EET Annual Report for Assessment of Outcomes

Outcome 1 - Predict and characterize analog circuit behavior by applying analog circuit analysis techniques

1. Describe changes that have been implemented towards improving students’ attainment of outcomes that resulted from outcome assessments carried out the previous academic year.
   This outcome was not assessed last year.

2. Identify the outcomes assessed this year and describe the methods used. What were the results of the assessment (i.e., what did you learn about how well students are meeting the outcomes)?

3. Provide information about the results (i.e. what did you learn about how well students are meeting the outcomes)?
   This outcome was assessed using the final exams for EET112. Coordination between multiple section instructors yielded exams that tested multiple sections of EET112 students on the same circuit analysis techniques. The exams were graded in a way such that points were awarded the same way across multiple sections for individual circuit analysis techniques.

   Overall, 100% of the students completing the EET112 exam this past academic year (77 students) were evaluated. A minimum score of 70% is considered passing with a grade of C. 58 out of 77 of the students scored a C or better. 39 out of the 77 students scored an A or a B. The average score was 77.8%.

   Based on these results, the EET department is shown to have accomplished this outcome during the past academic year.
4. Identify any changes that should, as a result of this assessment, be implemented to help improve students’ attainment of outcomes. (These may include, but are not limited to, changes in curriculum, content, materials, instruction, pedagogy etc).

   Based on the assessment results, no changes are needed.

5. Reflect on the effectiveness of this assessment tool and assessment process. Please describe any changes to assessment methodology that would lead to more meaningful results if this assessment were to be repeated (or adapted to another outcome). Is there a different kind of assessment tool or process that the SAC would like to use for this outcome in the future? If the assessment tool and processes does not need to be revised, please indicate this.

   This assessment is good and provides proper data. The inclusion of qualitative, as opposed to purely quantitative, questions on the EET112 exam will be investigated to probe for deeper understanding of circuit analysis techniques.

Outcome 2 – Assess and create desired digital logic circuit outputs by employing digital logic methods of reduction and analysis.

1. Describe changes that have been implemented towards improving students’ attainment of outcomes that resulted from outcome assessments carried out the previous academic year.

   This outcome was not assessed last year.

2. Identify the outcomes assessed this year and describe the methods used. What were the results of the assessment (i.e., what did you learn about how well students are meeting the outcomes)?

3. Provide information about the results (i.e. what did you learn about how well students are meeting the outcomes)?
This outcome was assessed using the final exams for EET122. Coordination between multiple section instructors yielded exams that tested multiple sections of EET112 students on the same methods of digital logic reduction and analysis.

A minimum score of 70% is considered passing with a grade of C. 46 out of 60 of the students who took the exam scored a C or better. 29 out of the 60 students scored an A or a B. The average score was 77%.

Based on these results, the EET department is shown to have accomplished this outcome during the past academic year.

4. Identify any changes that should, as a result of this assessment, be implemented to help improve students’ attainment of outcomes. (These may include, but are not limited to, changes in curriculum, content, materials, instruction, pedagogy etc).

Based on the assessment results, no changes are needed.

5. Reflect on the effectiveness of this assessment tool and assessment process. Please describe any changes to assessment methodology that would lead to more meaningful results if this assessment were to be repeated (or adapted to another outcome). Is there a different kind of assessment tool or process that the SAC would like to use for this outcome in the future? If the assessment tool and processes does not need to be revised, please indicate this.

This assessment is good and provides proper data. The inclusion of more qualitative questions on the EET122 exam will be investigated to probe for deeper understanding of circuit analysis techniques.
Outcome 3 – Simulate, force, and measure DC and AC circuit quantities by using industry standard software and test equipment.

1. Describe changes that have been implemented towards improving students’ attainment of outcomes that resulted from outcome assessments carried out the previous academic year.
   This outcome was not assessed last year.

2. Identify the outcomes assessed this year and describe the methods used. What were the results of the assessment (i.e., what did you learn about how well students are meeting the outcomes)?

