

2013-2014 ANNUAL ASSESSMENT REPORT TEMPLATE

Part 1: Background Information

B1. Program name: [____ Computer Science____]

B2. Report author(s): [__Nikrouz Faroughi____]

B3. Fall 2012 enrollment: [_71__]

Use the *Department Fact Book 2013* by OIR (Office of Institutional Research) to get the fall 2012 enrollment:
(<http://www.csus.edu/oir/Data%20Center/Department%20Fact%20Book/Departmental%20Fact%20Book.html>).

B4. Program type: [SELECT ONLY ONE]

	1. Undergraduate baccalaureate major
	2. Credential
X	3. Master's degree
	4. Doctorate: Ph.D./E.D.D.
	5. Other, specify:

Part 2: Six Questions for the 2013-2014 Annual Assessment

Question 1 (Q1): Program Learning Outcomes (PLO) Assessed in 2013-2014.

Q1.1. Which of the following program learning outcomes (PLOs) or Sac State Baccalaureate Learning Goals did you assess **in 2013-2014**? (See 2013-2014 Annual Assessment Report Guidelines for more details). **[CHECK ALL THAT APPLY]**

	1. Critical thinking (WASC 1) *
	2. Information literacy (WASC 2)
X	3. Written communication (WASC 3)
	4. Oral communication (WASC 4)
	5. Quantitative literacy (WASC 5)
	6. Inquiry and analysis
X	7. Creative thinking
	8. Reading
	9. Team work
X	10. Problem solving
	11. Civic knowledge and engagement – local and global
	12. Intercultural knowledge and competency
	13. Ethical reasoning
	14. Foundations and skills for lifelong learning
	15. Global learning
	16. Integrative and applied learning
	17. Overall competencies for GE Knowledge
	18. Overall competencies in the major/discipline
	19. Others. Specify any PLOs that were assessed in 2013-2014 but not included above:

* One of the WASC's new requirements is that colleges and universities report on the level of student performance **at graduation** in five core areas: **critical thinking, information literacy, written communication, oral communication, and quantitative literacy.**

Q1.1.1. Please provide more detailed information about the PLO(s) you checked above:

Computer Science department has developed five PLOs for each of the masters' degree programs (in Computer Science as well as Software Engineering). Because the two programs have identical entrance requirements and masters' project/thesis work is required for graduation. The list of PLOs listed above for both the programs is:

PLO1 (Problem Solving): Graduates apply knowledge from their undergraduate and graduate computer science/software engineering studies and related disciplines to identify, formulate, and solve novel and complex computer science/software engineering problems that require advanced knowledge within the field (*DQP: Specialized Knowledge*)

- a) Demonstrates research or project work on novel ideas; AC: MS project report
- b) Demonstrates concept comprehension, application, analysis, and synthesis; AC: MS project report

- c) Applies fundamental concepts and skills as well as new and contemporary advanced concepts ;
AC: MS project report

PLO3 (Creative thinking): Graduates can plan and conduct systematic study of an advanced topic within the field (*DQP: Broad, Integrative Knowledge*)

- g) project objective: Articulates the purpose of thesis/project work; AC: MS project report
h) Analysis/presentation of results: Analyzes project/thesis work; AC: MS project report

PLO4 (written communication): Graduates can report on an organized and systematic study of an advanced topic within the field (*DQP: Broad, Integrative Knowledge*)

- i) Quality of writing/organization: Prepares quality report; AC: MS project report (PLO4)

Q1.2. Are your PLOs closely aligned with the mission of the university?

X	1. Yes
	2. No
	3. Don't know

Q1.3. Is your program externally accredited (except for WASC)?

	1. Yes
X	2. No (If no, go to Q1.4)
	3. Don't know (Go to Q1.4)

Q1.3.1. If yes, are your PLOs closely aligned with the mission/goals/outcomes of the accreditation agency?

	1. Yes
	2. No
	3. Don't know

Q1.4. Have you used the *Degree Qualification Profile (DQP)* * to develop your PLO(s)?

X	1. Yes
	2. No, but I know what DQP is.
	3. No. I don't know what DQP is.
	4. Don't know

* **Degree Qualifications Profile (DQP)** – a framework funded by the Lumina Foundation that describes the kinds of learning and levels of performance that may be expected of students who have earned an associate, baccalaureate, or master's degree. Please see the links for more details:

http://www.luminafoundation.org/publications/The_Degree_Qualifications_Profile.pdf and
<http://www.learningoutcomeassessment.org/DQPNew.html>.

Question 2 (Q2): Standards of Performance/Expectations for EACH PLO.

Q2.1. Has the program developed/adopted **EXPLICIT** standards of performance/expectations for the PLO(s) you assessed in **2013-2014 Academic Year**? (For example: We expect 70% of our students to achieve at least a score of 3 on the Written Communication VALUE rubric.)

