Civil and Environmental Engineering Department
State of Program Learning Outcomes

I. BS in Civil and Environmental Engineering

SJSU Annual Program Assessment Form
Academic Year 2014-2015

Department: Civil and Environmental Engineering
Program: BS in Civil and Environmental Engineering
College: College of Engineering
Website: https://cee.sjsu.edu

-- Check here if your website addresses the University Learning Goals. <If so, please provide the link.>
Program Accreditation (if any): Accredited through September 30, 2018
Contact Person and Email: Udeme J. Ndon, Udeme.ndon@sjsu.edu
Date of Report: June 2, 2015

Part A

1. List of Program Learning Outcomes (PLOs)
   Undergraduate program PLO’s have not been changed in AY2014/15.

   However, updates are provided below on assessment tools, description of each assessment tool
   including information on evaluation process for each assessment tool.

   Assessment Tools: The following assessment tools are used for assessment of CEE undergraduate
   program; (1) Exit Survey, (2) Alumni Survey, (3) Employer Survey, and (4) Direct Assessment of
   Student Work.

   Senior Exit Survey
   Seniors complete an exit survey which contains specific questions regarding how well the
   department has prepared students to meet the Student Outcomes. Answers regarding student
   preparation are ranked from 1 to 5, with 1 indicating “In Depth”, 2 indicating “Adequate”, 3
   indicating “Fairly Adequate”, 4 indicating “Very Limited”, and 5 indicating “Non-Existent”. An
   outcome is considered met if the percent responding 1 or 2 is 70% or greater.

   Alumni Survey
   As described in Section A of Criterion 4, alumni are surveyed regarding their attainment of
   department SOs. The survey directly addresses the responders view of whether or not their
   education prepared them to meet the SOs. Survey participants rank their answers regarding their
   level of preparation from 1 to 5, with 1 indicating Excellent, 2 indicating Above Adequate, 3
   indicating Adequate, 4 indicating Poor and 5 indicating No Opinion. The department feels the SO
   is being met if 70% of responses are 1 or 2 on questions directly related to the specific SO.
Employers Survey
When alumni receive their survey, they are asked to forward the Employer Survey to their supervisor to assess their employer’s view of our alumni’s attainment of our SOs. The survey directly addresses the responder’s view of whether or not their employee’s education prepared them to meet the SOs. Survey participants rank their answers from 1 to 5, with 1 being the highest. The department feels an SO is being met if 70% of responses are 1 or 2 on questions regarding the specific SO.

Direct Assessment of Student Work
At the end of each semester for which course assessment data is to be collected, the course instructor develops a course report that includes an evaluation of the applicable Performance Criterion that his/her course has been identified as meeting. If a class does not achieve a Performance Criterion, the instructor is required to make recommendations for the following semester. Course assessment reports are compiled for individual Outcomes.

To facilitate the evaluation of student outcomes reported by course instructors through course assessment reports and to document the results of outcome assessment, department faculty each championed two Student Outcomes, with the exception of the Outcomes A, B, C and E Champions who are responsible for only each of Student Outcomes A, B, C and E, respectively. Outcome Champions summarize assessment data for their specific outcome, make suggestions regarding improvement, and present their findings to the department faculty for discussion of acceptance and implementation.

In their reports Outcome Champions are asked to suggest improvements in two areas: (1) Improvement of the assessment process and (2) Improvement to the curriculum. Recommendations for the revision of curriculum and/or assessment made by outcome champions are discussed and approved or rejected by the faculty. Approved changes in the curriculum and/or assessment methods are implemented and reassessed. The process is repeated for continuous program improvement. Performance Criteria that consistently have less than 70% achievement are identified.

2. Map of PLOs to University Learning Goals (ULGs)
No change has been made on “Map of PLOs to University Learning Goals in AY2014/15.

3. Alignment – Matrix of PLOs to Courses
In the alignment of PLOs with the curriculum presented in the AY2013/2014 report, expectation is hereby defined as “70% of the students in the course would score at least 70% on the exercise question used for the assessment”

4. Planning – Assessment Schedule
The table below presents information on completed assessment (continuous improvement) activities from Fall of 2011 through Fall of 2014 and planned assessment activities for Spring 2015 and Fall of 2015. The table was presented to the department faculty on February 17, 2015 which shows and further discussed on May 5, 2015. The department faculty will have further discussion to approve undergraduate assessment activities for Spring of 2016 and beyond.
## Civil and Environmental Engineering Continuous Improvement Schedule

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**Legend:**

- **Evaluate**
  - Evaluation of outcome champion reports documenting recommendations for assessment and curriculum changes.