3. Provide information about the results (i.e. what did you learn about how well students are meeting the outcomes)?
   This outcome was assessed using the lab final exams for EET113. Students were assigned a circuit to assemble and collect data from. Students were evaluated according to a rubric (see attached). On the rubric, a score of 0 is 0%, 1 is 65%, 2 is 75%, 3 is 85%, and 4 is 100%. An overall score of at least 70% is considered passing. 55 of the 78 students who took EET113 this past academic year were given this lab final exam.
   The average scores in each category were 99.5% in Operation of Lab Equipment, 99.5% in Use of Circuit Components, and 94.2% in Application of Theory. 31 of the 32 students who took the lab final exam passed. Based on these results, the EET department is shown to have accomplished this outcome during the past academic year.

4. Identify any changes that should, as a result of this assessment, be implemented to help improve students’ attainment of outcomes. (These may include, but are not limited to, changes in curriculum, content, materials, instruction, pedagogy etc).
   Based on the assessment results, no changes are needed.

5. Reflect on the effectiveness of this assessment tool and assessment process. Please describe any changes to assessment methodology that would lead to more meaningful
results if this assessment were to be repeated (or adapted to another outcome). Is there a different kind of assessment tool or process that the SAC would like to use for this outcome in the future? If the assessment tool and processes does not need to be revised, please indicate this.

This assessment is good and provides proper data on 70.5% of the students who took EET113 this past year. Better coordination with part-time instructors is needed to test the remaining students. Also, better granularity could be useful in the results. It is apparent that the vast majority of students have the basic skills, as so many had high scores. The skill of troubleshooting circuits could be worked into more labs throughout the term.

Outcome 4 – Communicate effectively both at the individual level and within team settings.

1. Describe changes that have been implemented towards improving students’ attainment of outcomes that resulted from outcome assessments carried out the previous academic year.

   The importance of effective communication was emphasized, specifically, by the addition of an oral presentation required of all students taking EET223 labs. This allowed a broader sampling of students’ communication skills over last year’s assessment vehicle for this outcome. Instructors included examples of good and bad reports to give students a better idea of what was expected of them.

2. Identify the outcomes assessed this year and describe the methods used. What were the results of the assessment (i.e., what did you learn about how well students are meeting the outcomes)?

3. Provide information about the results (i.e. what did you learn about how well students are meeting the outcomes)?

   An oral presentation in EET223 labs was used to assess this outcome. A rubric (see attached). On the rubric, a score of 0 is 0%, 1 is 65%, 2 is 75%,
3 is 85%, and 4 is 100%. An overall score of at least 70% is considered passing. The two categories from the rubric that were used for this assessment were Organization and Presentation. All 52 of the 52 students who took EET223 this past academic year were assigned this presentation and received passing grades.

The average scores in each category were 93.5% in Organization, and 91.5% in Presentation.

Overall oral communication was good, students worked well as teams, and improvement was noticed over last year’s assessment results. Based on these results, the EET department is shown to have accomplished this outcome during the past academic year.

4. Identify any changes that should, as a result of this assessment, be implemented to help improve students’ attainment of outcomes. (These may include, but are not limited to, changes in curriculum, content, materials, instruction, pedagogy etc).

Based on the assessment results, no changes are needed, however, further improvement in communication skills could be emphasized more by having more formal lab reports throughout the program.

5. Reflect on the effectiveness of this assessment tool and assessment process. Please describe any changes to assessment methodology that would lead to more meaningful results if this assessment were to be repeated (or adapted to another outcome). Is there a different kind of assessment tool or process that the SAC would like to use for this outcome in the future? If the assessment tool and processes does not need to be revised, please indicate this.

This assessment is good and provides proper data. The presentation rubric could be reworded to more clearly make the Q&A category address content of students’ answers, and not the manner in which they answer the questions, as this is evaluated in other categories in the rubric.
Outcome 5 – Carry out instructions and automate highly repetitive or monotonous tasks by utilizing programming skills.

1. Describe changes that have been implemented towards improving students’ attainment of outcomes that resulted from outcome assessments carried out the previous academic year.
   
   This outcome was not assessed last year.

2. Identify the outcomes assessed this year and describe the methods used. What were the results of the assessment (i.e., what did you learn about how well students are meeting the outcomes)?