X	1. Yes, we have developed standards/expectations for ALL PLOs assessed in 2013-14.
	2. Yes, we have developed standards/expectations for SOME PLOs assessed in 2013-14.
	3. No (If no, go to Q2.2)
	4. Don't know (Go to Q2.2)
	5. Not Applicable (Go to Q2.2)

Q2.1.1. If yes, what are the desired levels of learning, including the criteria and standards of performance/expectations, especially at or near graduation, for **EACH PLO** assessed in 2013-2014 Academic Year? (For example: what will tell you if students have achieved your expected level of performance for the learning outcome.) **Please provide the rubric and/or the expectations that you have developed for EACH PLO one at a time below.** [WORD LIMIT: 300 WORDS FOR EACH PLO]

Standards of performance and expectations: 1) All graduates attain overall score of 3 (Meet Expectations) or higher on their Masters Project Report when computed as the average scores in all the performance criteria *a* to *d* (PLO1), *g* and *h* (PLO3), and *i* (PLO4); 2) attain at most two performance criteria scored 2 (Progressing to Expectations) and rest are 3 or higher; or 3) one performance criterion scored 1 (Below Expectations) and the rest are 3 or higher.

Q2.2. Have you published the **PLO(s)/expectations/rubric(s)** you assessed in 2013-2014?

X	1. Yes
	2. No (If no, go to Q3.1)

Q2.2.1. If yes, where were the **PLOs/expectations/rubrics** published? [**CHECK ALL THAT APPLY**]

	1. In SOME course syllabi/assignments in the program that claim to introduce/develop/master the PLO(s)
	2. In ALL course syllabi/assignments in the program that claim to introduce /develop/master the PLO(s)
	3. In the student handbook/advising handbook
	4. In the university catalogue
	5. On the academic unit website or in the newsletters
X*	6. In the assessment or program review reports/plans/resources/activities
	7. In the new course proposal forms in the department/college/university
	8. In the department/college/university's strategic plans and other planning documents
	9. In the department/college/university's budget plans and other resource allocation documents
	10. In other places, specify:

* Refer to Appendix A

Question 3 (Q3): Data, Results, and Conclusions for EACH PLO

Q3.1. Was assessment data/evidence **collected** for 2013-2014? Also, includes data collected in 2012-2013

X*	1. Yes
	2. No (If no, go to Part 3: Additional Information)
	3. Don't know (Go to Part 3)
	4. Not Applicable (Go to Part 3)

* Also includes data collected in 2012-2013

Q3.2. If yes, was the data **scored/evaluated** for 2013-2014?

X	1. Yes
	2. No (If no, go to Part 3: Additional Information)
	3. Don't know (Go to Part 3)
	4. Not Applicable (Go to Part 3)

Q3.3. If yes, what **DATA** have you collected? What are the **results, findings, and CONCLUSION(s)** for EACH PLO assessed in 2013-2014? In what areas are students doing well and achieving the expectations? In what areas do students need improvement? Please provide a simple and clear summary of the key data and findings, including **tables and graphs** if applicable for EACH PLO one at a time. [WORD LIMIT: 600 WORDS FOR EACH PLO]

An assessment rubric (Appendix B) that was created and approved by the faculty of Computer Science Department was used during the 2013-2014 academic year. For each MS project report, two faculty members (project advisor and a second reader) were asked to complete the rubric. The result of the assessment data from 25 completed rubric forms is presented in several charts as follows:

Charts 1 and 2 present the average and average standard deviation (std) of faculty evaluation scores for each of the three PLOs. There are 4 performance criteria in PLO1, 2 in PLO3, and 1 in PLO4. The average indicates the Standards of Performance and Expectations (Q2.1.1) are 3.0 or above for the PLOs, exceeding the minimum average of 3.0 (Meeting Expectation). While the average std scores for PLO1 and PLO3 are about the same among all the evaluated reports, there is, however, a slightly higher average std (0.6) among faculty evaluation scores for the performance criterion used for PLO4. This shows, there were slightly more variation in the quality of writing and organization of MS project reports.

