**materials science and engineering**

Master of Science in Materials Science and Engineering (M.S.M.S.E.) Degree

**DEGREE INFORMATION**

**Priority Admission Application Deadlines:**

**Fall:** February 15

**Spring:** October 15

**Summer:** February 15

International applicant deadlines:

<http://www.grad.usf.edu/majors>

**Minimum Total Hours:** 30

**Level:** Masters

**CIP Code:** 14.1801

**Dept. Code:** All Engineering Depts.

except Computer Science

and Engineering

**Major/College Codes:** MSE EN

**Approved:** 2001

**Also offered as an Accelerated Majors**

Chemical Engineering (BSCH)/Materials Science and Engineering (MSMSE)

**CONTACT INFORMATION**

**Colleges:** Engineering

**Departments:** Chemical & Biomedical Eng

Civil Engineering

Electrical Engineering

Industrial Engineering

Mechanical Engineering

**Contact Information:** [www.grad.usf.edu](http://www.grad.usf.edu/)

**MAJOR INFORMATION**

The field of Materials Science and Engineering (MSE) applies the fundamental principles of physics and chemistry to engineering materials, with a focus on the interrelationship between material structure, their properties, and the means by which they are processed. MSE impacts multiple facets of our economy, such as aerospace, electronics, transportation, communication, construction, recreation, entertainment, environment and energy. It is, by its very nature, an interdisciplinary field. The goal of the M.S.M.S.E. major in Materials Science and Engineering is to provide a route for well‐qualified undergraduate students who desire in‐depth graduate‐level work including structured courses and research experience, in preparation for work in industry or for entrance into a relevant science or engineering Ph.D. major.

**ADMISSION INFORMATION**

Must meet University requirements (see Graduate Admissions) as well as requirements for admission to the major, listed below.

* Bachelor’s degree in Engineering (Chemical, Mechanical, Industrial, Civil, Materials Science, Ceramic, Metallurgy, Manufacturing, Polymer and other related engineering disciplines) or Natural Sciences (Physics, Chemistry or Biology) from a regionally accredited institution.
* Minimum undergraduate GPA of 3.00
* GRE with preferred minimum scores of V 50%, Q 50% and AW 50%.
* TOEFL score of 550 (paper-based test) or 213 (computer-based test) or 79 (internet-based test) for international students
* Three letters of recommendation
* Statement of purpose

CURRICULUM REQUIREMENTS

**Total Minimum Hours: 30 credit hours**

**Core Requirements 5 credit hours**

EMA 6510 Characterization of Materials 3

ECH 6931 Graduate Seminar 2

**Electives 19 credit hours minimum**

**Comprehensive Exam**

Students in the non‐thesis track will complete a comprehensive exam.  For students in the thesis track, the thesis and oral defense serve as the comprehensive exam.

**Thesis Option**  **6 credit hours**

The thesis option requires the completion of 24 credit hours of graduate level courses (5 credit hours core and 19 hours of electives) and 6 credit hours of thesis. At least 16 credit hours must be at 6000 level with a maximum of 2 hours of Independent Study.

ECH 6971 Thesis

**Non-Thesis Option: 6 credit hours**

The non-thesis option requires 30 credit hours, with 5 credit hours core and 25 credit hours of electives. At least 26 hours must be at the 6000 level with a maximum of 2 hours of Independent Study. For Non‐thesis Option six additional credit hours of elective courses is required in lieu of thesis hours.

**Accelerated Major**

**Chemical Engineering (BSCH) / Materials Science and Engineering (MSMSE)**

Description

Students pursuing a B.S.C.H. in Chemical Engineering will earn an M.S.M.S.E. in Materials Science and Engineering in an accelerated manner by sharing two (2) ECH-prefixed graduate courses (6 credit hours) taken as upper-level departmental electives as part of the undergraduate Chemical Engineering major.

The B.S.C.H. requires a total of 131 hours and the M.S.M.S.E. requires 30 hours. By sharing six (6) credit hours, the total credit hours earned will be 155 hours.

This accelerated major shares six (6) credit hours between already existing degrees:

B.S.C.H. in Chemical Engineering

M.S.M.S.E. in Materials Science and Engineering

Target Students and Expected Outcomes

Academically high achieving undergraduate students in the B.S.C.H. major with high overall and major GPA will be targeted for the accelerated major. Expected outcomes are the increase in M.S.M.S.E. degrees granted, increase in graduate SCH, and enhancement of the quality of the graduate major by addition of academically accomplished students. In addition, some of these M.S.M.S.E. students will continue on to Ph.D. majors in Engineering and Physical Science and enhance the doctoral majors as well.

**Admission Requirements**

For admission to the program, a student must:

Have completed 15 hours in the undergraduate major

Have a minimum 3.33 GPA overall; and

Have a minimum undergraduate 3.50 GPA in the major.

**Timeline and Benchmarks:**

To be considered for acceptance into the Accelerated B.S.C.H. Chemical Engineering/M.S.M.S.E. Materials Science and Engineering major, students must have completed a minimum of 15 credit hours in the Chemical Engineering undergraduate major.

Students must have a minimum undergraduate GPA of 3.33 overall, and a minimum GPA of 3.50 in the major.

Following completion of a minimum of 15 hours in the undergraduate major, students may be considered for acceptance into the accelerated major through faculty nomination or student self-nomination, via submission of an Accelerated major Application Form. Both B.S.C.H. and M.S.M.S.E. majors will review the applications and approve the nominations. All applications require the approval of USF’s Office of Graduate Studies, the College of Engineering’s Graduate Major, and the Department of Chemical and Biomedical Engineering.

To be promoted to graduate status, students must meet all admission requirements of the M.S.M.S.E. Materials Science and Engineering.

Students must earn a minimum of a “B” (3.00) in all shared graduate courses. Failure to earn at least a “B” in a shared graduate course will result in academic review by the graduate major. Failure to maintain good standing as a graduate student will result in academic probation, according to the procedures of the USF Office of Graduate Studies.

A comprehensive plan of study to complete the Accelerated B.S.C.H. Chemical Engineering/ M.S.M.S.E. Materials Science and Engineering major will be developed with the guidance of an advisor and a faculty member.

**Shared Courses (6 credit hours)**

The following courses will satisfy six (6) credit hours of Chemical Engineering undergraduate elective coursework:

EML 6105

EML 6713

For the remaining Undergraduate Degree Requirements for the B.S.C.H. in Chemical Engineering (107 credit hours)

please see Undergraduate Catalog.

**Courses** See <http://ugs.usf.edu/course-inventory>