

## Proposal for Differential Tuition

Dwight Look College of Engineering

Texas A&M University

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### Background

The Dwight Look College of Engineering is very highly ranked and is the second largest undergraduate engineering program in the country. Our undergraduate program is ranked ninth and the graduate program is ranked sixth among *public institutions* by the *US News & World Report (USNW)*. Among all institutions, both *public and private*, the College ranks seventeenth for undergraduate and twelfth for graduate education. The College of Engineering is serving the state and the nation by educating future engineers and engineering educators, and conducting research which advances state of the art engineering technologies. The College has over 11,000 students. Of these, more than 8,100 are undergraduates. Our graduates are highly recruited by industry and frequently rise to the highest level of corporate management. We have 402 tenured/tenure-track faculty members. By all measures, the College of Engineering is uniquely poised to reach top 10 ranking among both public and private institutions. While the College has made tremendous strides in advancing its reputation it is imperative that we obtain resource parity with our peers in order to maintain and sustain academic quality levels.

The College of Engineering Strategic Plan reinforces the central theme of Vision 2020 to create a culture of excellence and aligns itself with three specific imperatives: Imperative #3, Enhance the Undergraduate Academic Experience; Imperative #5, Build on the Tradition of Professional Education; and Imperative #11, Attain Resource Parity with the Best Public Universities.

### Challenges:

Since 2004 the College has added over 100 new faculty positions and experienced rapid growth in student enrollment. This growth combined with a lack of sufficient resources poses a serious challenge to our ability to provide a high-quality engineering education. The College must have sufficient resources to provide adequate laboratory facilities to our students, maintain state of the art technology, achieve a reasonable student to faculty ratio for effective education, and retain the best of our faculty. Some of the specific challenges are:

- The College is committed to providing an excellent educational experience to our students consistent with Imperative #3 of Vision 2020. Although an improvement over prior years, based on fall 2009 data the College of Engineering is teaching large classes (freshmen: 76; lower division: 63; and upper division: 44). We must continue to reduce our engineering class sizes. The freshman engineering courses (ENGR 111 and ENGR 112) are crucial to student retention. The number of students in each section needs to be reduced to provide a more meaningful introductory engineering design experience. Also, it is imperative that we teach senior capstone design courses in small groups and with instructors who have vast industrial experience.

- Engineering technologies are changing at unprecedented levels. To provide a relevant engineering education and prepare students for entry into the workforce it is imperative that our equipment and laboratories keep pace with these advancing technologies.
- The hiring of new faculty, growth in student enrollment, and increased student research opportunities has made the need for quality space essential. It is imperative that the College have the resources to maintain and upgrade classroom and laboratory infrastructure in order to provide a quality educational experience for our students.
- Recruitment of underrepresented minority students is a challenge. Our undergraduate underrepresented minority enrollment has increased from 13% in fall 2002 to 17% in fall 2009. Yet, we lag behind our competition in this metric. In particular, recruitment of African American students has been difficult. The level of competition for these students from our peer institutions is fierce. In order to attract these students, we must be able to compete with other schools with regard to financial aid packages, facilities and equipment.
- The College of Engineering is home to the highest number of National Merit Scholars on the Texas A&M campus, enrolling over 100 new National Merit freshmen in fall 2010. Starting in fall 2011, scholarships available for freshman National Merit and National Achievement students will be reduced. It is imperative that we have sufficient resources to continue to attract these outstanding students.

### **A Proposal to Meet Challenges Faced by the College of Engineering:**

In order to provide and maintain a quality educational experience for our undergraduate students, the Dwight Look College of Engineering proposes to charge differential tuition to its undergraduate students. Differential tuition will not only allow us to enhance the quality, success and reputation of our graduates, it will also be an important step in achieving resource parity with our peers.

Following is the information requested by the University to evaluate a proposal for differential tuition. The Dwight Look College of Engineering will be happy to provide any additional information that may be required.

### **Questions to Address**

1. Who will be affected in your college by differential tuition?

All undergraduate students majoring in engineering will be affected.

2. What is the proposed start date?

It is proposed that differential tuition will apply to all new and current students beginning fall 2011.

