

**2006-2007 :: M.S. in Materials Science and Engineering****1. Mission Statement:**

The mission of the Materials Science and Engineering Master's degree program is to provide students with an advanced education in Materials Science Engineering and prepare them for long and successful careers in industry and government. We prepare our MS-MSEN graduates to be key contributors to materials science engineering research, both in industry and/or academia, and to further their education by entering a doctoral degree program.

**2. Objectives:**

**2.1 Articulation of Knowledge:** Students will demonstrate a broad knowledge of modern material science and engineering.

**2.1.1 Related General Education Outcome Item(s):**

3. Quantitative Methods; 10. Foundational Knowledge in Discipline(s); 11. Advanced Knowledge in Discipline(s); 12. Guided Research; 17. Internship

**2.1.2 Related Strategic Plan Item(s):** I-1 Research Enterprise Initiative; I-3 Nanotechnology; II-1 The Education of Leaders

**2.1.3 Related Institutional Priority Item(s):**

SP-2 Add 5,000 New Students; SP-4 Tell UTD's Story Better; COM-2 Protect Enrollment Gains, Access and Student Quality as part of moving toward Tier One Status; CMP-1 Increase number of faculty and grad students in engineering, physical sciences & technology

**2.1.4 Student Related Objective:** Yes - This is a student related objective.

**2.2 Develop solutions to practical problems:**

Students will apply their knowledge and analytical skills to create effective and novel solutions to practical problems.

**2.2.1 Related General Education Outcome Item(s):**

2. Mathematics; 3. Quantitative Methods; 10. Foundational Knowledge in Discipline(s); 11. Advanced Knowledge in Discipline(s); 12. Guided Research; 17. Internship

**2.2.2 Related Strategic Plan Item(s):** I-1 Research Enterprise Initiative; I-3 Nanotechnology; II-1 The Education of Leaders

**2.2.3 Related Institutional Priority Item(s):**

SP-4 Tell UTD's Story Better; COM-3 Sustain Progress toward Tier One Status in terms of programs, research and faculty quality; CMP-1 Increase number of faculty and grad students in engineering, physical sciences & technology; CPT-3 Significantly improve quality of UTD's graduate students

**2.2.4 Student Related Objective:** Yes - This is a student related objective.

**2.3 Communicate effectively and work collaboratively:** Students will communicate effectively and work collaboratively.**2.3.1 Related General Education Outcome Item(s):**

2. Mathematics; 3. Quantitative Methods; 11. Advanced Knowledge in Discipline(s); 12. Guided Research; 17. Internship

**2.3.2 Related Strategic Plan Item(s):**

I-1 Research Enterprise Initiative; I-3 Nanotechnology; II-1 The Education of Leaders; III-1 Dynamic Change Management

**2.3.3 Related Institutional Priority Item(s):**

SP-2 Add 5,000 New Students; SP-4 Tell UTD's Story Better; CMP-1 Increase number of faculty and grad students in engineering, physical sciences & technology; CPT-3 Significantly improve quality of UTD's graduate students

**2.3.4 Student Related Objective:** Yes - This is a student related objective.

**3. Measures & Findings:****3.1 Communication of directed research:**

Students will produce reports and presentation summaries of their directed research activities. For those with a M.S. thesis option, students must present and defend their thesis within 1 year of core course completion.

**3.1.1 Success Criteria:**

Goal will be met if 95% of M.S. students provide a report or defend a thesis within 1 year of completion of the graduate core courses.

**3.1.2 Related Objective(s):** Articulation of Knowledge

**3.1.3 Results Related To Success Criteria:** There have been no students in this degree program yet.

**3.1.4 Achievement Level:** Met

**3.1.5 Further Action:** No

**3.2 Alumni Survey:**

Survey of M.S. graduates in Materials Science and Engineering examining alums perspective on the achievement of program

objectives

**3.2.1 Success Criteria:** A score of 4 or higher on a scale of 1(poor) to 5 (excellent)

**3.2.2 Related Objective(s):**

Articulation of Knowledge; Develop solutions to practical problems; Communicate effectively and work collaboratively

**3.2.3 Results Related To Success Criteria:**

The first survey of Jonsson School MS alumni/alumnae will be conducted in Fall 2007.

**3.2.4 Achievement Level:** Met

**3.2.5 Further Action:** No

## 5. Closing the Loop:

**5.1 Develop a recruitment strategy for professional Master's students in MSEN.:** According to the MSEN degree proposal that was submitted to the Texas Higher Education Coordinating Board in 2004, "The master's program in Materials Science and Engineering will provide professional level scientists and engineers to meet the broad needs of industry in the North Central Texas region, the State of Texas, and the United States. Thus, the master's degree will (1) provide professional advancement for students who do not wish to pursue a Ph.D. in Materials Science and Engineering and (2) serve as a terminal degree for students who do not complete the Ph.D. program in Materials Science and Engineering." To date, no professional MS students have enrolled in the MSEN degree program. The plan for recruiting professional MS students should be developed by the MSEN faculty and representatives of local industry.

**5.1.1 Related Objective(s):** Develop solutions to practical problems

**5.1.2 Related Measure(s):** Alumni Survey

**5.1.3 Responsible Person:** Bruce Gnade, Robert M. Wallace, Moon J. Kim, Jiyoung Kim, Walter Hu, C. D. Cantrell

**5.1.4 Target Date:** June 30, 2008

**5.1.5 Priority:** Medium Priority

**5.2 Develop measures that are appropriate to a professional Master's program in MSEN.:** The current program measures (communication of directed research and alumni survey) are appropriate for a PhD or research MS program, but not for a professional MS program. Additional measures, such as achievement of program objectives in MS-level courses, need to be developed and added to the list of related measures for the MS program.

**5.2.1 Related Objective(s):** Develop solutions to practical problems

**5.2.2 Related Measure(s):** Alumni Survey

**5.2.3 Responsible Person:** Bruce Gnade, Robert M. Wallace, Moon J. Kim, Jiyoung Kim, Walter Hu, C. D. Cantrell

**5.2.4 Target Date:** June 30, 2008

**5.2.5 Priority:** Medium Priority

## 6. Analysis:

### 6.1 Program/Unit Strengths:

**6.1.1 Objectives/Outcomes Exceeded or Met:**

The program objectives were met trivially, since there were no MS students in MSEN in 2006-2007.

**6.1.2 Other Strengths:** None.

### 6.2 Program / Unit Weaknesses:

**6.2.1 Objectives / Outcomes Partially or Not Met:** None.

**6.2.2 Other Weaknesses:**

The MSEN faculty need to give some attention to the development of a professional Master's program, as envisioned in the original degree proposal.

**6.3 Other Areas Needing Improvement:** None.

## 7. Report:

### 7.1 Executive Summary:

The original degree proposal for Materials Science and Engineering envisioned a professional Master's program. To date, there are no professional MS students in MSEN.

**7.2 Top 3 Program/Unit Accomplishments:** None.

**7.3 Research Activities or Publications:** Not applicable.

**7.4 Instructional/Training Activities (presented or received):** None.

**7.5 Public Service:** None.

**7.6 Other External Activities:** None.

**7.7 Contributions to UTD:** None.

**7.8 Top 3 Program / Unit Challenges:** 1. Development of a strategic plan for recruiting professional MS students in MSEN.  
2. Development of measures that are appropriate for a professional MS program in MSEN.

**7.9 Detailed Resources Needed to Improve and Fulfill Mission:** None at the present time.