- **Implement**
  - Period of implementation of recommendations

- **Assess**
  - Assessment of the Outcome: (Outcome Champion reports completed based on course data).

### 5. Student Experience

No change has been made in AY2014/15.

### Part B

#### 6. Graduation Rates for Total, Non URM and URM students (per program and degree)

No change has been made in AY2014/15.

#### 7. Headcounts of program majors and new students (per program and degree)

No change has been made in AY2014/15.

#### 8. SFR and average section size (per program)

No change has been made in AY2014/15.

#### 9. Percentage of tenured/tenure-track instructional faculty (per department)

No change has been made in AY2014/15.
Part C

10. **Closing the Loop/Recommended Actions**
    The department had had only one item to address from the result of our last accreditation visit which took place in 2011/2012 academic year and that was to require our students to take a fourth science course in addition to courses in Mathematics, Physics, and Chemistry. This was quickly addressed by the department by requiring our students to take Geology 2 which was satisfactory to the accreditation board.

11. **Assessment Data**
    Outcome Champion reports for outcomes A and B were discussed in AY2014/2015. In addition, the faculty discussed procedure for producing course assessment reports and outcome champion reports.

12. **Analysis**
    No data analysis related to the PLOs occurred in AY2014/2105.

13. **Proposed changes and goals (if any)**
    No changes to the assessment process is being considered at this time.
II. MS in Civil and Environmental Engineering

SJSU Annual Program Assessment Form
Academic Year 2014-2015

Department: Civil and Environmental Engineering
Program: MS in Civil and Environmental Engineering
College: College of Engineering
Website: <https://cee.sjsu.edu/graduate-studies>
_ Check here if your website addresses the University Learning Goals.
Program Accreditation (if any): Not applicable
Contact Person and Email: Kurt McMullin, kurt.mcmullin@sjsu.edu
Date of Report: June 2, 2015

Part A

1. **List of Program Learning Outcomes (PLOs)**
   Graduate program PLO’s have not been changed in AY2014/15.

2. **Map of PLOs to University Learning Goals (ULGs)**
   The department has not conducted a mapping of the department PLO’s to ULG’s. The University Learning Goals (as of June 2, 2015) are:

   San José State University graduates will have developed:

   **Specialized Knowledge**
   - Depth of knowledge required for a degree, as identified by its program learning outcomes.

   **Broad Integrative Knowledge**
   - Mastery in each step of an investigative, creative or practical project (e.g. brainstorming, planning, formulating hypotheses or complex questions, designing, creating, completing, and communicating).
   - An understanding of the implications of results or findings from a particular work in a societal context (e.g. social or economic implications of a scientific finding).
   - Students graduating with a baccalaureate degree will have demonstrated an understanding of critical components of broad academic areas, the arts, humanities, social sciences, and sciences and their integration.

   **Intellectual Skills**
   - Fluency in the use of specific theories, tools, technology and graphical representation.
   - Skills and abilities necessary for lifelong learning: critical and creative thinking, effective communication, conscientious information gathering and processing, mastery of quantitative methodologies, and the ability to engage effectively in collaborative activities.

   **Applied Knowledge**
   - The ability to integrate theory, practice, and problem solving to address practical issues.
   - The ability to apply their knowledge and skills to new settings or in addressing complex problems.
   - The ability to work productively as individuals and in groups
Social and Global Responsibilities
- The ability to act intentionally and ethically to address a global or local problem in an informed manner with a multicultural and historical perspective and a clear understanding of societal and civic responsibilities.
- Diverse and global perspectives through engagement with the multidimensional SJSU community.

3. **Alignment – Matrix of PLOs to Courses**
The map of PLO’s to courses is provided but has not changed during AY2014/15.

**Alignment – Matrix of PLOs to Courses**
Matrix Showing the Alignment of Graduate Courses to Graduate Program Outcomes

<table>
<thead>
<tr>
<th>PLOs</th>
<th>Courses</th>
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<td>PO 2</td>
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<td>PO 3</td>
<td>X</td>
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<td>PO 4</td>
<td>X</td>
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<table>
<thead>
<tr>
<th>PLOs</th>
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<td>CE 271</td>
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<tr>
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<td>PO 2</td>
<td>X</td>
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<td>PO 3</td>
<td>X</td>
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<td>PO 4</td>
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</table>

4. **Planning – Assessment Schedule**
The following table was presented to the department faculty at the November 4, 2014 faculty meeting.