3. Provide information about the results (i.e. what did you learn about how well students are meeting the outcomes)?
   
   A lab final exam in EET242 was used to assess this outcome.
   Students were evaluated according to a rubric (see attached). On the rubric, a score of 0 is 0%, 1 is 65%, 2 is 75%, 3 is 85%, and 4 is 100%. An overall score of at least 70% is considered passing. 17 students took the lab final exam and all 17 passed, and the average score was 95%.
   
   Based on these results, the EET department is shown to have accomplished this outcome during the past academic year.

4. Identify any changes that should, as a result of this assessment, be implemented to help improve students’ attainment of outcomes. (These may include, but are not limited to, changes in curriculum, content, materials, instruction, pedagogy etc).
   
   Based on the assessment results, no changes are needed, however, further improvement in communication skills could be emphasized more by having more formal lab reports throughout the program.

5. Reflect on the effectiveness of this assessment tool and assessment process. Please describe any changes to assessment methodology that would lead to more meaningful results if this assessment were to be repeated (or adapted to another outcome). Is there a different kind of assessment tool or process that the SAC would like to use for
this outcome in the future? If the assessment tool and processes does not need to be revised, please indicate this.

This assessment is good and provides proper data, however more students could be included in this assessment. Due to the overall high scores on this lab final exam, more granularity and/or a more rigorous exam could be used in scoring to further illuminate skill levels. Improvements to the rubric were discussed.

Outcome 6 – Model and troubleshoot non-linear circuits and systems.

1. Describe changes that have been implemented towards improving students’ attainment of outcomes that resulted from outcome assessments carried out the previous academic year.

   This outcome was not assessed last year.

2. Identify the outcomes assessed this year and describe the methods used. What were the results of the assessment (i.e., what did you learn about how well students are meeting the outcomes)?

3. Provide information about the results (i.e. what did you learn about how well students are meeting the outcomes)?

   A formal written lab report in EET222 was used to assess this outcome. A rubric (see attached). On the rubric, an overall score of 70% is considered passing. On the rubric, a score of 0 is 0%, 1 is 65%, 2 is 75%, 3 is 85%, and 4 is 100%. The categories from the rubric that were used for this assessment were Experimental Procedure, Results, and Discussion/Explanation of Results. All of the students who took EET222 this past academic year were assigned this lab report and received passing grades.

   The average scores in each category were 82% in Experimental Procedure, 81% in Results, and 82% in Discussion/Explanation of Results. The overall average score was 81.6%.
Data was often found to be not included in the students’ reports, and instructions were often overlooked, resulting in lowered grades. Based on these results, the EET department is shown to have accomplished this outcome during the past academic year.

4. Identify any changes that should, as a result of this assessment, be implemented to help improve students’ attainment of outcomes. (These may include, but are not limited to, changes in curriculum, content, materials, instruction, pedagogy etc).

Based on the assessment results, no changes are needed, however, further improvement in communication skills could be emphasized more by having more formal lab reports throughout the program.

5. Reflect on the effectiveness of this assessment tool and assessment process. Please describe any changes to assessment methodology that would lead to more meaningful results if this assessment were to be repeated (or adapted to another outcome). Is there a different kind of assessment tool or process that the SAC would like to use for this outcome in the future? If the assessment tool and processes does not need to be revised, please indicate this.

This assessment is good and provides proper data. Clarifying instructions for the report and giving the students a completion checklist should be considered in order to reduce unintentional. On the program scale, troubleshooting skills should also be emphasized and more independent thinking should be encouraged in the program by giving students less step-by-step instruction in labs.
Name: ___________________________________

- Use the scrap paper provided for your work and answers. Writing on this sheet will not be graded.
- This exam has two sides.
- Put your name on each sheet.
- There are 300 total points.
- Remember to show your work. If your work does not clearly reveal your thought process, partial credit cannot be awarded.
- Express all numerical answers as decimals, not fractions.
- Give all answers to 3 significant figures.
- Draw a box around your answers.
- Answers must have proper units, if appropriate.
- Label each sheet with your name and do not staple over your work.
- Turn in the exam with this sheet stapled on top.