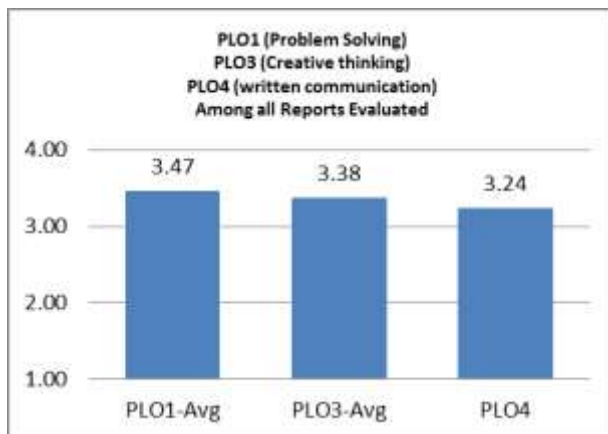


Chart 1

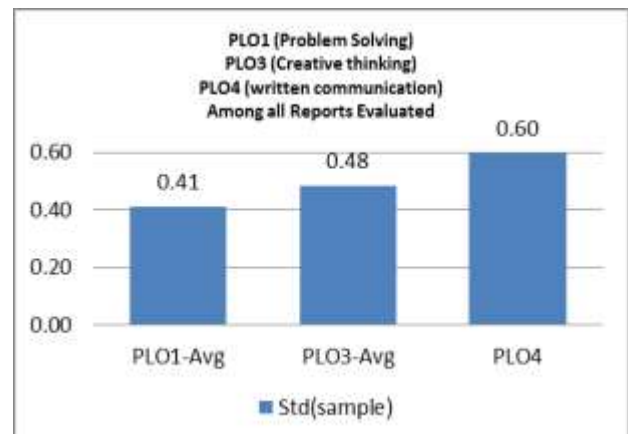


Chart 2

Charts 3 and 4 present the average and average std of faculty evaluation scores by individual performance criteria a to d (PLO1), g and h (PLO3), and i (PLO4) for all the masters project reports evaluated. The average score among all MS reports for each of the performance criteria is above 3.0 (Meet Expectation), with minimum being 3.24 and maximum 3.44. The std scores indicate the variation in faculty evaluation scores are about the same for all the performance criteria a to d and g and h, and, again, slightly higher for i.

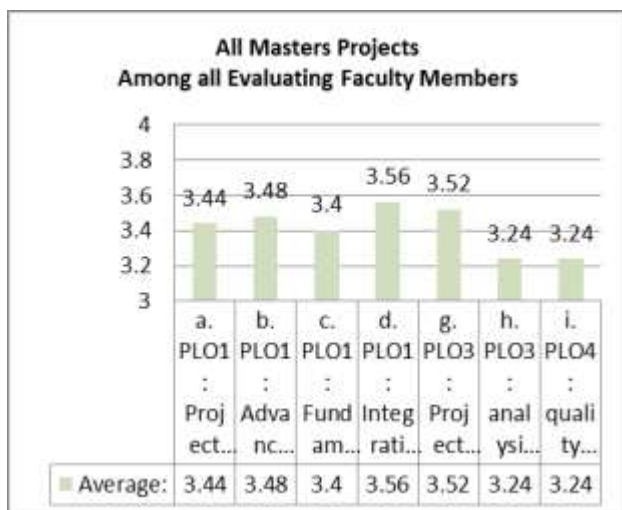


Chart 3

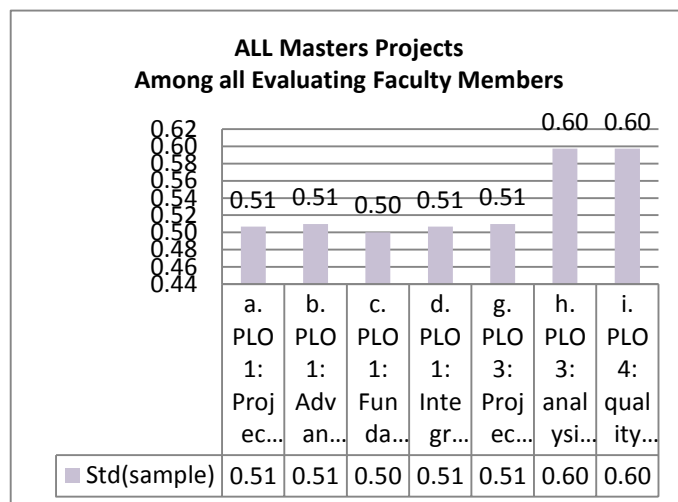


Chart 5 to 11 presents individual faculty scores for each of the performance criteria. The scores for each of the performance criterion a (project topic), b (advanced concepts), c (fundamental concepts and skills), d (integration), and g (project objectives) were either 4 (Exceed Expectation) or the standard 3 (Meet Expectation) for all the MS reports evaluated. Two reports for each of the performance criteria h (analysis/presentation of result) and i (quality of report writing/organization) scored 2 (Approaching Expectation) while the rest of the scores were 4 or 3. There were no reports with scores of 1 (Below Expectation) for any of the performance criteria.

