Assessment Report for CSCI 1100: Introduction to Computing

1. The assessment consisted of 10 multiple-choice questions, given as the first part of the final exam in the sections of CSCI 1100 during fall 2013.

2. Expected educational results covered by each item:

   - Item 1: Be familiar with the history of computing from ancient times to the present
   - Item 2: Understand the methods by which data is represented and stored in a computer’s memory
   - Item 3: Recognize and understand the essential hardware components of any computer system, as well as the use of optional components to enhance the computer’s capabilities
   - Item 4: Understand the fundamental roles of systems software, particularly the operating system, and how it affects the user's computing experience
   - Item 5: Be able to work effectively with application software packages to solve a wide variety of problems, including choosing the most appropriate software package for the task at hand
   - Item 6: Understand the fundamental concepts behind computer networks and data communication
   - Item 7: Understand and effectively use current Internet technologies, including electronic mail, on-line databases, search engines, the World Wide Web, and various forms of social media
   - Item 8: Be able to present information using multimedia techniques, including building simple web pages
   - Item 9: Understand important information security issues and know appropriate measures to take to avoid problems in this area
   - Item 10: Write simple computer programs using fundamental programming concepts

3. Results of the students’ performance:

<table>
<thead>
<tr>
<th>Assessment instrument Item</th>
<th>Percent Correct</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>66.29%</td>
</tr>
<tr>
<td>2</td>
<td>62.92%</td>
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<tr>
<td>3</td>
<td>58.43%</td>
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<tr>
<td>4</td>
<td>61.24%</td>
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<tr>
<td>5</td>
<td>67.98%</td>
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<tr>
<td>6</td>
<td>82.02%</td>
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<tr>
<td>7</td>
<td>54.49%</td>
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<tr>
<td>8</td>
<td>87.08%</td>
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<tr>
<td>9</td>
<td>82.02%</td>
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<tr>
<td>10</td>
<td>67.42%</td>
</tr>
<tr>
<td>Overall</td>
<td>68.99%</td>
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</tbody>
</table>

4. Overall, the student average success rate of 68.99% was lower than the expected 70% or above. The result was somewhat skewed by low scores on two of the ten questions:
• Item #3, which required students to demonstrate knowledge of microprocessor hardware terminology was answered correctly by 58.43% of the students. Most students who answered incorrectly failed to recognize the difference between the terms register, control unit, and clock.

• Item #7 required students to think critically about the limitations of wifi hotspots and network security; 54.49% of the students answered it correctly. Incorrect answers on this problem were evenly spread, and indicated the subjective nature of people's understanding of wifi network in general.

On two additional items, students scored below 65%:

• Item #2 required students to distinguish between types of data and was answered correctly by only 62.92% of students. Most students who answered incorrectly got confused by the three items listed as possible answers to the question.

• Item #4 asked students to name the most obvious responsibility of the operating system and was answered correctly by only 61.24%. The main problem here stemmed from the fact that all three answers were closely related to the correct answer and the students were asked to name the one that had the most weight. Students were required to exercise their critical thinking.

On items 1, 5, and 10 students scored close to 70%:

• Item #1 was related to computer/software history. Some instructors do not emphasize the importance of computer science history and its relevance.

• Item #5 relates to databases. A lot of terminology without much hands on experience requires an extra effort from students to remember them.

• Item #10 relates to programming terminology. The assessment used terminology from the book but some instructors have used equivalent (advanced) terminology which might have caused some confusion among students (syntax vs. grammar).

5. These results seem to indicate that students are generally grasping the basic concepts covered in the course, but do not grasp many of the more subtle details of these topics. The committee recommends the following remediation strategies for the indicated topics:

• Instructors should add more hands-on exercises and activities
• Instructors should add depth to course material coverage
• GPC should ensure the course materials are in stock from day one of the semester
• The Committee should consider replacing the textbook with a better one.
• The wording of assessment questions needs to be carefully done to avoid multiple interpretations

The committee plans to reassess the problem areas from the 2013 assessment during Spring Semester, 2015, to determine whether the recommended plan of action remediates the issues.