

## **EXECUTIVE SUMMARY**

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**ACTION ITEM**      **PROPOSAL TO INCREASE THE COMMON SURCHARGE  
FOR DISTANCE DELIVERED GRADUATE ENGINEERING  
COURSES AT UA, ASU, AND NAU**

**ISSUE:**

The Board of Regents is asked to approve a \$202 increase to the existing \$200 per unit surcharge common to ASU, NAU & UA to support the development and maintenance of distance delivered graduate engineering education in Arizona. Tri-University Master of Engineering students, among others, take these courses. The surcharge will apply to all students registering in distance delivered graduate engineering courses. The three universities support this request.

There has been significant ABOR/ARU startup investment in the development of the Tri-University Master of Engineering degree. This funding, scheduled to be provided for three years, is now at an end. The surcharge increase is intended to replace the startup funding and to provide the financial support necessary to sustain and assure continuation of the MEng degree program. Distribution of the surcharge would continue as originally approved by the Board.

**MEng PROGRAM HISTORY:**

Arizona's three state universities offer a collaborative, practice-oriented Master of Engineering (MEng.) degree program intended to serve the advanced educational needs of employment-bound professionals and residential students. The program targets a population best described as technically sophisticated part-time students in full-time employment. Many of these students are characterized as "returning" or "nontraditional" students, because several years have passed since the completion of their previous degree programs. Moreover, they are geographically dispersed and while their employment requires them to continuously update their technical knowledge, it does not typically afford them the opportunity to do so "on-campus."

The MEng program depends on web-based delivery of courses. In order to reconcile the economies of scale necessary to justify this delivery mode with the specialization required, the collaborating institutions are coordinating course development efforts. The efficiency of tri-university collaboration becomes apparent when one considers the need to develop new web courses for each of the many programs of study required to support a master's degree in engineering. For on-campus offerings, each school supports a geographic region of the state with complete sets of courses for each curriculum offered. Collaboration between the universities allows the MEng degree to eliminate geographic boundaries and requires each school to develop only a portion of the courses required for the degree.

**BACKGROUND:**

In April 2001, the Board approved a common surcharge for distance education graduate engineering courses at the three universities. The surcharge of \$200 per unit supports the collaborative and other graduate level engineering degrees offered by ASU, NAU, and UA. Revenue from the surcharge is used for distance graduate engineering course development, program marketing, program maintenance, and faculty incentives for teaching in an environment that involves significant additional effort. The surcharge is made available to the college offering the course, while tuition remains with the student's home institution.

**COST ANALYSIS:**

It is anticipated that the MEng program will use course income from tuition and the course surcharge to sustain all operating expenses. Summarizing the following information prepared by MEng, the total funding needed for the program is \$203,700. The cost for each course is approximately \$23,290. A surcharge fee of \$402 per unit, plus tuition, would generate revenue adequate to cover these costs. The assumptions identified below for numbers of students and courses use tuition levels approved for 2003-2004. With these assumptions, revenue from tuition and surcharge fees will cover the expenses of the program, including a 14% set aside for financial aid.

Operating Expenses:

	<u>Program</u>	<u>Local Funds</u>
Program manager	\$ 36,000	
Campus directors, dean's designees, and faculty representatives time	20,000	\$ 40,000
Campus coordinators	27,000	
Programmers	30,000	
Marketing and ongoing recruitment outreach	50,000	
Operating expenses	10,700	
Course fee waivers for students without sufficient financial support from their sponsors	<u>30,000</u>	
Total	<u>\$203,700</u>	<u>\$ 40,000</u>

Per Course Expense Analysis:

The following calculations include the costs of instruction, course maintenance, and generation of new courses. They also recognize that online courses are more labor intensive compared to regular university courses.

Assuming the 2003-2004 tuition structure with 30 courses/yr of 3-units each and enrollments in the range of 10-15 students, the estimated expenses on a per-course basis are:

Personnel expenses, expendable materials (\$203,700/30)	\$ 6,790
Teaching Assistant (instruction support)	\$ 6,000
Faculty salary recovery (course generation and maintenance)	4,000
Production (course offering and generation)	<u>6,500</u>
Total cost per course	<u>\$23,290</u>

Rationale for the Surcharge:

***Course fee calculation***

Assuming an average enrollment of 12 students/course, with half being out-of-state students, and using 2003-2004 approved tuition levels:

Tuition = 3 units (6x\$196/unit + 6x\$294/unit) = \$8,820 per 3-unit course.