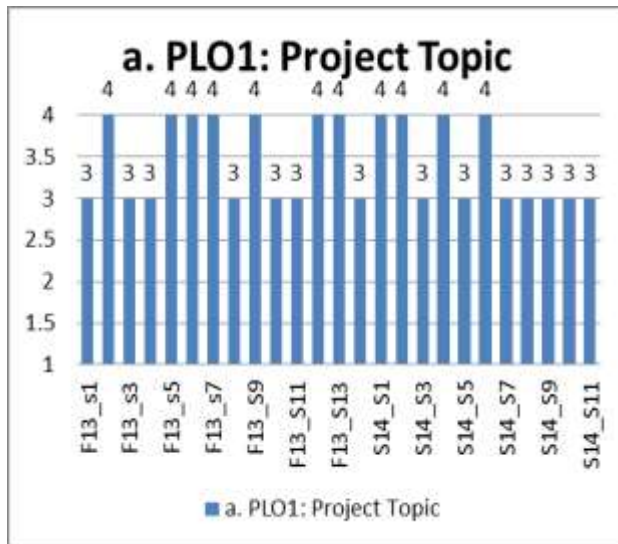


Chart 5

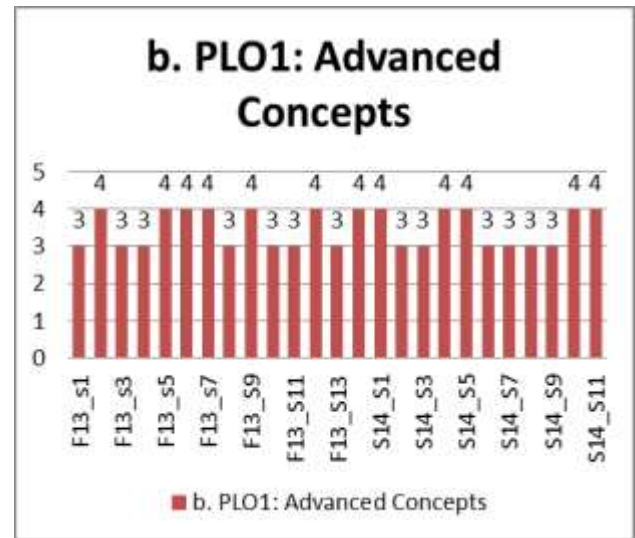


Chart 6

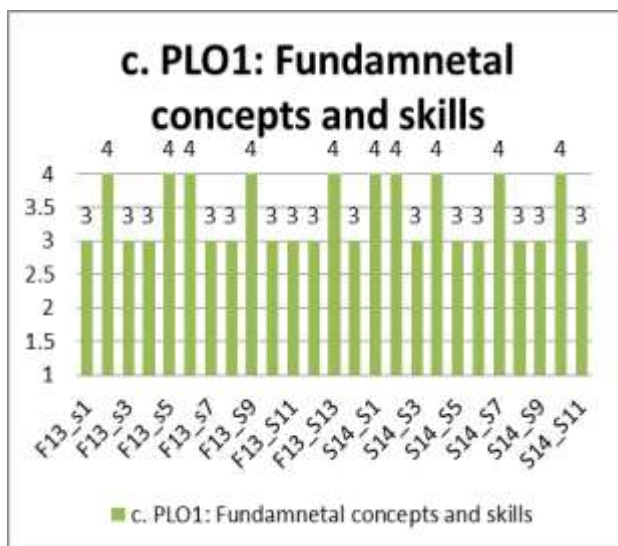


Chart 7

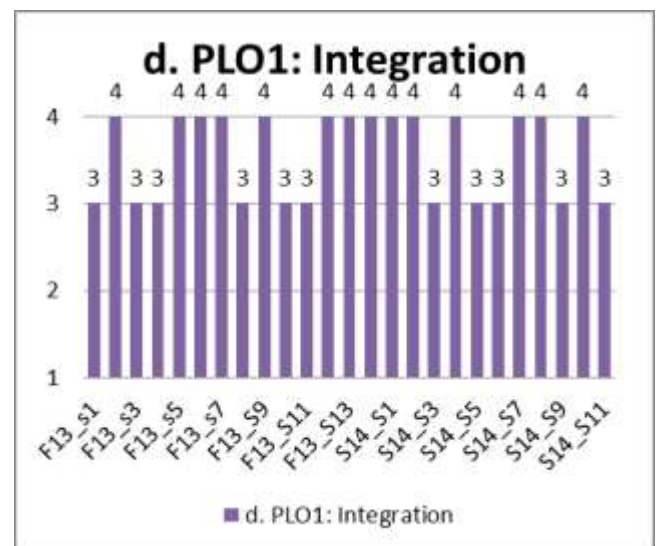
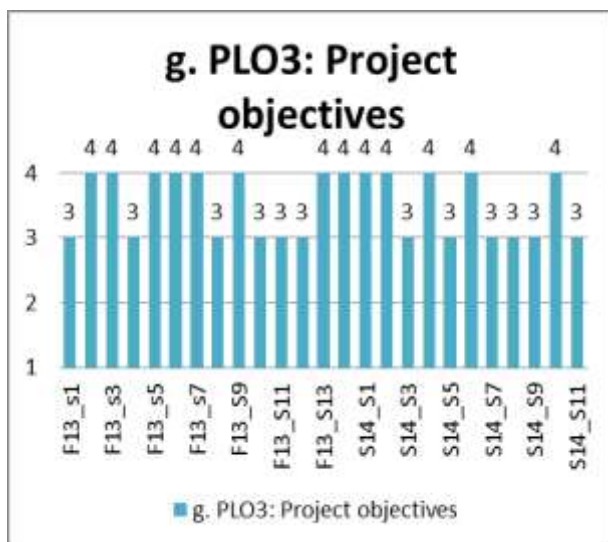
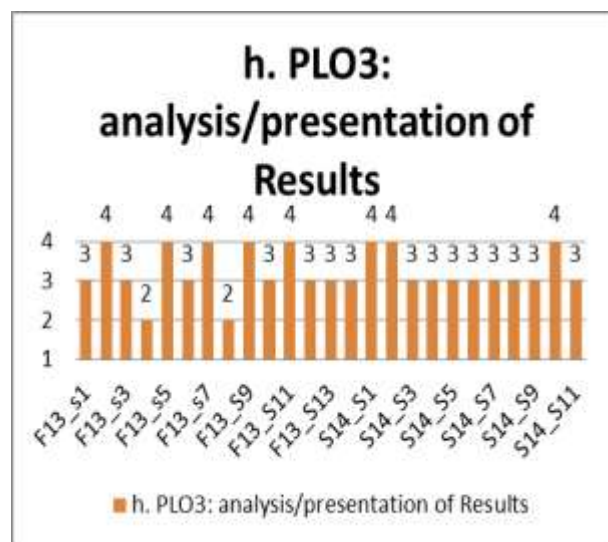


