ANNUAL PROGRAM REPORT

%ollege	#cience
1epartment	$ngineering
8rogram	9.#. $ngineering 9anagement
2eporting for 6cademic :ear	2 1342 15
;ast <4:ear 2eview	2 13
=ext <4:ear 2eview	2 2'42 2!
1epartment %hair	#aeid 9otavalli
1ate #ubmitted	1 › 1›2 15

I.

SELF-STUDY

A. Five-Year Review Planning Goals

1. The external reviewer suggested that we should develop a common course for all graduate students that embeds the three prerequisite course materials. He believed that we could attract more students by reducing the number of courses in the program. We will discuss this and decide on how to proceed.

2. One of the goals indicated in our previous report was to offer more elective courses. This goal has not been achieved as the number of faculty supporting this program has not changed since 2 !. The semester curriculum is designed as such that the students are ta"ing all the required courses in the #chool of $ngineering. This change has alleviated the problems students previously faced in ta"ing courses from the %ollege of &usiness and $conomics. $lective courses will be offered as the need arises.

'. (aculty) The faculty that support this program are also supporting the *ndustrial $ngineering program. The faculty are+ Helen ,ong- (arna. /an0ei.adeh and 1avid &owen.

!. 2esearch) The faculty are publishing regularly. One of the faculty- 1r. &owen spent 2 13 4 2 15 in 6frica as a (ulbright scholar. He taught and conducted research with a 7niversity there.

<. $quipment) Through 62$2 annual funding and the normal refresh cycle of computers by *T- w are "eeping the $ngineering 9anagement ;aboratories current.

?. $nrollment) #tudent enrollment in $ngineering 9anagement program has been decreasing for the past couple of years. This could be the result in the difficulty of obtaining student visas to enter the 7.#.

$. Progress !owar#s Five-Year Review Planning Goals

1. #uccessfully transformed the curriculum to a semester4based program.

2. 6cquired new %=% turning and milling center in @&T 2'1.

'. The program requires ' semester hours of course wor" including a capstone pro0ect.

!. 8urchased new robotic arm that is housed in @&T 2'1 for research in mechatronics and 6*.

C. Progra C%anges an# Nee#s

Overview& The $ngineering 9anagement program started in the year 2 ' and was steadily growing until 2 1?. #ince then the international student enrollment has been falling. (rom 2 ! onwards- we have not hired any faculty for this program. The faculty of *ndustrial $ngineering also serve the $ngineering 9anagement program.

C'rri"'l' & The first year of semester curriculum concluded successfully. The students were properly advised during this transition period.

S!'#en!s& 1emand for $ngineering 9anagement graduates is relatively strong for domestic students.

Fa"'l!(& #ince 2 !- we have had three faculty dedicated to the $ngineering 9anagement and the *ndustrial $ngineering programs. The faculty include 1rs. Helen ,ong- 1avid &owen and (arna. /an0ei.adeh.

S!a))& We have two full time staff for the #chool of $ngineering- a #tudent #ervices 8rofessional 6dvisor- ;isa Holmstrom and a support tech- ;inh =guyen. 6lso- a part time 6#% supports the #chool of $ngineering Office.

Reso'r"es& =ew equipment and software have been added to $ngineering laboratories.

Assess en!& 6n extensive assessment process is in place for the $ngineering 9anagement program. #ample results are provided in the following section.

I. SUMMARY o) ASSESSMNT

A. PROGRAM LEARNING OUTCOMES *PLOS+

S!'#en!s gra#'a!ing wi!% a M.S. Engineering Manage en! #egree)ro Cal S!a!e Eas! $a(will ,e a,le !o&

I.L.O Align en!

a	1evelop advanced analytical s"ills in optimi.ation- planning and control- and other quantitative management techniques.	1- ?
,	$ffectively manage teams of multi4disciplinary and multi4cultural professionals.	'- !
"	7nderstand the impact of engineering and management decisions in a global- economic- environmental- and societal context.	<
#	Have the ability to effectively and persuasively communicate	2
e	2ecogni.e the need for+ and have an ability to engage in- life4long learning.	2- ?