Thus, to be self-sustaining these courses need a per-course fee of:  
 (\$23,290 - \$8,820)/(12x3) = **\$402 per unit.**

We now have available the 2004-2005 tuition levels. Using these new tuition numbers, and assuming this request to increase the surcharge from \$200 to \$402 per unit is approved, the following chart illustrates the cost of taking a 3-credit distance delivered graduate engineering course:

**Charge Per Course Per University**  
**(2004-2005 approved tuition + requested surcharge)**

3 credit hour-- graduate distance engineering course	In-state graduate student tuition	Out-of-state graduate student Tuition *	Proposed surcharge cost for 3 credit hour	Total 3 credit hour graduate distance engineering course <b>In-state/Out-of- state</b>
Arizona State University	\$792	\$1,188	\$1,206	<b>\$1,998 / \$2,394</b>
Northern Arizona University	\$657	\$986	\$1,206	<b>\$1,863 / \$2,192</b>
University of Arizona	\$666	\$999	\$1,206	<b>\$1,872 / \$2,205</b>

Students taking distance graduate engineering courses will incur additional university fees ranging from \$1.00 to \$23.00 depending on the student's home university and the total number of units taken.

**Market analysis:**

The market analysis includes five different perspectives, all suggesting a surcharge fee in the \$400 - \$500 area.

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\* Only applies to students physically located outside of Arizona.

1. The first perspective consists of a look at other institutions offering programs somewhat similar to those being offered by Arizona universities during 2003. Beginning with the 50 top ranked graduate engineering programs as identified by U.S. News & World Report, that group was reduced to the 15 schools that had online engineering programs, and were included in GetEducated.com's *Best Distance Learning Graduate Schools*. From this perspective, assuming the surcharge is increased to \$402 per unit, the MEng program moves to closer to the top of the bottom third of the list for both resident and non-resident students. We currently are fourth from the bottom in credit unit cost for resident students, and second from the bottom for nonresident students. It's evident that the increased surcharge will still leave Arizona schools in the lower part of the range of costs available for distance delivered graduate engineering programs across the U.S.

**Cost per unit**

	Resident*		Non-resident*
Stanford	\$1,798	Stanford	\$1,798
Texas A&M	\$1,233	Texas A&M	\$1,533
U of Wisconsin	\$1,161	U of Wisconsin	\$1,161
USC	\$1,067	USC	\$1,067
U of Michigan	\$1,018	U of Michigan	\$1,018
U of Rochester	\$981	U of Rochester	\$981
Columbia	\$951	Columbia	\$951
Purdue	\$876	Purdue	\$876
RPI	\$750	U of Delaware	\$770
U of Washington	\$697	RPI	\$750
U of Illinois	\$637	U of Washington	\$697
<b>Arizona MEng proposed</b>	<b>\$598</b>	<b>Arizona MEng proposed</b>	<b>\$696</b>
Georgia Tech	\$560	U of Illinois	\$637
<b>Arizona MEng Current</b>	<b>\$396</b>	NC State U	\$600
Iowa State U	\$379	Georgia Tech	\$560
U of Delaware	\$265	<b>Arizona MEng Current</b>	<b>\$494</b>
NC State U	\$165	Iowa State U	\$379

\*based on 2003-04 tuition numbers

2. From a cost versus revenue perspective, the \$402 per unit, plus the tuition revenue, will allow the MEng program to continue. For example, using 2003-2004 tuition levels, the per-course expenses are:

Expenses	\$23,290
Revenues for each course would be:	
Revenues	
Tuition	\$8,820
Surcharge	<u>14,470</u>
	<u>\$23,290</u>

A significant potential for growth exists through offering more courses, being able to reuse existing courses, and by attracting more students into the courses.

3. The MEng Industrial Advisory Board, chaired by Mr. Joseph Tidwell of Boeing Corporation, was requested to identify an acceptable level of cost for the distance engineering courses. Inquiring of colleagues and input from employees and HR representatives indicated the range of \$400 - \$500, in addition to tuition, would be acceptable for the technology industry.
4. The \$402 surcharge closely matches what the University of Arizona Distance Learning Unit charges for delivery of off campus courses. For example, the net cost of 30 units of UADL graduate level courses work is \$20,500 for an out-of-state student. An out-of-state Tri-University MEng student would pay \$20,880 for 30 units of distance delivered graduate engineering course work. This is significant in that UA Distance Learning has decades of history in establishing a competitive price that is consistent with the cost of course delivery.
5. Finally, the ASU Master of Science in Engineering online degree is very similar to the degree offered through the MEng program. For the 2003-2004 year they were approved to charge a fee of \$506 per unit on top of tuition. Their experience has shows that they were able to attract significant numbers of students to that program.