Chart 8



Chapter 9



Chapter 10



Chart 11

Q3.4. Do students meet the expectations/standards of performance as determined by the program and achieved the learning outcomes? [PLEASE MAKE SURE THE PLO YOU SPECIFY HERE IS THE SAME ONE YOU CHECKED/SPECIFIED IN Q1.1].

Q3.4.1. First PLO: [_____ Problem Solving _____]

	1. Exceed expectation/standard
X	2. Meet expectation/standard
	3. Do not meet expectation/standard
	4. No expectation/standard set
	5. Don't know

[NOTE: IF YOU HAVE MORE THAN ONE PLO, YOU NEED TO REPEAT THE TABLE IN Q3.4.1 UNTIL YOU INCLUDE ALL THE PLO(S) YOU ASSESSED IN 2013-2014.]

Q3.4.2. Second PLO: [__Creative thinking __]

	1. Exceed expectation/standard
X	2. Meet expectation/standard
	3. Do not meet expectation/standard
	4. No expectation/standard set
	5. Don't know

Q3.4.3. Second PLO: [__written communication __]

	1. Exceed expectation/standard
X	2. Meet expectation/standard
	3. Do not meet expectation/standard
	4. No expectation/standard set
	5. Don't know

Question 4 (Q4): Evaluation of Data Quality: Reliability and Validity.

Q4.1. How many PLOs in total did your program assess in the 2013-2014 academic year? [3]

Q4.2. Please choose ONE ASSESSED PLO as an example to illustrate how you use direct, indirect, and/or other methods/measures to collect data. If you only assessed one PLO in 2013-14, YOU CAN SKIP this question. If you assessed MORE THAN ONE PLO, please check ONLY ONE PLO BELOW EVEN IF YOU ASSESSED MORE THAN ONE PLO IN 2013-2014.

	1. Critical thinking (WASC 1) ¹
	2. Information literacy (WASC 2)
X	3. Written communication (WASC 3)
	4. Oral communication (WASC 4)
	5. Quantitative literacy (WASC 5)
	6. Inquiry and analysis
	7. Creative thinking
	8. Reading
	9. Team work
	10. Problem solving
	11. Civic knowledge and engagement – local and global
	12. Intercultural knowledge and competency
	13. Ethical reasoning
	14. Foundations and skills for lifelong learning
	15. Global learning
	16. Integrative and applied learning
	17. Overall competencies for GE Knowledge
	18. Overall competencies in the major/discipline
	19. Other PLO. Specify:

Direct Measures**Q4.3.** Were direct measures used to assess this PLO?

X	1. Yes
	2. No (If no, go to Q4.4)
	3. Don't know (Go to Q4.4)

Q4.3.1. Which of the following **DIRECT** measures were used? [**Check all that apply**]

X	1. Capstone projects (including theses, senior theses), courses, or experiences
	2. Key assignments from other CORE classes
	3. Key assignments from other classes
	4. Classroom based performance assessments such as simulations, comprehensive exams, critiques
	5. External performance assessments such as internships or other community based projects
	6. E-Portfolios
	7. Other portfolios
	8. Other measure. Specify:

Q4.3.2. Please provide the direct measure(s) [**key assignment(s)/project(s)/portfolio(s)**] that you used to collect the data. [WORD LIMIT: 300 WORDS]

Masters Project, culminating experience

Q4.3.2.1. Was the direct measure(s) [**key assignment(s)/project(s)/portfolio(s)**] aligned directly with the rubric/criterion?

X	1. Yes
	2. No
	3. Don't know

Q4.3.3. Was the direct measure (s) [**key assignment(s)/project(s)/portfolio(s)**] aligned directly with the PLO?