3. What is the proposed additional charge per semester credit hour?

Consistent with other top undergraduate engineering programs (see below), the differential tuition will be a flat rate charge, applicable to all undergraduate students majoring in engineering. The additional charge will be \$800 per academic year, with no additional charge in the summer.

The undergraduate enrollment as of fall 2010 is over 8,100. In order to impart quality education, the College of Engineering plans to have a steady state enrollment of 7,200 undergraduate students. Once we meet our goal, the estimated revenue from differential tuition will be \$5.76M per year.

4. What will be done with the additional revenue?

- **Financial Aid and Targeted Scholarships** – as per the university requirement, 20% of the revenue generated through differential tuition will be used for scholarships. We propose to use 20% of the revenue from differential tuition to pay for need based financial aid and scholarships for targeted students. The targeted group of students includes underrepresented minority students, National Merit, National Hispanic, and National Achievement scholars.
- **Laboratory Upgrades** – Technologically current equipment is critical to the success of any engineering program. Our current teaching and computer labs are in need of equipment, in the form of repairs, updates, and upgrades. Engineering is a very equipment intensive field of study and in order to meet the needs of our students, a portion of the differential tuition revenue will be used for upgrading and maintaining our laboratories.
- **Enrichment of Targeted Programs** – We propose to provide opportunities for our students to add value to their educational programs by supporting enrichment and success programs such as Study Abroad, Certificate Programs (Business Management, Project Management, Public Policy, Energy, Entrepreneurship, Engineering Scholars Program, System Safety, etc), USRG (Undergraduate Summer Research Grant Program), LEEP (a new remedial pre-engineering program), interdisciplinary student design projects, and support and training for Peer Teachers. Our students receive a superb technical education in their majors, but to compete effectively in our global economy, enjoy the same job

placement demand as currently exists, and become leaders in the future, our students must attain these broader multidimensional skills and experiences.

- **Institute for Excellence in Engineering Education** – The College strategic plan on education calls for the establishment of an Institute for Engineering Education. The proposed institute will provide an organizational structure and support mechanisms to demonstrate that Texas A&M engineering graduates have world-class capabilities. The Institute will pioneer and adopt transformations to engineering education based on solid research findings. The Institute for Engineering Education will be designed to be intrinsically interdisciplinary, and will become another example of the leadership in engineering education at Texas A&M. The institute leadership will be provided by a core group of faculty members with nationally demonstrated leadership in engineering education who can provide direction for initiatives that support the continuing transformation of engineering education. Such programs would ideally attract needed funding from NSF grants directed at addressing the national challenges of the “Gathering Storm”. Each year, approximately 15% of the faculty members in the College will participate in the Institute for terms ranging from one semester to three years. In this way, faculty members will refresh their teaching every six-to-seven years. The Institute for Engineering Education will be the focal point for research and innovation in engineering education across the College and will place A&M engineering at the forefront of engineering education nationally.
- **Hiring Additional Instructors** – In order to provide a quality educational experience to our undergraduate students it is imperative that we reduce class sizes, hire additional instructors to teach freshman engineering and hire additional instructors with vast industrial experience to teach capstone design courses.
- **Faculty Retention** – In order to retain the very best of our faculty we propose to use a portion of the differential tuition revenue to augment retention packages.

5. What are the benefits to students?

In addition to a top quality faculty, which currently exists in the College of Engineering, students must have faculty committed to innovation in engineering education, adequate facilities, a competitive diverse peer group, a good learning environment, and state of the art equipment in order to obtain a quality technical education. With differential tuition, we will be able to launch the proposed Institute for Engineering Education, hire more instructors to improve the learning environment by decreasing class sizes, retain the very best of our faculty, upgrade our laboratory facilities, recruit a highly competitive diverse peer group of students, and ensure that our equipment is up to date. Our classrooms and teaching labs will be modernized and provide our students with the environment and tools they need to succeed in their education.

The changing world has resulted in changing demands on our graduates in order to be successful in their careers. The proposed differential tuition will allow us to provide opportunities to add value to our students' educational programs while at the same time providing more diverse and highly qualified classmates who will serve as role models for enhanced academic excellence among our students. These students will naturally play the role of peer mentors; they will improve the level of learning in the classroom, projects, and teamwork. Additionally, to be successful in our global economy, our students will be working with diverse groups from all corners of the world. Learning and working in diverse groups will help prepare them for their future. The enrichment programs described above will add substantial value to our graduates, allowing them to be more marketable and competitive as well as help to put them on a fast track to leadership positions in industry and government.