$. Progra Learning O'!"o e*s+ Assesse#&

-. . %i"% PLO*s+ !o assess	PLO #- Re"ogni/e !%e nee#)or0 an# %ave an a,ili!(!o engage in li)e-long learning.
1. Assess en! in#i"a!ors	%apstone pro0ects
2. Sa 3le *"o'rses45 o) s!'#en!s+	$=/2 ?5'6
6. Ti e *w%i"% 7'ar!er*s++	#pring 2 15
8. Res3onsi,le 3erson*s+	8rof. (arna. /an0ei.adeh
9. . a(s o) re3or!ing *%ow0 !o w%o+	8eer evaluation of group team pro0ects are used as a means to assess the quality of pro0ects and reporting. *n addition- faculty in charge of the course and other faculty attending pro0ect presentations are completing rubrics for evaluation of the pro0ect reports and presentations.
:. . a(s o) "losing !%e loo3	The results will be reported by faculty to the department chair via completion of the course (aculty #elf46ssessment form. 1ecisions on program improvement are made at the annual advisory board meeting.

C. S' ar(o) Assess en! Res'l!s& #tudents wor" on research pro0ects. 9 a0ority of the pro0ects are based on real data from industry. 6s part of this research- they perform a comprehensive literature review and identify a research problem. 6lso a comprehensive report and presentation of research wor" are required. 6lumni have evaluated the course material as valuable in their professional career. We evaluated the 8;O using the quality of the research that the students conducted. #pecifically the thoroughness of their literature search and identification of the problem. The average score for these activities was 3 A with a low of B A and a high grade of 5<. Ten out of the twelve achieved this 8;O. We have an ongoing discussion of how to improve the quality of research pro0ects. %hanges such as requiring more independent research will be implemented.

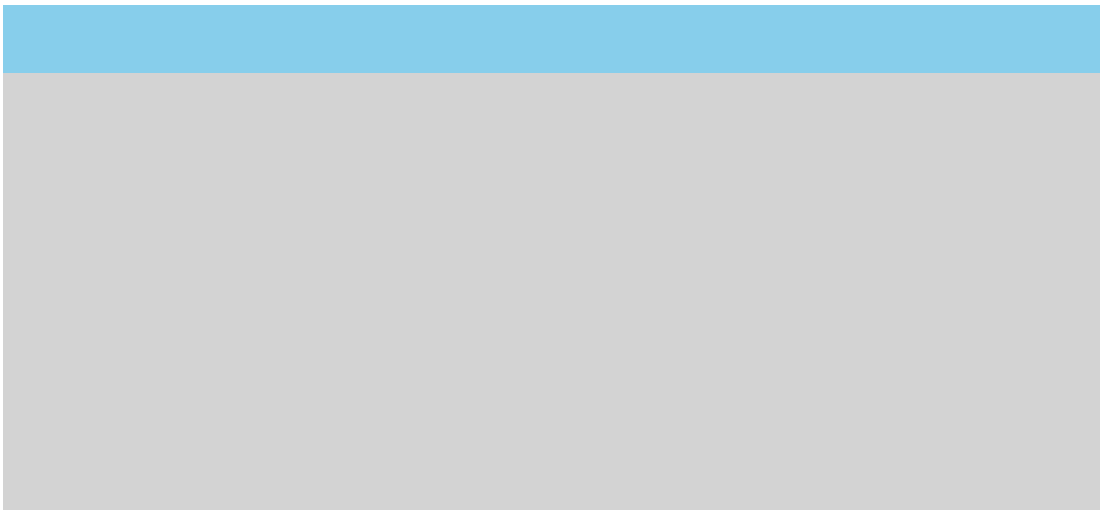
The communication *;O was evaluated using the presentations- written proposals- and final reports.

6ccording to this rubric- (or the 12 students who completed the course- the average communication score was 3'A C? on rubricD with the lowest grade of B A C! on rubricD and the highest of 5<A CB on rubricD. The ma0ority of students achieved this outcome.

Have the ability to effectively and persuasivel y				

D. Assess en! Plans)or Ne;! Year

Year 1& 1<-=-1<1<		Year 1& 1<-=-1<1<
		#;O b 4 $ffectively manage teams of multi4disciplinary and multi4cultural professionals. ▪
▪		



1. ;ower enrollment

2. *ndustry demand for the graduates

'. 6ctive 6dvisory &oard %ouncil

Re)le"!ions on Tren#s an# Progra S!a!is!i"s&

We believe the enrollment in the program will increase to about ? in a couple of years. The application trend is up.

Re7'es!)or Reso'r"es

-. Re7'es!)or Ten're-Tra"@ Aires&

We have not hired any faculty in *ndustrial $ngineering or $ngineering 9anagement since 2 !. 6ll faculty are full time professors. These programs require the addition of a new tenure4trac" faculty to stay current.

1. Re7'es!)or O!%er Reso'r"es

7p"eep of the laboratory software and hardware- access to large computer lab›classes for some of the courses.