X	1. Yes
	2. No
	3. Don't know

Q4.3.4. How was the evidence scored/evaluated? [**Select one only**]

	1. No rubric is used to interpret the evidence (If checked, go to Q4.3.7)
	2. Use rubric developed/modified by the faculty who teaches the class
X	3. Use rubric developed/modified by a group of faculty
	4. Use rubric pilot-tested and refined by a group of faculty
	5. Use other means. Specify:

Q4.3.5. What rubric/criterion was adopted to score/evaluate the above key assignments/projects/portfolio? [**Select one only**]

	1. The VALUE rubric(s)
--	------------------------

	2. Modified VALUE rubric(s)
X	3. A rubric that is totally developed by local faculty
	4. Use other means. Specify:

Q4.3.6. Was the rubric/criterion aligned directly with the PLO?

X	1. Yes
	2. No
	3. Don't know

Q4.3.7. Were the evaluators (e.g., faculty or advising board members) who reviewed student work calibrated to apply assessment criteria in the same way?

	1. Yes
X	2. No
	3. Don't know

Q4.3.8. Were there checks for inter-rater reliability?

	1. Yes
X	2. No
	3. Don't know

Q4.3.9. Were the sample sizes for the direct measure adequate?

	1. Yes
	2. No
X	3. Don't know

Q4.3.10. How did you select the sample of student work (papers, projects, portfolios, etc)? Please briefly specify here:

Project advisors and second readers were provided the rubric during when they were evaluating the MS project reports. Only 25 evaluation forms were turned in time to be used in this assessment cycle.

Indirect Measures

Q4.4. Were indirect measures used to assess the PLO?

X	1. Yes
	2. No (If no, go to Q4.5)

Q4.4.1. Which of the following indirect measures were used? N/A

	1. National student surveys (e.g., NSSE, etc.)
	2. University conducted student surveys (OIR surveys)
	3. College/Department/program conducted student surveys
	4. Alumni surveys, focus groups, or interviews
	5. Employer surveys, focus groups, or interviews
	6. Advisory board surveys, focus groups, or interviews
	7. Others, specify:

Q4.4.2. If surveys were used, were the sample sizes adequate? N/A

	1. Yes
	2. No
	3. Don't know

Q4.4.3. If surveys were used, please briefly specify how you select your sample? What is the response rate? N/A

Other Measures

Q4.5. Were external benchmarking data used to assess the PLO?

	1. Yes
X	2. No (If no, go to Q4.6)

Q4.5.1. Which of the following measures was used?

	1. National disciplinary exams or state/professional licensure exams
	2. General knowledge and skills measures (e.g., CLA, CAAP, ETS PP, etc)
	3. Other standardized knowledge and skill exams (e.g., ETS, GRE, etc)
	4. Others, specify:

Q4.6. Were other measures used to assess the PLO?

	1. Yes
X	2. No (Go to Q4.7)
	3. Don't know (Go to Q4.7)

Q4.6.1. If yes, please specify: [_____]

Alignment and Quality

Q4.7. Please describe how you collected the data? For example, in what course(s) (or by what means) were data collected? How reliable and valid is the data? [WORD LIMIT: 300 WORDS]

Copies of the rubric (Appendix B) were given to all faculty members and were asked to complete the rubric while they are evaluating MS project reports. Two faculty members (project advisor and a second reader) completed the rubric for each MS project report that they supervised. Reports are highly technical and require faculty expertise in the subject matter.

Q4.8. How many assessment tools/methods/measures **in total** did you use to assess this PLO? [__1__]
NOTE: IF IT IS ONLY ONE, GO TO Q5.1.

Q4.8.1. Did the data (including all the assignments/projects/portfolios) from all the different assessment tools/measures/methods directly align with the PLO?

	1. Yes
	2. No
	3. Don't know

Q4.8.2. Were **ALL** the assessment tools/measures/methods that were used good measures for the PLO?

	1. Yes
	2. No
	3. Don't know

Question 5 (Q5): Use of Assessment Data.

Q5.1. To what extent have the assessment results **from 2012-2013** been used for? [**CHECK ALL THAT APPLY**]

	Very Much (1)	Quite a Bit (2)	Some (3)	Not at all (4)	Not Applicable (9)
1. Improving specific courses					
2. Modifying curriculum					
3. Improving advising and mentoring					
4. Revising learning outcomes/goals					
5. Revising rubrics and/or expectations					
6. Developing/updating assessment plan					
7. Annual assessment reports					
8. Program review					
9. Prospective student and family information					
10. Alumni communication					
11. WASC accreditation (regional accreditation)					
12. Program accreditation					
13. External accountability reporting requirement					
14. Trustee/Governing Board deliberations					
15. Strategic planning					
16. Institutional benchmarking					
17. Academic policy development or modification					
18. Institutional Improvement					
19. Resource allocation and budgeting					
20. New faculty hiring					
21. Professional development for faculty and staff					
22. Other Specify:					

Q5.1.1. Please provide one or two best examples to show how you have used the assessment data above.

N/A

Q5.2. As a result of the **assessment effort in 2013-2014** and based on the prior feedbacks from OAPA, do you anticipate making any changes for your program (e.g., course structure, course content, or modification of program learning outcomes)?

