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MEMORANDUM

DATE: October 7, 2013

TO: University Budget Committee

FROM: Ricardo B. Jacquez, Dean

SUBJ: Proposed College of Engineering Student Technology Fee

Background

The College of Engineering (CoEngr) requests your support for a proposed technology fee that will allow us to better serve our student's academic needs. The CoEngr has been proactive and somewhat successful with requests to the administration for funds to cover specific items required to improve the technology infrastructure in the College, including large-scale laboratory equipment upgrades, computer software and hardware, network infrastructure, and web services. However, these "one-time only" funds are not sufficient to keep up with changing technology and our recurring needs of updated technological infrastructure. One-time solutions are not sustainable due to the unique and highly specialized needs of ABET accredited engineering programs. The incidents leading up to the decision to implement a student technology fee are documented below.

ABET Accreditation. In fall 2012 the ABET accreditation team reviewed eight engineering programs in the College. During their evaluation process, the team expressed concerns about the age of the computers in our instructional labs (6-8 yrs old) and the lack of a formal plan to address rotation of new computers into the labs. They cited the criteria for this requirement and the consequences of not meeting this criteria, stating that programs that cannot effectively acquire, update, and maintain computer equipment in a cycle necessary for technical currency are not in compliance for ABET accreditation. We subsequently received these findings at the formal exit interview (see attached ABET draft statement).

Replacement of AE, CE, and ME Program Computers. The programs cited by ABET as having the most immediate need for computer upgrade included aerospace (AE), civil (CE), and mechanical (ME). The cost for replacement of this equipment and important peripherals was quoted by the vendor at $121K. A request for support of this priority upgrade was made directly to Senior VP Angela Throneberry (see attached memo to Sr. VP Throneberry) and was subsequently funded through allocation of equipment funds from the UBC. The UBC supported

approximately $100K and the College made up the difference. The concern for the age and replacement of computers was ultimately eliminated from the final accreditation assessment based on documenting the upgrade in the three program areas.

Internal IT Assessment. Following this finding by ABET, Dr. Shaun Cooper, Associate VP and CIO, was asked to conduct an assessment of the CoEngr IT infrastructure and recommend a plan for upgrading and maintaining a robust IT system that meets industry needs and expectations with modern engineering software and computer systems, and avoid future findings by ABET. (Note: ABET practice is to check previous findings in subsequent reviews to determine the program's commitment to maintaining program quality.) Dr. Cooper's recommendation is to place IT replacement on a four year cycle at a cost of $145K per year, minus software costs (see attached memo from Dr. Cooper).

Under current economic times, funding of higher education has not been able to provide adequate financial support to keep up with the need for technology growth in the disciplines of engineering. We have operated on a "do with what you have" basis for a long time. This approach to our student's education is not appropriate for a world-class engineering program like we provide at New Mexico State University. They deserve better.

At NMSU, as well as on a national level, engineering education is more expensive to deliver than education in most other disciplines. Engineering education requires the development and maintenance of modern laboratories and current technology. This requirement results in more square feet of facility per student, higher annual capital expenditures per student for equipment, and more support personnel in the labs. Under the proposed fee structure students enrolled within the CoEngr will be charged a program-wide fee with the primary goals of:

- Helping ensure that College programs maintain quality instructional laboratories, an up to date technical infrastructure within the College, and the ability to an intensive program assessment (required for ABET accreditation),
- Helping meet the higher cost of engineering education by augmenting existing state funds which have diminished due to budget cuts and inflation,
- Helping to support and increase student access to advanced technology within each of the CoEngr programs, and
- Greatly increase the College's ability to leverage private support for our programs (i.e., leveraging matching funds).

Technology Fee Structure
We have worked on several versions of the fee structure and at this point it has been optimized to provide the most constructive impact on our student's education from a learning standpoint, while at the same time considering the financial burden on them, thereby, minimizing the financial burden. The yearly cost we have identified to provide the necessary services, systems, and consumable supplies is summarized below and is detailed more specifically in the attached spreadsheets. With the exception of software and IT infrastructure, input to technology needs and associated costs, was provided by department heads of the respective engineering program areas.

Categories of Annual Expenses Included in the Tech Fee Budget
Laboratory and Capstone Supplies and Materials	$ 86,000
Software, IT infrastructure, and classroom technology	25,000

Data Acquisition System	5,600
IT Infrastructure (computers, printers, servers)	145,600
Staffing (loaded with fringe benefits)	
Students and GA for IT Support	77,000
Lab Technicians (2.4 FTE)	202,550
IT and Web Technician/Support (1.2 FTE)	113,520
Safety Specialist	66,000
Grand Total	**$721,711**

Student Enrollment (declared majors, undergraduate and graduate) = 2,500.
Tech Fee (per student, per semester) = $145.

The costs outlined above are relatively fixed costs and must be collected annually to keep up with the actual cost of the technology needs. Therefore, the structure by which the fee is collected (per student per semester, per engineering credit hour taken, a lower division vs upper division classification) does not affect the total cost per graduate of the College. Over the course of their education the total amount of fee paid will be the same regardless of the fee structure. We've selected the per student, per semester structure because the College is directly serving students with technology support beginning their first semester of enrollment, primarily IT and class/lab instruction. This structure also spreads out the cost over the course of their education rather than concentrate the cost during the final 4-6 semesters.

Comparison to Peer Institutions
A survey of our peer institutions indicates that 11 of 15 (NMSU is number 16) engineering programs impose a technology fee either through differential tuition, course fees, a standalone technology fee, or a combination of these. This "engineering fee" is in addition to a university technology fee.

Student Feedback and Input to Implementation of a Technology Fee
Feedback and input to the fee has been requested of the Engineering student body (see attached memo to E-Council). The NMSU College of Engineering students are in agreement for the need to maintain/upgrade our computer and experimental labs on a regular cycle, and thus are in favor of a fee (please refer to the emails from the student leaders who executed the request to gather feedback from the students). The students have general concerns about the logistics of how the plan will be implemented. We have met with the students to discuss details of the proposed fee and process and will continue these discussions in order to address all of their questions.

Accountability
All aspects of the fee implementation will be designed to be fully accountable to students, faculty, and University administrators. Measures for monitoring accountability of the funds are outlined below.

The CoEngr web site will establish a link to a site that annually documents projected budget items and actual expenditures. All interested parties will be able to examine this budget and provide comments to the College administration at any time. We will also establish a practice of presenting the budget and expenditures to E-Council and the Dean's Advisory Council on an annual basis for the purpose of transparency in collection and use of the funds generated through the technology fee. The balance between collected fees and technology expenditures will be reviewed on a three-year cycle. The review will be presented to the students, will be posted to

the College web site, and will be evaluated to make appropriate adjustments to the fee. Following the first review cycle, the fee will be adjusted on the basis of a three year rolling average.

Request

I request your approval to establish and implement this technology fee. The fee will become effective in Fall 2014. This transition schedule will provide sufficient time to make formal adjustments to the undergraduate and undergraduate catalogs documenting the fee structure and inform current, transfer, potential, and incoming students, as well as parents of the change in cost of obtaining an engineering degree at NMSU. It will also provide sufficient time for the College and the business office to establish the collection, distribution, and accounting system for tracking the collection and expenditure of the fees.

Your approval to implement this technology fee as described above is requested. Please contact me at 6-7234 or rjaquez@nmsu.edu for additional information or to respond to your questions. I am also available to attend the UBC meeting. I appreciate you support. Thank you.