MASTER OF SCIENCE IN MICROELECTRONICS AND SEMICONDUCTORS

This program addresses the compelling demand for workforce in microelectronics design and semiconductor manufacturing.

Students in the Master of Science in Microelectronics and Semiconductors will learn key skills in microelectronic design and simulation, including analog and digital integrated circuit design, development and fabrication of semiconductor materials and devices, as well as testing of the developed devices and systems. Upon completion of the degree, students will be ready to work as integrated circuit design engineers in chip design companies, or process and development engineers in semiconductor manufacturing industry.

Program Requirements

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Student's Advisory Committee

After receiving admission to graduate studies and enrolling for coursework, the student will consult with the head of the department or the department head's designee (e.g., departmental graduate advisor) concerning appointment of the chair of his or her advisory committee. The student's advisory committee for the Master of Science will consist of at least one member of the graduate faculty. Typically this member may be the departmental graduate advisor and will serve as the student's committee chair or, the departmental graduate advisor may appoint/approve another departmental faculty member to serve as the appropriate chair of the student's advisory committee. Depending on the departmental policy, additional committee members may be required. If additional committee members are deemed necessary by the department, the chair, in consultation with the student, will select the remainder of the advisory committee. The student will interview each prospective committee member to determine whether he or she is willing to serve. Only graduate faculty members located on Texas A&M University campuses may serve as chair of a student's advisory committee. Other graduate faculty members located off-campus may serve as a member or co-chair (but not chair), with a member as the chair. The chair of the committee, who usually has immediate supervision of the student's degree program, has the responsibility for calling meetings at any other time considered desirable.

If the chair of a student's advisory committee voluntarily leaves the University and the student is near completion of the degree and wants the chair to continue to serve in this role, the student is responsible for securing a current member of the University Graduate Faculty, from the student's academic program and located near the Texas A&M University campus site, to serve as the co-chair of the committee. The Department Head or Chair of Intercollegiate faculty may request in writing to the Associate Provost and Dean of the Graduate and Professional School that a faculty member who is on an approved leave of absence or has voluntarily separated from the university, be allowed to continue to serve in the role of chair of a student's advisory committee without a co-chair for us to one year. The students should be near completion of the degree. Extensions beyond the one year period can be granted with additional approval of the Dean.

If the chair of the student's advisory committee is unavailable for an extended time in any academic period during which the student is involved in activities relating to an internship or professional paper and is registered for courses such as 684, 692 or 693, the student may request, in writing, that the department head appoint an alternate advisory committee chair during the interim period.

The duties of the committee include responsibility for the proposed degree plan, any professional study or project, and the final examination. In addition, the committee, as a group and as individual members, is responsible for counseling the student on academic matters, and, in the case of academic deficiency, initiating recommendations to the Graduate and Professional School.

The committee members' approval on the degree plan indicate their willingness to accept the responsibility for guiding and directing the entire academic program of the student and for initiating all academic actions concerning the student. Although individual committee members may be replaced by petition for valid reasons, a committee cannot resign *en masse*.

Degree Plan

The student's advisory committee, in consultation with the student, will develop the proposed degree plan. The degree plan must be completed and filed with the Graduate and Professional School prior to the deadline imposed by the student's college, and no later than 90 days prior to the date of the final oral examination. No exceptions are allowed.

This proposed degree plan should be submitted through the online Document Processing Submission System located on the website https://ogsdpss.tamu.edu (https://ogsdpss.tamu.edu/).

Additional coursework may be added to the approved degree plan by petition if it is deemed necessary by the advisory committee to correct deficiencies in the student's academic preparation.

Credit Requirement

A minimum of 30 semester credit hours of approved courses is required for the Master of Science degree.

Transfer of Credit

A student who has earned 12 hours of graduate credit in residence at Texas A&M University may be authorized to transfer courses in excess of the limits prescribed above upon the advice of the advisory committee and with the approval of the Graduate and Professional School. Courses taken in residence at an accredited U.S. institution or approved international institution with a final grade of B or greater might 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. Otherwise, the limitations stated in the preceding section apply. Coursework in which no formal grades are given or in which grades other than letter grades (A or B) are earned (for example, CR, P, S, U, H, etc.) is not accepted for transfer credit. Courses appearing on the degree plan with grades of D, F or U may not be absolved by transfer work. Credit for thesis research

or the equivalent is not transferable. Credit for coursework submitted for transfer from any college or university must be shown in semester credit hours or equated to semester credit hours. An official transcript from the university at which the transfer coursework was taken must be sent directly to the Office of Admissions.

Courses used toward a degree at another institution may not be applied for graduate credit. If the course to be transferred was taken 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.

Grades for courses completed at other institutions are not included in computing the GPA.

Limitations on the Use of Transfer, Extension and Certain Other Courses

Some departments may have more restrictive requirements for transfer work. If otherwise acceptable, certain courses may be used toward meeting credit-hour requirements for the master's degree under the following limitations.

