



Five-Year Review Planning Goals

5-Year Plan:

1. Summary of program changes: The first year of implementation of semester-based curriculum was successful. The most significant change is the transfer of a semester-based program. The aim of this change was to delay any student's graduation.
2. Faculty: We have hired a tenure-track faculty member to replace the one who left the year before. Dr. Sumarano started in his Fall 2011 semester and comes to us with years of experience with 1020 and 1120 corporations.
3. Research: The computer engineering faculty are active in research and have been successful in publishing their work. Growth in research is a goal that the engineering faculty are aggressively pursuing.
4. Laboratory development: Engineering is being allocated space for faculty research and teaching in ScS 15. The space is being utilized for the development of an electronics laboratory and other computer engineering research space requirements. Two computer engineering faculty and a faculty member from computer science work in this laboratory.
5. Equipment: Through our annual fundraising and departmental resources we are planning to upgrade the computer engineering laboratory in ScS 37.
6. Growth: The computer engineering program is the fastest growing undergraduate program

Dr. Roger James Tan, Dean of the School of Engineering, supports his program.

The reform of the curriculum in response to semester offerings. The reform curriculum satisfies accreditation requirements and is in line with the needs of its constituents.

The number of students has increased from 1,015 in the fall of 2013. Three faculty serve the computer engineering program.

There are two full-time staff for the School of Engineering (Administrative Assistants) and one full-time visitor and a laboratory technician. There are also two part-time staff who are working for 20 hours a week.

The School of Engineering research laboratory is functional and equipped with resources of her research equipment. Dr. Roger James Tan, Dean of the School of Engineering, supports research in the area.

Computer engineering is an accredited program. A part of the accreditation process is a systematic assessment and evaluation plan has been in place for four years. The details of assessment activities are given below.

1.) *

1. , n a!ili y o i"en ify< formula e< an" solve comple\$ engineering pro!lems !y applying principles of engineering< science< an" ma hema ics. ?/* 2 1@
- &. , n a!ili y o apply engineering "esign o pro"uce solu ions ha mee specifie" nee"s wi h consi"era ion of pu!lic heal h< safe y< an" welfare< as well as glo!al< cul ural< social< environmen al<



B. &\$%) *

List the PLO(s) assessed. Provide a brief background of the history of assessing the PLO(s) (e.g. a first time part of other assessments etc.)

The program learning outcomes assessed for 1-1 are P* 2s 3 and 5. The P* 2s were assessed by using results from group projects or presentations across three classes. Since the S in 10mpu er #ngineering is a new program that officially began in 13< this year is part of the second 5-year cycle of assessment. The three classes were 1S 3&1 ?10mpu er , rchi ec ure 1@ 1 =P# 4.& ?Senior +esign@ an" 1 =P# 4.3 ?Senior 1aps one@. ' hile our 5-year assessment plan has eleven program learning outcomes we elec e" o change hem wi h he conversion o he semes er sys em. The ol" learning ou comes wi h he new learning ou comes ?in re"@ ha hey map o are lis e" here:

#\$plana ion of P* 2s:

P* 2 1: , !ili y o apply (nowle"ge of ma hema ics< science< an" engineering. P* 21

P* 2 &: , !ili y o "esign an" con"uc e\$perimen s< as well as o analy5e an" in erpre "a a. P* 28

P* 2 3: , !ili y o "esign a sys em< componen < or process o mee "esire" nee"s wi hin realis ic cons rain s such as economic< environmen al< social< poli ical< e hical< heal h an" safe y< manufac ura!ili y< an" sus aina!ili y. P* 2&

P* 2 4: , !ili y o func ion on mul i"isciplinary eams. P* 25

P* 2 5: , !ili y o i"en ify< formula e< an" solve engineering problems. P* 21

P* 2 8: Bn"ers an"ing of professional an" e hical responsi!ili y. P* 24

P* 2 7: , !ili y o communica e effec ively. P* 23

P* 2 ;: : roa" e"uca ion necessary o un"ers an" he impac of engineering solu ions in a glo!al< economic< environmen al< an" socie al con e\$. P* 24

P* 2 .: Recogni ion of he nee" for< an" an a!ili y o engage in< life-long learning. P* 27

P* 2 1-: Cnowle"ge of con emporary issues. P* 2&

P* 2 11: , !ili y o use he echniques< s(ills< an" mo"ern engineering ools necessary for engineering prac ice. P* 28

1. & ' (\$ %

(\$ \$ari)e "o r assess \$e!t #rocess brief"" si!g the fo'o *i!g s b-headi!gs.

\$ & \$) *# (+!c' de if !e* or o'd i!str \$e!t& ho* deve'o#ed& descri#tio! of co!te!t)

The ins rumen s use" o assess P* 2's were pu!lic presen a ions an" group projec s. Since professors use" "ifferen gra"ing scales< each Gues ion normali5e" o a ra ing scale 1-4 wi h 1 !eing he lowes score an" 4 !eing he highes score. Dues ions focuse" on engineering "a a analysis an" sys em "esign an" syn hesis.

+ % & #

Students in different classes were assessed based on specific course materials in the computer engineering discipline. The knowledge of the successful in these courses is cumulative where 1S3&1 material is practice level while 1 = P# 4. & an 1 = P# 4.3 are mastery level. Problems were chosen by the procuring professor of the exemplary of the material in each course.

+ ! " %\$ \$ % #

The courses used for assessment are all required courses in the computer engineering discipline. Successful completion of each question requires essential knowledge for completion of the degree program. The selection was done in consultation between the individual procuring professors, the assessment coordinator, and the department chair for computer engineering.

