# Graduate Students and Professional Student Senate (GPSS) Report
# Review of the Department of Material Sciences and Engineering

April 26, 2004

On April 16, 2004, the GPSS met with graduate students in the Department of Material Sciences and Engineering (MSE) to discuss their thoughts and opinions about the graduate program. Nine students were present for the discussion, which included eight doctoral candidates and one terminal master degree candidate. Surveys regarding the strengths and weaknesses of the MSE Department were distributed to the students to stimulate discussion. The discussion covered multiple topics that included curriculum, financial aid, faculty and staff, diversity, facilities, recruitment, and career development. Overall, students were pleased with the department and felt comfortable approaching their graduate advisors for assistance and advice. The students also indicated that the diversity of research conducted by faculty, and the camaraderie among graduate students are the defining strengths of the department. However, concerns were raised in both the survey and discussion regarding limited office space and certain aspects of the curriculum. This report will cover some of the strengths and weaknesses of the MSE Department as identified by the students.

## ***Department Strengths***

The students come from varied backgrounds with undergraduate majors in Mechanical Engineering, Chemical Engineering, Chemistry, Physics, and Material Sciences and Engineering. The participating students identified the following as the department's strengths:

- The graduate students are very supportive to each other and very helpful. Fellow students are social both in and out of the classroom, and no apparent divisions exist between new and continuing students. This fosters a very cohesive and collegial environment.
- Students receive full financial support through readily available TA and RA positions. The department has done a good job in providing TA and RA opportunities for students. As such, students are not heavily burdened with meeting tuition obligations or related school expenses.
- The faculty members are engaged in a wide breadth of research. This introduces the students to varied fields within the Material Sciences. One student felt that this has contributed to the diversity seen within student research.
- The computing facilities are regularly updated with equipment and software. Students experience few problems in accessing computers when needed.
- Students felt that the curriculum and courses offered are relevant to the completion of their degrees and to their careers. There have also been no problems in enrolling for core classes. Students are particularly pleased with the student-run weekly seminar component.
- There has been a noticeable improvement in academic advising. The academic advisors have been helpful with degree requirements.

- Good core teaching faculty and chair. There was an overall sense from the students that the chair of the department, Dr. Bordia, is a department strength. They have noticed a steady improvement in teaching and overall program quality with Dr. Bordia at the helm of the department. The core teaching faculty members are very knowledgeable and most are good instructors.
- Recruitment. Students were heavily recruited by the department. The department invited them to visit the university and covered all travel, lodging, food, and social expenses. The students felt that this visit was a crucial factor in their decisions to attend the university.

Of the strengths that were discussed, the students emphasized that the cohesive and supportive demeanor of fellow graduate students was a very strong asset of the program. They also agreed that the faculty was very knowledgeable and engaged in interesting and diverse research. The students have all noticed improvements in the department over the past few years and hope these improvements continue.

## ***Department Weaknesses***

Along with the major strengths of the department, the students also identified some weaknesses and room for improvement. The weaknesses are outlined as follows:

- Insufficient lab and office space. The students have to conduct their research in laboratory facilities that they must share not only with each other, but also with post-doctoral fellows. Students emphatically stated that they need more lab space to conduct their research. They also feel that the post-doctoral fellows are sometimes given better treatment and first preference in laboratory space and equipment. Students also have to share very limited office space that makes it difficult to complete any work.
- Curriculum. Although students felt that the overall curriculum was adequate, there was a consensus that some courses are remedial and presented an overview of material learned in previous undergraduate courses. The students mentioned one course in particular, MSE 541. They felt that this required course covers material they received as undergraduates, and that undergraduate students are enrolled in the course. They feel that the course is not as crucial to their core curriculum as other courses and is often poorly taught.
- Faculty instructors. Although many of the core teaching faculty members are good instructors, there are a number of them who demonstrate no desire for teaching. It is apparent in the classes they teach, and in their interaction with students, that these faculty members are more oriented towards research and not teaching. One student also expressed that there appears to be ego conflicts between certain faculty members. This student mentioned that these conflicts manifest into a political dynamic that interferes with student learning.
- Diversity. One student expressed a lack of cultural diversity among both graduate students and faculty members. Others agreed with this assessment but

admitted that more female faculty members have been hired, and more female students accepted in recent years.

- Career development. Students felt that the department could do a better job with career networking and professional development. Students often receive employment opportunities via e-mail from faculty members. These opportunities are mostly for university faculty positions. Students who are not interested in entering academia feel that there is a lack of non-academic opportunities.
- Academic advising. Although advising has improved in recent years, the students felt that faculty academic advisors should be more knowledgeable about courses offered in other departments that may complement student interests. The students expressed that they often seek out other courses on their own, and that it would be more helpful if they had department assistance with the process.
- Degree requirements. Along with improved academic advising, students wished to see more clearly outlined degree requirements for the master's and doctorate programs. One student felt that the current graduation requirements are poorly outlined and remain unclear. This student suggested that it would be helpful to have an outline of courses necessary to receive a master/doctorate degree, as well as a list of related courses offered by other departments.

Of the weaknesses discussed, the lack of laboratory and office space was perhaps the one weakness universally felt by all participants. Students desired for more laboratory space and equipment as well as shared priority with post-doctoral fellows. The students also shared a mutual disdain for the MSE 541 course. They all agreed that this course was poorly taught, seemed irrelevant to their core curriculum, and was mostly material that they already learned.

## ***Conclusions***

Having stated the above concerns, the students expressed that overall they are pleased with the department, especially with the recent improvements to academic advising and to hire more female faculty members. The GPSS hopes that this report will serve as a reference and catalyst for the continued development and strengthening of the Material Sciences and Engineering graduate program.

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