1. The maximum number of credit hours which may be considered for transfer credit is the greater of 12 hours or one-third (1/3) of the total hours of a degree plan. The following restrictions apply:
   - Graduate or upper-level undergraduate courses taken in residence at an accredited U.S. institution, or approved international institution with a final grade of B or greater will be considered for transfer credit if, at the time the courses were completed, the student was in degree-seeking status at Texas A&M University, or the student was in degree-seeking status at the institution at which the courses were taken; and if the courses would be accepted for credit toward a similar degree for a student in degree-seeking status at the host institution.
   - Courses previously used for another degree are not acceptable for degree plan credit.
2. 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.
3. A zero credit 684 or 685 course is only allowed for non-thesis option master's students. Other courses, including 691 (Research) hours, are not eligible for zero credit.
4. Any combination of 684, 685, 690 and 695 may not exceed 25 percent of the total credit hour requirement shown on the individual degree plan:
   - Not more than 8 hours in the combination of 691 (Research), 684 (Professional Internship), or SOPH 680 may be used. Under normal circumstances, non-thesis masters students may not use 691 hours on their degree plan. However, for non-thesis masters students who are using 691 hours on the degree plan, see the Non-Thesis Option section on the Program Requirements page in the graduate catalog for the degree they are pursuing.
   - Not more than 8 hours of 685 (Directed Studies) may be used.
   - Not more than 3 hours of 690 (Theory of Research) may be used.
   - Not more than 3 hours of 695 (Frontiers in Research) may be used.
5. A maximum of 2 hours of 681 (Seminar).
6. A maximum of 9 hours of advanced undergraduate courses (300- or 400-level).
7. For graduate courses of three weeks' duration or less, taken at other institutions, up to 1 hour of credit may be obtained for each five-day week of coursework. Each week of coursework must include at least 15 contact hours.
8. Continuing education courses may not be used for graduate credit.
9. Extension courses are not acceptable for credit.
10. For non-distance degree programs, no more than 50 percent of the non-research coursework required for the program may be completed through distance education courses.
11. To receive a graduate degree from Texas A&M University, students must earn one-third or more of the credits through the institution's own direct instruction. This limitation also applies to joint degree programs.

Exceptions will be permitted only in unusual cases and when petitioned by the student's advisory committee and approved by the Graduate and Professional School.

Final Examination

A final comprehensive examination is not required for the MS in Microelectronics and Semiconductors. However, a final project is required.

A student pursuing the non-thesis option is not allowed to enroll in 691 (Research) for any reason and 691 may not be used for credit toward a non-thesis option Master of Science degree. A maximum of 3 credits hours total in combination of 684 (Professional Internship), 685 (Directed Studies), and 681 (Seminar) may be used toward the non-thesis option Master of Science degree. All requirements for the non-thesis option Master of Science degree other than those specified above are the same as for the thesis option degree.

The department head or the chair of an intercollegiate faculty (if appropriate) for the program may approve an exception for a PhD student who changes to a non-thesis option MS degree program after at least one year of PhD studies to use 691 credits toward a non-thesis option Master of Science degree. The department head or chair of an intercollegiate faculty (if appropriate) for the program may approve an exception for a master's student who changes from a MS thesis option degree to a MS non-thesis option degree program to use 691 credits toward a non-thesis option Master of Science degree. In both cases, the student is allowed to use a maximum of 8 credit hours of 685 and 691 combined. Departments, Colleges, and Interdisciplinary Degree Programs may opt to establish higher standards. Further any combination of 684, 685, 690, 691 and 695 may not exceed 25 percent of the total credit hour requirement shown on the individual degree plan. All requirements for the non-thesis option Master of Science degree other than those specified above are the same as for the thesis option degree.

Additional Requirements

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Residence

In partial fulfillment of the residence requirement for the degree of Master of Science, the student must complete 9 resident credit hours during

one regular semester or one 10-week summer semester in resident study at Texas A&M University. A minimum of 1 credit hour must be in a non-distance education delivery mode. Semesters during which the student is enrolled in all distance education coursework will not count toward fulfillment of the residence requirement. Upon recommendation of the student's advisory committee, department head or Chair of the Interdisciplinary Program, if appropriate, and with approval of the Graduate and Professional School, a student may be granted exemption from this requirement. Such a petition, however, must be approved prior to the student's registration for the final 9 credit hours of required coursework.

Students who are employed full-time while completing their degree may fulfill total residence requirements by completion of less-than-full time course loads each semester. In order to be considered for this, students are required to submit a Petition for Waivers and Exceptions along with verification of their employment to the Graduate and Professional School.

See Residence Requirements (https://catalog.tamu.edu/graduate/academic-expectations-general-degree-requirements/#degreerequirementstext).

Time Limit

All degree requirements must be completed within a period of seven consecutive years for the degree to be granted. A course will be considered valid until seven years after the end of the semester in which it is taken. Graduate credit for coursework which is more than seven calendar years old at the time of the final examination (oral or written) may not be used to satisfy degree requirements.

Foreign Languages

No specific language requirement exists for the Master of Science degree.

Application for Degree

For information on applying for your degree, please visit the Graduation (https://catalog.tamu.edu/graduate/academic-expectations-general-degree-requirements/#degreerequirementstext) section.