	1. Yes
X	2. No (If no, go to Q5.3)
	3. Don't know (Go to Q5.3)

Q5.2.1. What changes are anticipated? By what mechanism will the changes be implemented? How and when will you assess the impact of proposed modifications? [**WORD LIMIT: 300 WORDS**]

Q5.2.2. Is there a follow-up assessment on these areas that need improvement?

	1. Yes
	2. No
	3. Don't know

Q5.3. Many academic units have collected assessment data on aspects of a program that are not related to program learning outcomes (i.e., impacts of an advising center, etc.). If your program/academic unit has collected assessment data in this way, please briefly report your results here. [WORD LIMIT: 300 WORDS] N/A

Question 6 (Q6). Which program learning outcome(s) do you plan to assess next year?

	1. Critical thinking (WASC 1) ¹
	2. Information literacy (WASC 2)
	3. Written communication (WASC 3)
	4. Oral communication (WASC 4)
	5. Quantitative literacy (WASC 5)
	6. Inquiry and analysis
	7. Creative thinking
	8. Reading
	9. Team work
	10. Problem solving
	11. Civic knowledge and engagement – local and global
	12. Intercultural knowledge and competency
	13. Ethical reasoning
	14. Foundations and skills for lifelong learning
	15. Global learning
	16. Integrative and applied learning
	17. Overall competencies for GE Knowledge
	18. Overall competencies in the major/discipline
	19. Others. Specify any PLOs that the program is going to assess but not included above: a. b. c.

Part 3: Additional Information

A1. In which academic year did you **develop** the current assessment plan?

	1. Before 2007-2008
	2. 2007-2008
	3. 2008-2009
	4. 2009-2010
X	5. 2010-2011
	6. 2011-2012
	7. 2012-2013
	8. 2013-2014
	9. Have not yet developed a formal assessment plan

A2. In which academic year did you last **update** your assessment plan?

	1. Before 2007-2008
	2. 2007-2008
	3. 2008-2009
	4. 2009-2010
	5. 2010-2011
X	6. 2011-2012
	7. 2012-2013
	8. 2013-2014
	9. Have not yet updated the assessment plan

A3. Have you developed a curriculum map for this program?

	1. Yes
X	2. No
	3. Don't know

A4. Has the program indicated explicitly where the assessment **of student learning** occurs in the curriculum?

X	1. Yes
	2. No
	3. Don't know

A5. Does the program have any capstone class?

	1. Yes
X	2. No
	3. Don't know

A5.1. If yes, please list the course number for each capstone class: [____]

A6. Does the program have **ANY** capstone project?

X	1. Yes
	2. No
	3. Don't know

A7. Name of the academic unit: [___Computer Science___]

A8. Department in which the academic unit is located: [___Computer Science___]

A9. Department Chair's Name: [___Cui Zhang___]

A10. Total number of annual assessment reports submitted by your academic unit for 2013-2014: [__2__]

A11. College in which the academic unit is located:

	1. Arts and Letters
	2. Business Administration
	3. Education
X	4. Engineering and Computer Science
	5. Health and Human Services
	6. Natural Science and Mathematics
	7. Social Sciences and Interdisciplinary Studies
	8. Continuing Education (CCE)
	9. Other, specify:

Undergraduate Degree Program(s):

A12. Number of undergraduate degree programs the academic unit has: [__1__]

A12.1. List all the name(s): [__BS in computer science___]

A12.2. How many concentrations appear on the diploma for this undergraduate program? [__0__]

Master Degree Program(s):

A13. Number of Master's degree programs the academic unit has: [__2__]

A13.1. List all the name(s): [__MS in computer science and MS in software engineering___]

A13.2. How many concentrations appear on the diploma for this master program? [__0__]

Credential Program(s):

A14. Number of credential degree programs the academic unit has: [__0__]

A14.1. List all the names: [_____]

Doctorate Program(s)

A15. Number of doctorate degree programs the academic unit has: [__0__]

A15.1. List the name(s): [_____]

A16. Would this assessment report apply to other program(s) and/or diploma concentration(s) in your academic unit*?

X	1. Yes
	2. No

*If the assessment conducted for this program (including the PLO(s), the criteria and standards of performance/expectations you established, the data you collected and analyzed, the conclusions of the assessment) is the same as the assessment conducted for other programs within the academic unit, you only need to submit one assessment report.

The entrance requirements for both MS in Computer Science (CSc) and MS in Software Engineering (SE) are the same. While the courses required for each of the degree programs differ, the list of courses used

in both degree programs is shared. While some courses are required for one degree program, the courses are listed as electives for the other program. The requirements for graduation in both degree programs are also the same. Therefore, there is no difference in the performance criteria used to evaluate the MS project reports in the two degree programs.

16.1. If yes, please specify the name of each program: _

__MS in Computer Science__

MS in Software Engineering_____

16.2. If yes, please specify the name of each diploma concentration: ____N/A_____

Appendix A

While objectives, PLOs, and assessment performance criteria were developed in Spring 2011, a copy was sent to the Graduate Office using their format (Below*) in May 2013.