1)  

a) (20pts) Find the Thevenin impedance \((Z_{th})\) of the above circuit at the terminals “a” and “b” (polar form).

b) (20pts) Find the Thevenin voltage \((E_{th})\) of the above circuit (polar form).

c) (10pts) Draw the Thevenin equivalent circuit and label terminals “a” and “b”.

d) (15pts) Find the load impedance, \(Z_L\), that will facilitate maximum power transfer from the voltage source to \(Z_L\) (polar form).

e) (15pts) Find the maximum power transferred to the load from part d).
2) (20pts) Use superposition to find the current source’s contribution to I in polar form.

b) (20pts) Use superposition to find the voltage source’s contribution to I in polar form.

c) (10pts) Find the current I in polar form.

3) (90pts) Find the mesh currents in the circuit below in polar form.

4) (80pts) Find the both of the node voltages in the circuit below in polar form.
<table>
<thead>
<tr>
<th>Lab Report Grading Rubric</th>
<th>Report Title:</th>
<th>Name:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introduction</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Beginning or incomplete</td>
<td><em>Very little background information provided or information is incorrect</em>&lt;br&gt;<em>Purpose of report or experiment is not explained.</em></td>
<td>4 Exemplary</td>
</tr>
<tr>
<td></td>
<td><em>Background is provided but missing major points</em>&lt;br&gt;<em>Purpose of report or experiment is not clear.</em></td>
<td><em>All necessary background information is provided</em>&lt;br&gt;<em>Purpose of report or experiment is clear and concise.</em></td>
</tr>
<tr>
<td>2 Developing</td>
<td><em>Written in paragraph format.</em>&lt;br&gt;<em>Missing some important experimental details.</em>&lt;br&gt;<em>Many paragraphs provide step by step instructions.</em></td>
<td><em>Well-written in paragraph format</em>&lt;br&gt;<em>All experimental details are covered.</em>&lt;br&gt;<em>No step by step instructions.</em></td>
</tr>
<tr>
<td>3 Accomplished</td>
<td><em>Most results and calculations are provided.</em>&lt;br&gt;<em>Some results or calculations are incorrect.</em></td>
<td><em>All results are presented and correct.</em>&lt;br&gt;<em>Supporting calculations are exact and correct.</em></td>
</tr>
<tr>
<td>4 Exemplary</td>
<td><em>Conclusion started but most important points are missing.</em></td>
<td><em>All important conclusions have been clearly made, student shows good understanding.</em></td>
</tr>
<tr>
<td><strong>Experimental procedure</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Beginning or incomplete</td>
<td><em>Missing several important experimental details.</em>&lt;br&gt;<em>Not written in paragraph format.</em>&lt;br&gt;<em>Step by Step instructions provided for most of the procedure.</em></td>
<td>4 Exemplary</td>
</tr>
<tr>
<td>2 Developing</td>
<td><em>Written in paragraph format.</em>&lt;br&gt;<em>Missing some important experimental details.</em>&lt;br&gt;<em>Many paragraphs provide step by step instructions.</em></td>
<td><em>Well-written in paragraph format</em>&lt;br&gt;<em>All experimental details are covered.</em>&lt;br&gt;<em>No step by step instructions.</em></td>
</tr>
<tr>
<td>3 Accomplished</td>
<td><em>Most results are presented and are correct.</em>&lt;br&gt;<em>Supporting calculations provided.</em>&lt;br&gt;<em>Results and calculations may have some minor errors.</em></td>
<td><em>All results are presented and correct.</em>&lt;br&gt;<em>Supporting calculations are exact and correct.</em></td>
</tr>
<tr>
<td>4 Exemplary</td>
<td><em>All important trends and data comparisons have been interpreted correctly and discussed, good understanding of results is conveyed.</em>&lt;br&gt;<em>All measured data is compared to expected data.</em></td>
<td><em>All important conclusions have been clearly made, student shows good understanding.</em></td>
</tr>
<tr>
<td><strong>Discussion/Explanation of Results</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Beginning or incomplete</td>
<td><em>Very incomplete or incorrect explanation of results</em>&lt;br&gt;<em>Discussion lacks comparison between measured and expected results.</em></td>
<td>4 Exemplary</td>
</tr>
<tr>
<td>2 Developing</td>
<td><em>Some of the results have been correctly interpreted and discussed.</em>&lt;br&gt;<em>Some of the experimental data is compared to expected data.</em></td>
<td><em>All important trends and data comparisons have been interpreted correctly and discussed, good understanding of results is conveyed.</em>&lt;br&gt;<em>All measured data is compared to expected data.</em></td>
</tr>
<tr>
<td>3 Accomplished</td>
<td><em>Most of the results have been correctly interpreted and discussed, only minor improvements are needed.</em>&lt;br&gt;<em>Most measured and expected data values are compared.</em></td>