6. What are the benefits to the university?

In addition to a top quality faculty, high quality students and highly sought after graduates are a hallmark of a top tier university. A top tier engineering program will bring even more recognition both nationally and internationally to Texas A&M. The strongest faculty candidates always ask about the quality of our students, and a diverse population of top students is critical in our quest to continue to improve the overall excellence of our College. Improved retention, graduation rates and success will accrue. An investment such as this in our students, coupled with the Faculty Reinvestment Program, will result in the culture of excellence in the College of Engineering mandated by Vision 2020 and specifically address the three imperatives identified above.

On a broader scale, a critical need for engineers has been identified in this country if we are to maintain our place as a world leader. Texas A&M Engineering has the capability to help Texas and the United States meet this need by producing engineering graduates with superb technical ability, along with the necessary leadership qualities to succeed. The addition of and enhancement to the above described programs will enable us to produce qualified engineers who will be in great demand and have unique abilities that will serve our state and country well in the years to come.

7. Do our peer institutions charge differential tuition?

From information found on the institutions' websites, seven of the nine public institutions with undergraduate engineering programs ranked higher than or equally with Texas A&M Engineering, charge a premium for undergraduate engineering. Among public schools within the state of Texas, UT-Austin and University of Houston both charge differential tuition. In order to maintain and improve our quality, as well as improve our rankings, it is critical that we obtain resource parity with our peers. The 2010-2011 data found is shown below:

| <u>University</u>                                 | <u>Undergraduate<br/>Additional tuition<br/>for Engineering**</u> | <u>Total Tuition<br/>Paid by<br/>Resident<br/>Engineering<br/>Undergraduates</u> | <u>2010 U.S. News<br/>&amp; World<br/>Report<br/>Undergraduate<br/>Ranking<br/>(Public)*(a)</u> |
|---|---|--|---|
| University of California - Berkeley               | \$0   | \$12,461   | 1   |
| Georgia Tech                                      | \$0   | \$8,328  | 2 (tie)   |
| University of Illinois                            | \$4,728   | \$15,114   | 2 (tie)   |
| University of Michigan-Ann Arbor (lower division) | \$828   | \$12,666   | 4   |
| University of Michigan-Ann Arbor (upper division) | \$3,020   | \$16,364   |   |
| Purdue University                                 | \$1,050   | \$10,120   | 5   |
| <b>University of Texas at Austin</b>              | <b>\$836</b>  | <b>\$9,822</b>   | <b>6</b>  |
| University of Wisconsin-Madison                   | \$1,400   | \$10,387   | 7 (tie)   |
| Virginia Tech                                     | \$30/SCH for 1000<br>level courses                                | \$10,179   | 7 (tie)   |
| Penn State (lower division)                       | \$0   | \$14,412   | 9 (tie)   |
| Penn State (upper division)                       | \$924   | \$16,506   |   |
| <b>Texas A&amp;M - current</b>                    | <b>\$0</b>  | <b>\$8,386</b>   | <b>9 (tie)</b>  |
| University of Houston                             | \$1,132   | \$8,886  | -   |
| Texas Tech  | \$0   | \$8,260  |   |
| <b>Texas A&amp;M – proposed:</b>                  | <b>\$800</b>  | <b>\$9,186</b>   |   |

\*\*flat tuition rates for 12+ hours (except for Purdue which is 8+ hours and Virginia Tech, University of Houston, and Texas Tech which are tuition rates for 15 hours).

(a) Ranking specific to engineering programs at public institutions whose highest degree offering is doctorate.

Our cost versus rank ratio is very low as compared to many other engineering programs. It will be impossible to maintain and improve the quality of our program without the requested enhancement.

### **Conclusion:**

The Dwight Look College of Engineering is highly ranked nationwide and provides an excellent education to our students. Through differential tuition, we will have the resources required to maintain and sustain a quality engineering education and to keep pace with technological change. Students will continue to graduate equipped to meet the needs of industry, as well as the critical technological challenges of the United States.