Annual Academic Assessment Report Cover Sheet

Assessment reports are due the 1st Wednesday after the Fall Term
Email to: assessment@unlv.edu

Program Information:

<table>
<thead>
<tr>
<th>Program Assessed</th>
<th>Computer Science BA</th>
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<tbody>
<tr>
<td>Department</td>
<td>Computer Science</td>
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<tr>
<td>College</td>
<td>Engineering</td>
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<tr>
<td>Department Chair</td>
<td>Dr. Laxmi Gewali</td>
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<tr>
<td>Assessment Coordinator</td>
<td>Dr. Laxmi Gewali</td>
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<tr>
<td>Date Submitted</td>
<td>11/22/2017</td>
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Contact Person for This Report

<table>
<thead>
<tr>
<th>Name</th>
<th>Dr. Laxmi Gewali</th>
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<tbody>
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<td>702-895-4028</td>
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<tr>
<td>Email</td>
<td><a href="mailto:laxmi.gewali@unlv.edu">laxmi.gewali@unlv.edu</a></td>
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</table>

Please attach a narrative (not to exceed 4 pages, excluding appendices) addressing the following:

- What are the student learning outcomes? Please provide a numbered list.
- Which learning outcomes were assessed?
- How were they assessed? (Programs must use at least one direct assessment of student learning.)
- Undergraduate programs should assess at least one University Undergraduate Learning Outcome (UULO) each year, which may or may not overlap with a program learning outcome.
- Graduate programs should assess at least one outcome related to one of the following graduate level requirements each year:
  - student engagement in research, scholarship, creative expression and/or appropriate high-level professional practice.
  - activities requiring originality, critical analysis and expertise.
  - the development of extensive knowledge in the field under study.
- What was learned from the assessment results?
- How did the program respond to what was learned?

Please limit the narrative portion of your report to no more than four pages. You may attach appendices with data, tables, charts, or other materials as needed. Please explain the relevant conclusions from any appendices in your narrative. Please contact the Office of Academic Assessment if you have questions or need assistance.
Assessment Report
(for NWCCU)

Program: BA in Computer Science

Submitted by
Laxmi Gewali

Department of Computer Science
University of Nevada, Las Vegas

December 2017
I. Introduction

Outcomes Assessed in 2017

Two of 4 Outcomes were assessed during Spring 2017:

- **Outcome B**: Apply design and development principles in the construction of software systems.
- **Outcome D**: Use current tools or techniques to implement and evaluate programs or computer-based systems.

**Direct Assessment** was done by using either (i) *Selected Question Method*, or (ii) *Model Question Method*. Assessment questions in these methods were prepared by the instructors who taught the courses closely related to the corresponding outcomes. These assessment exams were scheduled at the end of the semester. For either method chosen by the instructor, the answers given by the students were organized in a rubric-categorized table. In this table, performance of student’s answers is grouped into four categories: (i) *Unsatisfactory*, (ii) *Below Expectation*, (iii) *Satisfactory*, and (iv) *Exceeds Expectation*. The tabulated responses are evaluated by the instructor to prepare semester-end assessment pages for each course. Results of the direct assessments for each outcome are summarized in a table. A threshold of 70% of students scoring satisfactory or more was set by the Assessment Committee as successful achievement of the outcome.

**Indirect Assessment** was done by using the following two instruments:

- Semester-end evaluations of outcomes by students taking the course. The responses were grouped into four categories: (i) *Excellent*, (ii) *Good*, (iii) *Neutral*, (iv) *Fair*, and (v) *Poor*. A median score of Good or better is considered achieving satisfactory outcome.
- Exit Interviews. Each graduating student in their 4th year is given a questionnaire to collect their input regarding the level of achievement in each of eight student learning outcomes.

II. Assessment Results

**Direct Assessment of Outcome B:**

Courses used to cover Outcome B:

- CS 202 (1,2,3,4)

Direct Assessment examinations were given by instructors of CS 202 to cover Outcome B on the final week of the semester.

Tabulated results of direct assessment (Percentage Distribution) are as shown in the following table:
Overall Results for Outcome B: The targeted achievement level was not achieved.

