non-thesis master's degree plan:
   a. A zero-credit 681 (Seminar), 684 (Professional Internship), or 685 (Directed Studies) course may be used.
   b. Other courses – including 691 (Research) hours, if permitted – are not eligible for zero credit.
4. A maximum of 9 credit hours of advanced undergraduate courses (300- or 400-level only) may be considered for application to a master's degree plan.

The foregoing limitations apply to all graduate programs. Exceptions will be permitted only in unusual cases, when petitioned through the student's advisory committee, and approved by the Graduate and Professional School.

Research Proposal

On-Campus and Distance Education Degree Programs

Candidates for all thesis option master's degrees must submit a Research Proposal.

The general field of research to be used for a thesis should be agreed on by the student and the advisory committee as a basis for selecting

the proper courses to support the proposed research. Once the research project can be outlined in reasonable detail, the Research Proposal should be completed.

Compliance issues must be addressed before completion of a Research Proposal if a graduate student is performing research involving human subjects, animals, infectious biohazards, or recombinant DNA. Students engaged in these types of research should check with the Office of Research Compliance and Biosafety to address questions about all research compliance responsibilities before the proposal is submitted to the Graduate and Professional School. Additional information may be obtained at the Office of Research Compliance and Biosafety website (https://vpr.tamu.edu/research-compliance-and-biosafety/).

The Research Proposal should be finalized at a meeting of the student's advisory committee, at which time the feasibility of the proposed research and the adequacy of available facilities should be reviewed. Once completed, the Research Proposal must be submitted to the Graduate and Professional School *via* the Academic Requirements Completion System (ARCS).

For thesis option master's degrees, a Research Proposal must be submitted to the Graduate and Professional School *via* ARCS at least 20 working days prior to the submission of a Final Examination Request, or by the date established in the Graduate and Professional School Dates and Deadlines calendar (https://grad.tamu.edu/knowledge-center/dates-and-deadlines/dates-and-deadlines) – whichever comes first.

Final Examination

On-Campus and Distance Education Degree Programs

Candidates for all thesis-option and certain non-thesis option master's degrees must pass a Final Examination by deadlines announced through the Graduate and Professional School Dates and Deadlines Calendar (https://grad.tamu.edu/knowledge-center/dates-and-deadlines/dates-and-deadlines).

Master's students may be given only one opportunity to repeat a Final Examination, and that must be within a time period that does not extend beyond the conclusion of the next regular semester (summer terms excluded).

Eligibility

For master's degree students, eligibility to schedule a Final Examination requires that

1. a student's cumulative and degree plan GPA must be at least 3.00;
2. no unabsolved grades of D, F or U for any course may be listed on a degree plan (to absolve a deficient grade, the student must repeat the course at Texas A&M University and achieve a grade of C or better); and
3. all coursework on the degree plan must be completed, with the exception of those hours for which the student is registered.

Master's students may be given only one opportunity to repeat a Final Examination, and that must be within a time period that does not extend beyond the conclusion of the next regular semester (summer terms excluded).

Thesis Option Degrees

For thesis option students, a Final Examination is required.

The Final Examination may not be administered until the thesis is available in substantially final form to all members of a student's advisory committee and all members have had adequate time to review the manuscript. The examination may cover the thesis and all work taken on a Degree Plan.

Thesis option students must be registered at the university in the fall, spring or summer term in which the Final Examination is taken.

An academic unit may have stricter requirements provided there is consistency among all degree programs within the college/school or department.

Non-Thesis Option Degrees

For non-thesis option students, a Final Examination is not required.

Final Examination Exemptions

Thesis option candidates may petition to be exempt from the Final Examination – provided the Degree Plan GPA is 3.50 or greater – with approval of the advisory committee, the academic unit, and the Graduate and Professional School. Requests for exemption from the Final Examination must be submitted the same semester the student intends to graduate.

Scheduling

The Final Examination request must be submitted to the Graduate and Professional School *via* the Academic Requirements Completion System (ARCS) a minimum of ten (10) working days in advance of the requested examination date, or the deadline listed on the Graduate and Professional School Dates and Deadlines Calendar (https://grad.tamu.edu/knowledge-center/dates-and-deadlines/dates-and-deadlines) – whichever comes first. Any changes to the Degree Plan must be approved by the Graduate and Professional School prior to submission of the request.

Any cancellations will be notated in ARCS.

Format

The Final Examination shall be conducted by the student's advisory committee as approved on a graduate degree plan, and the format shall be determined by the student's academic unit and/or advisory committee and communicated to the student in advance of the examination. The Final Examination may consist of a written component, oral component, or combination of both.

The examination may cover the broad field of the candidate's training and closely related topics. For doctoral and thesis master's students, it is presumed that the major portion of the time will be devoted to the thesis, dissertation, or record of study (as applicable).

Only one committee member substitution is allowed – with prior approval of the Graduate and Professional School – to provide an evaluation decision for a student's Final Examination. The advisory committee Chair may not be replaced by a substitute. If the degree program requires the advisory committee to include at least one External Member, and the substitution is for the sole external member of the advisory committee, then the substitute must also be external to the student's academic unit. In extenuating circumstances, with approval of the Graduate and Professional School, an exception to this requirement may be granted.

Persons other than members of the advisory committee may – with mutual consent of the candidate and the advisory committee chair – attend Final Examinations. Upon completion of a candidate's questioning, all visitors must excuse themselves from the proceedings.

Grading

A positive evaluation of the Final Examination by the members of a student's advisory committee – with at most one dissension – is required to pass a student on the examination. If the chair is the sole member of the student's advisory committee, a positive vote is required to pass a student on the Final Examination. Academic units may have stricter requirements provided there is consistency in all degree programs within a given department or interdisciplinary degree program.

Final Examination results must be reported to the Graduate and Professional School *via* ARCS within ten (10) working days of completion of the examination.

Expiration

For restrictions on Final Examination validity, please see the Time Limits section under Additional Requirements.

Thesis

On-Campus and Distance Education Degree Programs

Candidates for all thesis option master's degrees must complete an acceptable thesis.

A master's thesis must reflect a comprehensive understanding of the pertinent literature and express in clear language the problem(s) for study, method, significance, and results of the student's original research.

Manuscript formatting must be acceptable to the Graduate and Professional School as outlined in the *Guidelines for Theses, Dissertations, and Records of Study*.

After a successful Final Examination/defense (or Final Examination Exemption for thesis option master's students, if permitted), and approval of the student's advisory committee and the Department Head (or interdisciplinary degree Program Chair, if applicable), the student must submit the manuscript in electronic format as a single PDF file to the Thesis and Dissertation Submission System (https://etd.tamu.edu/) (Vireo).

A manuscript determined by the Graduate and Professional School to require corrections will be returned to the student. The student must make all necessary corrections and resubmit a revised version of the manuscript, which will be re-reviewed. All original submittal deadlines must be met during the resubmittal process to clear for graduation.

Additionally, a Written Thesis/Dissertation Approval Form must be submitted through the Academic Requirements Completion System (ARCS). Both the PDF file of the manuscript in Vireo, and the completed ARCS approval form, must be received by the Graduate and Professional School by the deadlines announced each semester or Summer term in the Graduate and Professional School Dates and Deadlines Calendar (https://grad.tamu.edu/knowledge-center/dates-and-deadlines/dates-and-deadlines). Please see the Time Limits section in the Graduate and Professional Catalog.

Each student who submits a manuscript for review is assessed a one-time thesis/dissertation/record of study processing fee through Student Business Services for the review services provided. After commencement, manuscripts are digitally stored and made available through the Texas A&M Libraries.