Doctor of Philosophy

Admission

To be admitted for doctoral studies, a student must have an exemplary scholastic record which includes

- an M.S. degree (standard admission) or a B.S. degree (direct-admit program) in Mechanical Engineering or in a related field, preferably from an accredited engineering program.
- three letters of recommendation attesting to the student's capacity to perform in the classroom and in a research capacity. A minimum of two letters should be from tenure-track faculty members who have observed the academic performance of the applicant.
- a Statement of Purpose that is consistent with the current research areas within the Department. An Application for Financial Aid and Statement of Purpose? form is available on the Application section of this website. It allows the applicant to specify areas of interest and academic goals, and it provides guidance regarding the issues we would like to see addressed in the statement of purpose.
- a minimum score of 79 on the internet-based TOEFL examination for students whose native language is not English.
- a grade point average that demonstrates the potential to perform at the level of 3.40 or better in MECE graduate courses.
- a GRE score that is competitive with the doctoral admission class.

Degree Requirements

Standard Program

This option assumes that the applicant has completed an M.S. degree from a recognized university. A minimum of 51 hours of approved graduate study beyond the hours completed for the M.S. degree are required. These hours include at least 30 hours of Research and Dissertation credit and at least 21 hours of course work (7 classes) at the 6000-level or higher composed of

- three hours of mathematics beyond the M.S. level as described in the Mathematics Requirement below,
- at least nine hours of MECE courses,
- a two-course breadth requirement as described below,
- the remaining courses are from any department in the College of Engineering, or the College of Natural Science and Mathematics.

A comprehensive qualifying examination is required early in the degree program, and a dissertation examination is required at the end.
Direct-Admit Program

This option assumes that the applicant is being admitted without a completed M.S. degree. Students who begin in the M.S. program may petition to transfer into the Direct-Admit Ph.D. if they have demonstrated exemplary course work and research potential. This option requires a minimum of 66 hours of approved graduate study beyond the hours completed for a baccalaureate degree in engineering. These hours include at least 36 hours of Research and Dissertation credit and at least 30 hours of course work (10 classes) at the 6000-level or higher composed of

- six hours of graduate mathematics as described in the Mathematics Requirement below,
- at least twelve hours of MECE courses,
- a two-course breadth requirement as described below,
- the remaining courses are from any department in the College of Engineering, or the College of Natural Science and Mathematics.

A comprehensive qualifying examination is required early in the degree program, and a dissertation examination is required at the end.

All PhD candidates must have at least one peer-reviewed (archival) journal paper accepted prior to his/her dissertation oral defense. This paper must be based on the student’s dissertation research at the University of Houston.

Mathematics Requirement

One of these approved sequences must be completed prior to standing for the comprehensive qualifying examination:

- MECE 6384, 6385  Methods of Applied Mathematics I, II
- CHEE 6331, 6332  Mathematical Methods in Chemical Engineering I, II
- PHYS 6303, 6304  Methods of Mathematical Physics I, II

The student may elect to petition that similar courses from past graduate study at another institution be used to substitute for one or both courses in this requirement. Such a substitution does not reduce the total number of courses in the Program. In any event, the student must be prepared to demonstrate competence in mathematics at the level represented by completion of one of these sequences in the qualifying examination.

Breadth Requirement

Two courses with content outside of the research concentration area are required to insure a minimum academic breadth in the program. The courses can be in MECE, and suitable courses in the Colleges of Engineering and Natural Sciences. The suitability of courses for the breadth requirement is determined by petition to the Director of Graduate Studies. This petition should be filed well in advance of the dissertation defense.

Comprehensive Qualifying Examination
This oral examination determines whether a student has mastered, and can integrate and apply, the knowledge gained in courses. The student should set aside a period of time to prepare for the examination by reviewing course material and reflecting on how this information can be integrated to solve problems.

To stand for the Ph.D. comprehensive examination, a student must have a grade point average of 3.40 or higher on a minimum of 12 UH graduate hours (4 classes) and no more than the first 21 UH graduate hours (7 classes).

The examination should be scheduled as soon the accumulation of relevant course work allows. For a student with an M.S. from another university, the exam should be attempted no later than 18 months after study towards the Ph.D. begins. For students who complete the M.S. here and for students who petition into the direct-admit program, the exam should be attempted within 12 months of the change of program.

The examination committee is set by the Director of Graduate Studies in consultation with the student and the dissertation advisor. The committee is composed of a minimum of four voting members and the dissertation advisor who serves as a nonvoting member. One of the voting members is responsible for examining the student regarding the content in the mathematics requirement described above. The committee can be composed entirely of MECE faculty; however, members from outside the department may be approved if the nature of the student’s program warrants such involvement. Judgment of the examination is by vote; two or more negative votes results in failure of the examination. In the case of failure, the committee shall decide whether or not the student should be invited to take the examination a second time.

**Dissertation Examination**

A dissertation committee should be formed by the advisor, with the approval of the Director of Graduate Studies, during the semester in which the student passes the comprehensive qualifying examination. This committee consists of at least five members including the advisor and at least one member from outside the Department.

**Residency**

The College requires a minimum of one academic year (two long semesters) of full-time enrollment at the Ph.D. level.

**Ninety-nine Hour Rule**

The student is cautioned to be aware of the scheduling involved in meeting these requirements. University regulations require that a student who has accumulated more than 99 hours at the Ph.D. level be charged out-of-state tuition for the hours in excess of 99. This tuition rate applies to Texas residents as well as true out-of-state students.

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