Notable suggested improvement(s) by instructor(s) and Assessment Committee:

- **Early Intervention:** Early intervention efforts were increased in Spring 2017. As part of a College of Engineering (CoE) wide effort, the Department of Computer Science in coordination with the CoE Academic Advising has performed extensive early intervention activities. Approximately 65 students (~10%) across 100 and 200 level course (135, 202, and 218) were identified for early intervention. The intervention included working with the instructor and academic advising staff to identify issues, apply tutoring, and/or make schedule adjustments as appropriate. The long-term results are being tracked by the CoE Academic Advising and will be reported next calendar year. It is recommended to continue the early intervention activities. It is further recommended that when the long term results are available, further analysis be performed for possible improvements. These efforts are in line with UNLV’s Campus Connect program.

- **Monitoring of Enrollment:** It should be noted that the low achievement for outcome B (which pertains to early courses) is due to the large increase in enrollment and the increased number of transfer students. Stricter checking of prerequisites and remediation should be considered.

- **Consistency of Assessment across Sections:** The department should explore how to coordinate assessment tests across sections, especially for CS 202.

**Direct Assessment of Outcome D:**

Courses used to cover Outcome D:
- CS 370 (1,2)

Direct Assessment examinations were given by instructors of CS 370 to cover Outcome D on the final week of the semester. Tabulated results of direct assessment (Percentage Distribution) are as shown in the following table:

<table>
<thead>
<tr>
<th>Outcome D</th>
<th>Unsatisfactory (U)</th>
<th>Below Expectation (BE)</th>
<th>Satisfactory (S)</th>
<th>Exceeds Expectation (EE)</th>
<th>Remark for S+EE (Is it &gt;= 70% Threshold?)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2017</td>
<td>5.17</td>
<td>6.9</td>
<td>22.41</td>
<td>65.52</td>
<td>87.93 (&gt;70%)</td>
</tr>
</tbody>
</table>
• **Overall Results for Outcome D:** In Spring 2017 the targeted threshold of 70% was achieved by a healthy margin.

**Notable suggested improvement(s) by instructor(s) and Assessment Committee:**

• **Lab Monitors:** In Spring 2017 the level of lab monitors was kept at the increased level from the previous semester (5 lab monitors with hours in the range 10 to 20 per week). Effectiveness of Lab Monitors: Since Student Evaluations were made online there is no obvious way to attach questionnaires regarding lab monitors. The department is working on a module to add online questionnaires to CS online classes.

**Indirect Assessment for Outcomes A, B, C, and D**

Questionnaires for evaluating outcomes covered by the courses were distributed in the class at the end of the semester by an administrative member arranged by Dean Office / CS Office. Responses to these questions were collected and analyzed to access the outcomes. Outcome wise results are as follows.

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Achievement Level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>E</td>
</tr>
<tr>
<td>B</td>
<td>76.58</td>
</tr>
<tr>
<td>D</td>
<td>52.26</td>
</tr>
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</table>

**Conclusion:** For the above 2 outcomes, measured indirectly, the median achievement level is good (G) or better. This means achievement levels for Outcomes B, and D as measured indirectly, is satisfactory.

**Exit Interviews**

Each graduating student in their 4th year is given a questionnaire to collect their input regarding the level of achievement in each of eight student learning outcomes. Responses to the outcomes are collected in four categories (Very well, pretty well, somewhat, not at all). In addition, comments can be provided.

Summary results from 3 responses for outcomes A, B, C and D are as follows:
<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Very Well</th>
<th>Pretty Good</th>
<th>Somewhat</th>
<th>Not at all</th>
<th>% of students rating at least Pretty Good</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>B</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>C</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>D</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>100</td>
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**Assessment Result for University Undergraduate Learning Objectives (UULO’s)**

Outcome B aligns with UNLV’s goals toward inquiry and critical thinking, namely to apply design and development principles in the construction of software systems. Outcome D (“use current tools or techniques to implement and evaluate programs or computer-based systems”) overlaps with UNLV’s intellectual breadth and lifelong learning objectives. Assessment results show that students largely achieve these goals, though outcome B should be monitored.

**III. Plan for Next Assessment Period**

**(Spring 2018)**

- Assessment of Outcomes A, and C, as well as B.
- Analyze assessed data to obtain key findings.
- Follow-up on the suggestions for improving outcomes as recommended in this assessment period.
- Enrollment in the BA program is small compared to BS. It should be explored if the two programs could be merged.