* Shown revised to reflect the changes made according to the 2013-2014 Annual Assessment Report. The revised copy has not been sent to the Graduate Office yet.



Office of Graduate Studies

Computer Science
Software Engineering

Department/Program Names

GRADUATE LEARNING GOALS/OBJECTIVES

Although, degree requirements of the MS-SE and MS-CSC are different, the two curricula are mutually embedded. All the courses are shared as either required or elective. Therefore, the same set of objectives and outcomes have been developed for these two programs.

Goal/Objective	Performance Criteria Assessment Components (AC)
Graduates will be capable of integrating undergraduate fundamentals and advanced knowledge to solve complex computer science/software engineering problems: PLO1 (Problem Solving): Graduates apply knowledge from their undergraduate and graduate computer science/software engineering studies and related disciplines to identify, formulate, and solve novel and complex computer science/software engineering problems that require advanced knowledge within the field (<i>DQP: Specialized Knowledge</i>)	d) Demonstrates research or project work on novel ideas; AC: MS project report e) Demonstrates concept comprehension, application, analysis, and synthesis; AC: MS project report f) Applies fundamental concepts and skills as well as new and contemporary advanced concepts ; AC: MS project report g) Integrates knowledge and skills ; AC: MS project report
Graduates will be prepared for professional advancement in computer science/software engineering. They will have the ability to pursue continuous learning and identify, understand, and apply new knowledge within the field: PLO2 (Critical thinking): Graduates understand and integrate new knowledge within the field (<i>DQP: Intellectual Skills</i>)	e) Identifies motivations for research work and articulates proposed solution(s); AC: Term paper f) Analyzes and identifies research contributions and assesses the performance of new entities; AC: Term Paper

<p>Graduates will have the ability to undertake a research and development project and to document the work in clear and effective manner, appropriate to the standards in the field:</p> <p>PLO3 (Creative thinking): Graduates can plan and conduct an organized and systematic study of an advanced topic within the field (<i>DQP: Broad, Integrative Knowledge</i>)</p> <p>PLO4 (written communication): Graduates can report on an organized and systematic study of an advanced topic within the field (<i>DQP: Broad, Integrative Knowledge</i>)</p>	<p>j) project objective: Articulates the purpose of thesis/project work; AC: MS project report (PLO3)</p> <p>k) Analysis/presentation of results: Analyzes project/thesis work; AC: MS project report (PLO3)</p> <p>l) Quality of writing/organization: Prepares quality report; AC: MS project report (PLO4)</p>
<p>Graduates will have the ethics and the oral communication skills to be an effective team member:</p> <p>PLO5 (Integrative and applied learning): Graduates can work as a team in a diverse changing world (<i>DQP: Applied Learning</i>)</p> <p>PLO6 (Civic knowledge and engagement): Gradates recognize the ethical standards, and possess skills for effective communication (<i>DQP: Civic Learning</i>)</p>	<p>m) Team Work: Collaborates and contributes as an active team member and abides by ethical standards; AC: CSc 295 Fieldwork (PLO5)</p> <p>n) Follows good presentation standards and delivers effective presentation; AC: CSc 295 Fieldwork (PLO6)</p>

DQP: Degree Qualifications Profile

PLO: Program Learning Outcome

Completed by Student

Student Name: _____, Student ID: _____

Project/Thesis Title: _____

Date: _____

=====

Completed by Advisor

Masters' Project Evaluation Rubric

EE: Exceeds expectations; ME: Meets expectations; PE: progressing to expectations; BE: Below Expectations;

Fundamental and advanced knowledge	EE	ME	PE	BE	Not Applicable
1. Project Topic: Includes some research and/or novel ideas (<i>Outcome a</i>)					
2. Advanced Concepts: Includes a few applications of new and contemporary advanced concepts (<i>Outcome b</i>)					
3. Fundamental concepts and skills: The work is a culmination of undergraduate experience and skill set and includes good levels software/hardware development (<i>Outcome c</i>)					
4. Integration: Includes integration of knowledge and skills from a few computer science and/or software engineering subject areas (<i>Outcome d</i>)					

Can plan and conduct project development work	EE	ME	PE	BE	Not Applicable
5. Project Objectives: Project question (or statement) is clearly articulated to reader and sufficient background is provided for reader to understand the importance of the topic. Chosen topic applies student's skill set. (<i>Outcome g</i>)					
6. Analysis/Presentation of Results: Student presents results in tabular and/or graphical form to facilitate reader's understanding (professional quality tables & graphs). Student clearly summarizes results; discussion of results is focused and tied to proposed research/development question; describes implications					

for future research. (<i>Outcome h</i>)					
7. Quality of Writing/Organization: Cohesive and coherent report. Meets the style guide requirements; contains limited number of spelling or grammatical errors. (<i>Outcome i</i>)					