<td><em>All results are presented and correct.</em>&lt;br&gt;<em>Supporting calculations are exact and correct.</em></td>
</tr>
<tr>
<td>4 Exemplary</td>
<td><em>All important conclusions have been clearly made, student shows good understanding.</em></td>
<td><em>All important conclusions have been clearly made, student shows good understanding.</em></td>
</tr>
<tr>
<td><strong>Mechanics: Including Figures, spelling, grammar, sentence structure, appearance and formatting.</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Beginning or incomplete</td>
<td><em>Most figures, graphs, tables contain errors or are poorly constructed, have missing titles, captions or numbers, etc.</em>&lt;br&gt;<em>Most figures are missing units</em>&lt;br&gt;<em>Most figures are not referenced in the body of the report</em>&lt;br&gt;<em>Frequent grammar and/or spelling errors</em>&lt;br&gt;<em>Writing style is rough and hard to read</em>&lt;br&gt;<em>Sections are missing or out of order.</em>&lt;br&gt;<em>Too much handwritten copy</em>&lt;br&gt;<em>Sloppy formatting – improper line space, section headings missing, title page missing most information.</em>&lt;br&gt;<em>Sections are of inappropriate length based on material being presented.</em></td>
<td>4 Exemplary</td>
</tr>
<tr>
<td>2 Developing</td>
<td><em>Most figures, graphs, tables OK, some still missing some important or required features.</em>&lt;br&gt;<em>Most figures contains captions, proper units and are referenced in the body of the report.</em>&lt;br&gt;<em>Grammar/spelling errors still exist</em>&lt;br&gt;<em>Generally readable with some rough spots in writing style</em>&lt;br&gt;<em>All sections included and in order</em>&lt;br&gt;<em>Report contains the minimum allowable amount of handwritten copy</em>&lt;br&gt;<em>Formatting is rough but readable – proper line space, section headings included but hard to find. Not enough white space. Title page contains most required information.</em>&lt;br&gt;<em>Sections are of inappropriate length based on material being presented.</em></td>
<td><em>All figures, graphs, tables are correctly drawn, are numbered and contain titles/captions</em>&lt;br&gt;<em>All figures are correctly referenced in the body of the report</em>&lt;br&gt;<em>All grammar/spelling correct</em>&lt;br&gt;<em>Writing style is very readable and clear.</em>&lt;br&gt;<em>All sections included and in order</em>&lt;br&gt;<em>Report is well formatted</em>&lt;br&gt;<em>Sections are of length appropriate for the material presented.</em></td>
</tr>
<tr>
<td>3 Accomplished</td>
<td><em>All figures, graphs, tables are correctly drawn, but some have minor problems or could still be improved.</em>&lt;br&gt;<em>A few figures still exist without a caption or a reference in the text body.</em>&lt;br&gt;<em>Few grammar/spelling errors.</em>&lt;br&gt;<em>Writing style is readable.</em>&lt;br&gt;<em>All sections included and in order</em>&lt;br&gt;<em>Formatting generally good but could still be improved – Title page still missing some information, white space could be improved.</em>&lt;br&gt;<em>Sections are mostly of a length appropriate for the material presented.</em></td>
<td><em>All figures, graphs, tables are correctly drawn, are numbered and contain titles/captions</em>&lt;br&gt;<em>All figures are correctly referenced in the body of the report</em>&lt;br&gt;<em>All grammar/spelling correct</em>&lt;br&gt;<em>Writing style is very readable and clear.</em>&lt;br&gt;<em>All sections included and in order</em>&lt;br&gt;<em>Report is well formatted</em>&lt;br&gt;<em>Sections are of length appropriate for the material presented.</em></td>
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<td>4 Exemplary</td>
<td></td>
<td><em>All figures, graphs, tables are correctly drawn, are numbered and contain titles/captions</em>&lt;br&gt;<em>All figures are correctly referenced in the body of the report</em>&lt;br&gt;<em>All grammar/spelling correct</em>&lt;br&gt;<em>Writing style is very readable and clear.</em>&lt;br&gt;<em>All sections included and in order</em>&lt;br&gt;<em>Report is well formatted</em>&lt;br&gt;<em>Sections are of length appropriate for the material presented.</em></td>
</tr>
<tr>
<td><strong>Conclusions</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Beginning or incomplete</td>
<td><em>Conclusions regarding major points are drawn, but many are mistated</em></td>
<td>4 Exemplary</td>
</tr>
<tr>
<td>2 Developing</td>
<td><em>All important conclusions have been drawn, could be better stated</em>&lt;br&gt;<em>Some minor points are missing.</em></td>
<td><em>All important conclusions have been clearly made, student shows good understanding.</em></td>
</tr>
<tr>
<td>3 Accomplished</td>
<td></td>
<td></td>
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<tr>
<td>4 Exemplary</td>
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</tbody>
</table>

