AEROSPACE ENGINEERING, M.E.

The Graduate School has general requirements for M.E students that must be met by all degree candidates (including earning at least 30 credit hours beyond the bachelor’s degree for master’s degrees). The Aerospace Engineering Program has added requirements (which are listed below) that must be met before students can complete their degrees.

Degree Requirements

An M.E. student must take a minimum of 30 hours of graded graduate courses. For M.E. degree, the student must take five required courses. All remaining course work must be taken from an approved list of courses, which includes engineering and mathematics courses numbered 500 or above. Other courses must be approved by the student’s advisor and the graduate studies committee. All candidates for the M.E. degree must complete comprehensive assessment that is distinct from program course requirements.

Program of Study for the Masters Program in Aerospace Engineering: Proposed Curriculum

Required Courses

All M.S. and M.E. candidates in Aerospace Engineering will be required to take the five (5) core courses listed below:

- **Course** | **Title** | **Credits**
- EMCH 508 | Finite Element Analysis in Mechanical Engineering | 3
- EMCH 577 | Aerospace Structures I | 3
- EMCH 744 | Aerodynamics & Flight Mechanics | 3
- EMCH 585 | Introduction to Composite Materials | 3
- EMCH 721 | Aeroelasticity | 3

**Total Credit Hours**: 15

Elective Aerospace Courses

All students in Aerospace Engineering must take a minimum of two (2) courses from the following courses:

- **Course** | **Title** | **Credits**
- EMCH 743 | Aircraft and Rocket Propulsion | 3
- EMCH 777 | Aerospace Structures II | 3
- EMCH 522 | Design for Manufacture and Assembly | 3
- EMCH 544 | Compressible Fluid Flow | 3
- EMCH 516 | Control Theory in Mechanical Engineering | 3
- EMCH 532 | Intermediate Dynamics | 3
- EMCH 571 | Mechanical Behavior of Materials | 3
- EMCH 701 | Methods of Engineering Analysis | 3
- ENCP 707 | Continuum Mechanics | 3
- EMCH 721 | Aeroelasticity | 3
- EMCH 751 | Advanced Heat Transfer | 3
- EMCH 741 | Viscous and Turbulent Flow | 3
- EMCH 794 | Thermodynamics | 3
- EMCH 785 | Design of Composite Materials for Aerospace Structures | 3
- EMCH 881 | Fatigue of Materials | 3

Other Elective Courses

All remaining work must be taken from an approved list of courses which currently includes all engineering courses numbered 500 or above and math courses numbered 700 or above. Business courses numbered 500 or above may be taken with advance approval by the advisor and the Graduate Studies Committee. Other courses will be added to the list as approved by the faculty.

Additional Program of Study Requirements

Course and Program Grades

Courses not satisfying the requirements for a graduate degree are:

1. Any course with a grade of D+, D or F.
2. More than 12 credits with grade of C+ or below (the 4-C Rule).
3. Any course taken on a non-letter grade basis (except thesis).
4. More than 12 semester hours of credits from a previous graduate degree program.

The student must maintain a minimum grade point average of 3.0 in:

1. All courses taken as part of the official degree program.
2. All courses numbered 700 or above.
3. All courses taken for graduate credit, including those not included in the official degree program.
4. Pass/Fail — A “fail” grade counts toward the 4-C rule.

Publication Requirement for M.S. Students

An educational objective for M.S. students is that they have the ability to communicate their research results through oral presentations and written publications. Consistent with this objective, an M.S. student is required to submit, based on research performed while at USC, at least one conference paper (or abstract with presentation) or one journal paper prior to graduation.

Master’s Thesis

A thesis is required of all students seeking the M.S. degree. The student’s academic advisor must approve the subject of the thesis. The Graduate School will furnish general thesis regulations upon request. Any student who wishes to use University facilities or to confer with the faculty on thesis work must be officially enrolled for thesis credit.

Thesis Committee

A student’s M.S. Thesis Committee consists of the student’s advisor and the second reader of the student’s thesis.

Thesis Presentation and Defense

The thesis presentation is to be open to all members of the University community and guests. During the Fall and Spring semesters, the presentation and defense are to be conducted during normal business hours and on a day that faculty are expected to be on campus. The Graduate Director must approve the date and time of presentations given during the summer sessions.

Comprehensive Examination

For the M.E. degree, a student passes the comprehensive exam by demonstrating competence in a written exam.