Dual M.S. Degree in Mechanical and Aerospace Engineering

Rationale for the Program

Graduate students interested in the related fields of Mechanical Engineering and Aerospace Engineering can combine their studies in a Dual Mechanical/Aerospace Master's degree program. The dual degree program allows students to obtain both a master's degree in Mechanical Engineering and a master's degree in Aerospace Engineering completing 45 credit hours of relevant graduate coursework. Hence, with the appropriate selection of graduate course within the Mechanical Engineering department and other departments students can be awarded both degrees, thereby significantly reducing the total number of credit hours needed if the two degrees were pursued separately.

Admission to the Program

New students should apply to the Mechanical Engineering graduate program for admission and indicate their interest to pursue the dual Mechanical/Aerospace MS degree. To be unconditionally admitted to the Dual M.S. program, an applicant should have:

- A Bachelor's degree in Mechanical Engineering, Aerospace Engineering or in a related field, preferably from an accredited engineering program.
- A grade point average of at least 3.00 out of 4.00 on the last 60 semester credit hours attempted exclusive of grades received for activities such as seminars, physical education, industrial internships, etc.
- An adequate score on the Graduate Record Examination (GRE). Texas law prohibits the definition of minimum acceptable scores on the GRE. However, 160 to 163 is a typical average score on the Quantitative section across all degree programs for an admission class.
- A minimum score of 6.5 on the IELTS or 79 on the internet-based TOEFL examination for students whose native language is not English.
- Three letters of recommendation attesting to the student's capacity to perform in the classroom and (for applicants to the thesis program) in a research capacity. A minimum of two letters should be from tenured or tenure-track faculty members who have observed the academic performance of the applicant, and one can come from an engineering industry supervisor.
- A statement of purpose that is consistent with the areas of instruction and (for applicants to the thesis program) the current research areas within the Department.
Acceptance to the program is based on a competitive combination of academic background, GRE scores, recommendation letters and the statement of purpose. Domestic applicants who are not clearly competitive in all three areas may be admitted on a conditional basis at the discretion of the Director of Admissions. Nonimmigrant visa holders may not be admitted conditionally.

Students may begin their graduate studies in one program and apply for admission to the dual degree program at a later date. However, the decision by a student to pursue the dual degree should be made prior to the completion of 18 hours of coursework.

Program of Study

Within the 45 completed credit hours, students must fulfill the program requirements for each separate degree. Hence, the course selections should simultaneously comply with the course requirements of the Mechanical Engineering M.S. program and the core area course requirements of the Aerospace Engineering M.S. program. Completion of the program with a Thesis option is possible and in this case the corresponding degree will be an M.S. with Thesis degree. Specific plan of study requirements for the Dual M.S. Program without Thesis and the Dual M.S. Program with Thesis are outlined below:

Program of Study for the Dual M.S. Program without Thesis

1. Three hours of graduate-level mathematics satisfied by any of the following courses
   - 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

2. Eighteen hours of coursework from MECE 6000-level or above, exclusive of the graduate seminar (MECE 6111) and the Graduate Project (MECE 6368).

3. Twelve hours of coursework from the approved Aerospace Engineering courses in the core areas of A) Aerodynamics & Heat Transfer, B) Structural Mechanics and Materials, and C) Controls and Dynamics.

4. Twelve hours of coursework at the 6000-level or above from any department in the College of Engineering or the College of Natural Science and Mathematics. A total of no more than six hours can be from each the Bauer College of Business and Law. A total of no more than combined six hours can be from Petroleum Engineering, Subsea Engineering and Industrial Engineering. Three hours can be satisfied by completing the directed-study Graduate Project course, MECE 6368.

Program of Study for the Dual M.S. Program with Thesis

1. Nine hours of thesis

2. Three hours of graduate-level mathematics satisfied by any of the following courses
   - 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

3. Nine hours from of MECE 6000-level or above, exclusive of graduate seminar (MECE 6111) and Graduate Project (MECE 6368).

4. Twelve hours from the approved Aerospace Engineering courses in the core areas of A) Aerodynamics & Heat Transfer, B) Structural Mechanics and Materials, and C) Controls and Dynamics.

5. Twelve hours at the 6000-level or above from any department in the College of Engineering or the College of Natural Science and Mathematics.
If a graduate course is dual-listed with an undergraduate 5000-level section, the student must enroll in the corresponding graduate section. Approval of any course that falls outside of the description given here must be requested by petition to the Director of Graduate Studies. Approval must be received prior to enrollment in the course. Non-thesis students should not enroll in research or thesis courses (6x98, 6399, 7399).

**Graduation Requirements**

The graduation requirements for the dual-degree program are: At least a 3.00/4.00 grade point average over all courses, and b) A 3.00/4.00 grade point average on the courses comprised of the MECE courses, the course used to satisfy the mathematics requirement and the approved Aerospace Engineering core area courses.

© University of Houston Cullen College of Engineering, Department of Mechanical Engineering