Because of the above information, the MEng Coordinating Board believes the requested common surcharge will NOT have a significant impact on enrollment. There has been input from an Arizona State agency (Arizona Department of Transportation) indicating the increased price would be unacceptable to them. However, with the 14% student financial aid set aside, there is a means to continue to serve Arizona's public agencies.

**COMPETITION:**

It is essential to look at potential competition when considering the marketability of a program. With all three state universities collaborating to offer the MEng program, the traditional competition for students between these institutions is significantly reduced. Each university, as ASU has done, can choose to develop its own online programs that will compete for students. Competition from other Arizona schools is not significant. Competition for students will primarily come from out-of-state universities offering

online programs seeking to enroll Arizona residents. Given the benefits and flexibility of online learning, it is essential that MEng and the Arizona universities recognize and prepare for this competition. Marketing skill, along with quality of content and student services will be the essential elements in attracting and retaining engineering students.

**MARKETING:**

Growth within the MEng program to date has largely been the result of word-of-mouth communications. While some effort has been made to contact local industry, there has not been a consistent and comprehensive marketing effort. MEng now has developed a marketing plan, allocated funding and employed a marketing firm to implement the plan. Substantial growth in the number of students within the MEng program is anticipated over the coming year. The goal is to have 400 students in the MEng program by 2006.

**RECOMMENDATION**

The Board is asked to approve an increase in the common surcharge for distance delivered graduate engineering courses at ASU, NAU, and UA from \$200 to \$402 per unit.

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Kathleen Gonzalez-Landis      520-626-5241      [triuniv-engr@arizona.edu](mailto:triuniv-engr@arizona.edu)

**MEMORANDUM**

OFFICE OF THE  
PRESIDENT

MAR 08 2013

UNIVERSITY OF  
ARIZONA

**DATE:** March 8, 2013

**TO:** Ann Weaver Hart, President

**FROM:** Mike Proctor, Vice President, Outreach and Global Initiatives 

**SUBJECT:** Request for Approval of In-State Tuition and Reduction of Graduate Engineering Distance Learning Surcharge Fee for the MS in Systems Engineering/Engineering Management (Distance Learning for Yuma Proving Grounds Employees)

Consistent with ABOR policy 4-101 (F), please consider this formal request to allow charging solely in-state tuition to part-time Yuma Proving Grounds Employees pursuing a distance learning degree in MS in Systems Engineering and MS in Engineering Management. In addition, we are requesting a pricing down of the Graduate Engineering, Distance Learning Engineering Surcharge Fee. Andrew and Gail have reviewed the request and concur.

This program is being developed specifically for employees of the Yuma Proving Grounds, working professionals representing both military and private sectors. A unified in-state tuition, currently \$729 per credit hour, and a Graduate Engineering Distance Learning Surcharge fee of \$235.33 per unit (reduced from \$402 per unit), would align the programs with a common defense industry standard of \$6,000 per semester tuition allowance, allowing us to develop a nationally competitive program. In addition, offering in-state tuition and a lower surcharge fee would not negatively impact the budgets of other existing programs in the College of Engineering, and allows us to reduce the fee as tuition increases, allowing for a more consistent transition to RCM2.

I recommend exempting these programs for the Yuma Proving Grounds employees, consistent with ABOR 4-101 (F).

Attached is the justification supplied by the department. Please let me know if I can provide additional information.

Atts.