<table>
<thead>
<tr>
<th>Program Objective</th>
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Note: C = Collection of assessment data and analysis.
D = Discussion of assessment results

5. **Student Experience**
The graduate PEO’s are listed on the department website: [https://cee.sjsu.edu/node/42](https://cee.sjsu.edu/node/42)

At the November 4, 2014 faculty meeting, the assessment of the PLO’s was proposed to be similar to the process used for the undergraduate assessment process. Feedback from the faculty was that since the undergraduate program is the basis of our ABET assessment, it is the intent of the department to dedicate more time and resources to that assessment process. Thus for the graduate
program, a more streamlines procedure is to be followed. At the current time, it is unclear how student feedback will be used in the creation of the PLO’s.

Part B

6. Graduation Rates for Total, Non URM and URM students (per program and degree)
   First Year (Third Year) Retention Analysis: First-Time Graduate

   Program: Civil Engineering, CA Resident, Non-Resident Domestic, Non-Resident International

<table>
<thead>
<tr>
<th></th>
<th>Fall 2010</th>
<th>Fall 2011</th>
<th>Fall 2012</th>
<th>Fall 2013</th>
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<tbody>
<tr>
<td>Number Entering</td>
<td>49</td>
<td>62</td>
<td>59</td>
<td>57</td>
</tr>
<tr>
<td>Overall Rate</td>
<td>85.7% (71.4%)</td>
<td>74.2% (71.0%)</td>
<td>83.1%</td>
<td>86.0%</td>
</tr>
<tr>
<td>Female</td>
<td>94.1% (88.2%)</td>
<td>76.5% (64.7%)</td>
<td>93.8%</td>
<td>81.2%</td>
</tr>
<tr>
<td>Male</td>
<td>81.2% (62.5%)</td>
<td>74.2% (73.3)</td>
<td>79.1%</td>
<td>87.8%</td>
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<tr>
<td>Am. Indian</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
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<tr>
<td>Black</td>
<td>100% (100%)</td>
<td>100% (100%)</td>
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<tr>
<td>Asian</td>
<td>82.4% (58.5%)</td>
<td>63.6% (63.6%)</td>
<td>89.5%</td>
<td>78.3%</td>
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<tr>
<td>Pac Islander</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
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<tr>
<td>Hispanic</td>
<td>87.5% (50.0%)</td>
<td>60.0% (60%)</td>
<td>71.4%</td>
<td>87.5%</td>
</tr>
</tbody>
</table>

7. Headcounts of program majors and new students (per program and degree)

8. SFR and average section size (per program)

9. Percentage of tenured/tenure-track instructional faculty (per department)

Part C

10. Closing the Loop/Recommended Actions
   The November 2013 Graduate Program Review recommended the following:
   1. Include at least one common course to provide a common experience for all graduate students.
   2. Decrease the number of undergraduate courses acceptable for the graduate program from 15 units to 9 units.
   3. The program should consider re-balancing the distribution between T/TT and part-time lecturers by hiring more T/TT faculty.
   4. The department should establish targets for enrollment in each sub-discipline based on a recruitment plan to hire full-time faculty.
   5. The department should study causes that might contribute to improvement of student graduation rates and develop strategies to improve this rate within the next five years.
   6. The program should develop assessment methods to measure student perception of attainment of the Program Objectives.

   In Fall 2014, the department faculty established a one-year planning period to develop a long-term hiring plan to hire T/TT full-time faculty. In November 2014, the department faculty reviewed the Graduate Program Assessment procedure as developed by the Department Chair.
11. **Assessment Data**
   The faculty discussed the current Graduate Program Assessment Process at the November 4, 2015 faculty meeting. It was decided that the Graduate Coordinator duties would be expanded to include coordinating the assessment of the graduate program. In Fall 2014, a process was developed to monitor the writing courses that are used for the Graduate Writing Assessment Requirement to ensure compliance with university requirements and consistency of expectations across all course supporting the writing requirement.

12. **Analysis**
   No data collection or analysis related to the PLO’s was conducted in AY 2014/2015.

13. **Proposed changes and goals (if any)**
   No adjustments to the assessment process are being considered at this time.