\$! %\$ # (i/c' de *he!& *ho& a!d ho* co'ected)

Problems were collected by the responsible faculty assessment coordinator. Raw faculty scores were normalized across all sample problems on the 1-4 scale for correctness. Faculty scores were utilized to facilitate comparisons between introductory practice and mastery levels.

\$ ' #

1S3&1 through 1 = P# faculty
/ em: Implement an arithmetic logic unit with your partner.
Average score of 4: 3.731 submissions
Score of 1: 2 Score of 2: 1 Score of 3: 1 Score of 4: 1
Score of 3 or higher: 84.5%

1 = P# 4. &
/ em: Project presentation "Grade" by content organization delivery.
Average score of 4: 3.815 submissions
Score of 1: 1 Score of 2: 1 Score of 3: 3 Score of 4: 11
Score of 3 or higher: 83.3%

1 = P# 4.3
/ em: Final group project "Grade" on integration of member design components.
Average score of 4: 3.314 submissions
Score of 1: 1 Score of 2: 1 Score of 3: 1 Score of 4: 5
Score of 3 or higher: 88.6%

Ru!ric for P* 23 ?4.&@:

?1@ Presen a ion gives vague specifica ion of projec < leng h oo shor < im!alance" "elivery

?2@ Presen a ion con en missing a ma9or componen < leng h is shor < organi5a ion issues

?3@ Presen a ion organi5a ion has minor "iscon inui ies< con en misses only minor poin s< nee" o prac ice "elivery

?4@ Presen a ion organi5a ion is coheren < con en is comple ely specifie"< goo" "elivery

Ru!ric for P* 25 ?3&1 an" 4.3@:

?1@ 1orrec ly specifie" less han &5E of all componen s an" connec ions in circui "esigns

?2@ 1orrec ly specifie" &5E or more of all componen s an" connec ions in circui "esigns

?3@ 1orrec ly specifie" 5- E or more of all componen s an" connec ions in circui "esigns

?4@ 1orrec ly specifie" 75E or more of all componen s an" connec ions in circui "esigns

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(\$ \$ari)e "o r assess \$e !t res 'ts brief'" si !g the fo 'o *i !g s b-headi !gs.

#

' i h respec o P* 25: S u"en s in 1S 3&1 an" 1 = P# 4.3 wor(e" oge her o comple e a group projec . ' hile s u"en s in 1S 3&1 were lef o hemselves wi h respec o !rea(ing "own group responsi!ili ies< s u"en s in 1 = P# 4.3 were gui"e" o speciali5e an" gra"e" !ase" on he 6uali y of heir in"ivi"ual componen s. , s s u"en s move" from prac ice level o mas ery level< he level of un"ers an"ing increase" significan ly wi h an average projec score of &.7 o 3.3. The !i-mo"el "is ri!u ion of un"ers an"ing no -un"ers an"ing which was a pro!em

, \$ \$ +) * (! \$" + # (. eco \$ \$ e ! datio ! s to address fi ! di ! gs & ho * / * he !)

Professors in computer engineering should convene to prepare the assessment questions for each class. , " " i onally < crea ing Gues ions ha es in ro " uc ory < prac ice < an " mas ery levels < shoul " ! e consi " ere " .) owever < he assessmen Gues ions shoul " ! e ! alance " in ha they can ! e solve " a he en " of a final eSam.

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The syllabi and assessment questions use for 1 , PR assessment and , : # T assessment should be co-created to minimize the impact of program assessment on the student learning experience.

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(\$ \$ ari) e " o r assess \$ e ! t # ' a ! s for the ! e 0 t " ear & i ! c ' di ! g the PLO(s) " o # ' a ! to assess & a ! " revisio ! s to the # rogra \$ assess \$ e ! t # ' a ! # rese ! ted i ! " o r ' ast five - " ear # ' a ! se f - st d " & a ! d a ! " other re ' eva ! t i ! for \$ atio ! .

' e plan o con inue assessmen wi h mi " erm eSam Gues ions an " final eSam Gues ions where feasi ! le for in " i vi " ual wor (for P * 2 S 1 < & 4 < 8 < an " 7 . P * 2 s 3 an " 5 reGuire assessmen of group wor (an " an a ! ili y o communica e respec ively. For P * 2 3 < group projec gra " es an " peer review Gues ionnaires will ! e use " for assessmen . For P * 2 5 < wri en an " oral assignmen s will ! e use " for assessmen . The ne \$ se of P * 2 s o assess ? on he new se @ are P * 2 1 < P * 2 4 < an " P * 2 7 . , I l P * 2 s will ! e assesse " ! y ei her mi " erm or final eSam Gues ions.

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The following table is enrollment data a e\$ race" from Pioneer + a a ' arehouse. This " a a in " i ca es ha he 1 ompu er # ngeeneering enrollment is increasing a a cons an ra e. The curren " a a as of Fall of & - 1 ; s an " s a 15 . . The curren facul y of 1 ompu er # ngeeneering are J Roger + oering > ames Tan " on an " , le \$ Sumarsono . The program is accre " i e " ! y , : # T un il he Fall of & - & & .

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/01/	. & \$	\$	/2	<u>13</u>	<u>45</u>	<u>63</u>	0
/014	. & \$	\$	52	<u>72</u>	<u>28</u>	<u>156</u>	0
/012	. & \$	\$	104	<u>63</u>	<u>83</u>	<u>168</u>	0
/017	. & \$	\$	140	<u>108</u>	<u>104</u>	<u>111</u>	0

