

MASTER OF ENGINEERING IN BIOMEDICAL ENGINEERING

The Master of Engineering (MEng) program in Biomedical Engineering offers a flexible curriculum that equips students for success in industry by tailoring training toward the biomedical device product life cycle.

Students in the program can further their engineering education for the medical device industry with the aim of:

- entering the medical device industry,
- changing their careers to the medical device industry, or
- enhancing their technical and management skills.

Through the program, students are enabled with the real-world skills needed to enter the medtech industry and solve critical engineering challenges/business interface challenges in health care. They collaborate with industry professionals and clinicians to identify unmet needs, engineer technologies that address these needs, and develop paths-to-market strategies for these technologies.

Most students admitted into this program have a bachelor's degree in engineering or an equivalent field. However, if the degree is not in engineering the flexible curriculum can accommodate non-engineering students with leveling courses.

The program includes a mandatory industry or technology translational immersion experience providing students the opportunity to receive specialized training through:

- industry internships/externships, or
- translational research with faculty focusing on product research and development, testing, manufacturing, and entrepreneurship), or
- clinical innovation with collaboration with clinical partners.

Our students graduate with real-world professional skills spanning the medical device and healthcare product life cycle, covering important topics such as problem/needs definition, requirements development, technology assessment/intellectual property review, design and engineering, advanced manufacturing, risk analysis, design verification and validation, quality engineering, regulatory and reimbursement strategies, clinical engineering, market analysis/assessment.

Program Requirements

Program Requirements

- Student's Advisory Committee (p. 1)
- Degree Plan (p. 2)
- Credit Requirements (p. 2)
- Limitations on Credits and Coursework (p. 2)
- Final Examination (p. 3)

Student's Advisory Committee

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.

The student's advisory committee for the Master of Engineering 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 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 outside the university or off-campus (if permitted by program, department, and college/school policy) – may serve as a co-chair or member.

The advisory committee as a group – and as individual members – are responsible for advising the student on academic matters. The duties include responsibility for approving the 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 the entire academic program of the student and for initiating all academic actions concerning the student. Additionally, in the case of academic deficiency, the advisory committee is responsible for initiating recommendations to the Graduate and Professional School.

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

If the chair of the 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, 691, 692, or 693 – the Department Head or intercollegiate faculty Chair may appoint an alternate advisory committee chair during the interim period.

If the chair of a student's advisory committee is on an approved leave of absence – and the student is near completion of the degree and wants the chair to continue to serve in this role – a written request must be submitted to the Associate Provost and Dean of the Graduate and Professional School, by the Department Head or intercollegiate faculty Chair, that the faculty member who is on an approved leave of absence be allowed to continue to serve 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 the chair of a student's advisory committee 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:

- 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.

- The chair may continue, without a co-chair, with approval by the Graduate and Professional School. A written request must be submitted to the Associate Provost and Dean of the Graduate and Professional School by the Department Head or intercollegiate faculty 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 advisory committee members may be replaced by petition for valid reasons, all members of a student committee cannot resign *en masse*.

Degree Plan

Students, in consultation with the advisory committee, will develop a proposed degree plan. The degree plan must be created, submitted, and approved through the online Document Processing Submission System (<http://ogsdps.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 date of the final oral examination or thesis defense. Students must select the appropriate program option when submitting a proposed degree plan.

Additional coursework may be added to the approved degree plan by petition through DPSS, if deemed necessary by the advisory committee, to correct deficiencies in the student's academic preparation. No changes can be made to the degree plan once the student's Final Examination Request or Final Examination Exemption Request is approved by the Graduate and Professional School.

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.

Degree program time limits apply to courses listed on a degree plan. Details are available on the Time Limits section in each degree program page.

Credit Requirements

A minimum of 30 semester credit hours of approved courses is required for the non-thesis Master of Engineering degree.

This program does not offer a thesis option.

Ordinarily, students will devote the major portion of their time on work in one or two closely related fields. Other work will be in supporting fields of interest.

Limitations on Credits and Coursework

Credit-hour requirements are subject to the following limitations:

1. 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. These limitations also apply to joint degree programs.
2. Transfer credits may be used toward meeting the credit hour requirements under the following limitations:

- 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.
 - Graduate and/or upper-level undergraduate courses 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.
 - 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.
 - 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.
 - Grades for courses completed at other institutions are not included in computing the GPA.
 - 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.
 - 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.
 - Except for officially approved cooperative doctoral programs, credit for thesis or dissertation research – or the equivalent – is not transferrable.
 - Courses used toward a degree at another institution may not be applied for transferred graduate credit.
 - 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.
 - 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. A student pursuing a non-thesis option Master's degree may not enroll in 691 (Research) courses for any reason.

7. A maximum of 12 credit hours may be used, in any combination, of the following:
 - No more than 6 credit hours of 684.
 - No more than 6 credit hours of 685 (Directed Studies).
 - No more than 3 credit hours of 690 (Theory of Research).
 - No more than 3 credit hours of 695 (Frontiers in Research).
8. A maximum of 6 credit hours may be used toward the non-thesis option Master's degree, in any combination, of the following:
 - No more than 2 credit hours of 681 (Seminar).
 - No more than 6 credit hours of 685 (Directed Studies).
9. Certain zero-credit courses may be allowed for Master's degree programs:
 - A zero-credit 684 (Professional Internship) or 685 (Directed Studies) course is only allowed for non-thesis option Master's programs.
 - A zero-credit 681 (Seminar) course may be used for either thesis or non-thesis option Master's programs.
 - Other courses, including 691 (Research) hours, are not eligible for zero credit.
10. No more than 25 percent of the total credit-hours required on the student's degree plan may be in any combination of 684, 685, 690, 691 (if permitted), and 695.
11. A maximum of 9 hours of advanced undergraduate courses (300- or 400-level) may be considered for application to the degree plan.
12. No more than 50 percent of the non-research coursework required for an in-person degree program may be completed through distance education courses.
13. Continuing education or extension courses may not be used for graduate credit.

Some departments may have additional or more restrictive requirements. 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 non-thesis Master of Engineering in Biomedical Engineering program.

Additional Requirements

Additional Requirements

- Residence (p. 3)
- Time Limit (p. 3)
- Foreign Languages (p. 3)
- Internship or Practicum (p. 3)
- Application for Degree (p. 3)

Residence

No residence requirement exists; however, attention is directed to the rules regarding Limitations on the Use of Transfer, Extension and Certain Other Courses.

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 Engineering degree.

Internship or Practicum

The final examination is not to be administered until all other requirements for the degree, including any internship, have been substantially completed.

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.