Cc: Gail Burd  
Andrew Comrie

**REQUEST FOR TUITION APPROVAL FOR PART-TIME NON-RESIDENT STUDENTS OR  
ONLINE, OFF-CYCLE, DISTRIBUTED AND ACCELERATED PROGRAMS**

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Approval sought (choose one):

- ABOR Policy § 4-101 (F) for part-time tuition  
 ABOR Policy § 4-101 (H) for differential, online, off-cycle, distributed or accelerated programs

Request for ABOR approval under § 4-104 (B) (2) (a) or (b) \_\_\_\_\_

Program Name: MS in Systems Engineering/Engineering Management (Distance Learning for Yuma Proving Grounds Employees)

Department: Systems and Industrial Engineering (SIE)

Courses/Program to which the tuition limitation will apply: For Students Employed at Yuma Proving Grounds

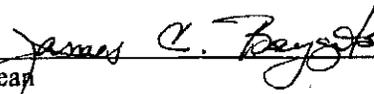
Please answer the following questions:

- |   | <u>Yes</u> | <u>No</u> |
|---|------------|-----------|
| 1. Is this a program with tuition lower than ABOR-approved tuition?   | X          |           |
| 2. Does this proposal apply to all students participating in the program or taking the particular course or courses?                    | X          |           |
| 3. Are the projected students predominantly part-time? Or, are the federal students in the distance optics programs always part-time?   | X          |           |
| 4. Will the reduced tuition be used to offset total program cost in programs which would otherwise enroll primarily full-time students? |            | X         |
| 5. Is this a program with higher than ABOR-approved tuition?  |            | X         |

Additional facts to consider (attach a narrative addressing any or all of the additional policy factors to be considered, not to exceed two pages). Please see attached.

  
 \_\_\_\_\_  
 Department Head/Director

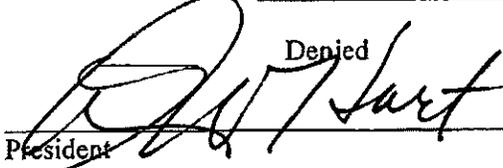
28 Jan 2013  
 \_\_\_\_\_  
 Date

*Academic*   
 \_\_\_\_\_  
 Dean

25 Feb 2013  
 \_\_\_\_\_  
 Date

- \_\_\_\_\_ Approved  
 \_\_\_\_\_ Approved with restrictions (e.g., length of grant period)

Restrictions: \_\_\_\_\_

  
 \_\_\_\_\_  
 President

3.12.2013  
 \_\_\_\_\_  
 Date

## **MS in Systems Engineering and MS in Engineering Management**

### **Distance Learning for Yuma Proving Grounds Employees**

This request is to allow engineers whose employment is located at the Yuma Proving Grounds (YPG), to enroll part-time in graduate courses that comprise the MS Systems Engineering or MS Engineering Management degree programs at a rate of \$1,000 per academic unit. This per unit price will enable YPG students to complete 6 units of graduate work per semester without exceeding \$6,000 in tuition costs, which is the industry standard of a \$6,000 tuition allowance.

The first request is to allow charging solely in-state tuition to, part-time YPG students at \$729 per unit while pursuing an MS in Systems Engineering or MS in Engineering Management. Both programs are part-time and will be delivered primarily online. This request is consistent with ABOR Policy 4-101 (F). The second request is to price down the Graduate Engineering Distance Learning Surcharge Fee of \$402 per unit to \$235.33 per unit.

If the requests to charge solely the in-state tuition per unit rate of \$729 and to reduce the surcharge fee to \$235.33 per unit, the University will be able deliver the MS in Systems Engineering or MS in Engineering Management to YPG students at \$1,000 per unit, which includes all mandatory university fees and charges.

The University of Arizona Systems and Industrial Engineering Department is attempting to become competitive with other schools that offer programs that satisfy the tuition limitations in the systems engineering and management industry. YPG has similar limitations and it is our desire to provide a competitive product to an important Arizona partner so that their workforce can receive advanced education. In addition, this offers the SIE Department to excel at the outreach endeavors of a Land Grant institution.

The competitive landscape includes companies such as Sandia National Laboratories and Lockheed Martin. Sandia National Laboratories is an active participant in distance learning with over 4,800 scientists and engineers. Sandia Tuition Assistant Program provides tuition assistance limited to \$6,000 per year, per employee for graduate credit courses and certificate programs. There are exceptions to this rule for employees selected for the special Master's Program, University Part-Time (UPT; BS-level) or DSP. In order to complete a Master's degree in five years, a Sandia student would need to take two, 3-unit course per calendar year, which equates to \$3,000 per 3-unit course.

Lockheed Martin has an annual tuition assistance limit of \$6,000 per year for graduate degree seeking employees, another active participant in distance learning with over 80,000 engineers and scientists.

A unified tuition at the in-state level along with a pricing adjustment to the Graduate Engineering Distance Learning Surcharge fee will make our programs competitive with other existing programs across the county. In addition, this request will not negatively impact the budgets of other existing programs in the College of Engineering.