**Score**

12/11 Total (24 points maximum)
## Oral Report Grading Rubric

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Beginning or Incomplete</strong></td>
<td><strong>Developing</strong></td>
<td><strong>Accomplished</strong></td>
<td><strong>Exemplary</strong></td>
</tr>
<tr>
<td><strong>Organization</strong></td>
<td>* Audience cannot understand presentation because there is no sequence of information. * Presentation is significantly over or under time limit. * Outline and Conclusion slide missing * Title slide missing most of the required components.</td>
<td>* Audience has difficulty following presentation because student jumps around. * Presentation is over or under the time limit. * Outline or Conclusion slide is missing. * Many of the title slide components are missing.</td>
<td>* Student presents information in logical sequence which audience can follow with some effort. * Presentation occasionally loses its purpose or train of thought. * Presentation barely over or under time limit * Outline and Conclusion slides included. *Title slide is missing a minimal amount of information.</td>
</tr>
<tr>
<td><strong>Content</strong></td>
<td>*Correlation between theory and experimental results is incorrect. * After outline, viewer has does not know what they will learn from this presentation. * Data does not support the defined outline. * Data is incorrect and/or incomplete. * Conclusions are incorrect or missing</td>
<td>* Missing correlation between theory and experimental results. * Outline does not provide a clear picture of what viewer will learn in this presentation. Viewer may have some idea, but they don't know for sure until the conclusion. * Data presented is often incorrect or incomplete. * Some conclusions correctly drawn from data. * Data relevant to the experiment and conclusions is missing</td>
<td>* Some correlation of theory and experimental results presented. * Outline provides a mostly clear picture of what viewer can hope to learn from this experiment. Viewer has minor questions as to why presentation is being given. * Most data presented is correct and relevant to goal of the experiment. * Most conclusions are appropriately drawn. * Some information is missing that would support conclusions</td>
</tr>
<tr>
<td><strong>Demonstration</strong></td>
<td>Student does not provide information relating to the functionality of the project.</td>
<td>Student provides information showing basic functionality of project. However, data is missing showing major functionality of major components. Student is unable to explain erroneous data.</td>
<td>Student's demonstration provides information necessary to illustrate how the project functions. Not all functionality is illustrated or explained.</td>
</tr>
<tr>
<td><strong>Questions and Answers</strong></td>
<td>Student does not have grasp of information; student cannot answer questions about subject.</td>
<td>Student is uncomfortable with information and is able to answer only rudimentary questions.</td>
<td>Student is at ease with information and explains expected answers to all questions, but fails to elaborate.</td>
</tr>
<tr>
<td><strong>Presentation:</strong></td>
<td>* Student uses superfluous graphics or no graphics. * Slides themselves are not readable. * Bullet points not used or are too long to fully comprehend. * Student's presentation has many spelling errors and/or grammatical errors. * Student reads all of report with no eye contact. * Student mumbles, incorrectly pronounces terms, and speaks too quietly for students in the back of class to hear. * Student is inappropriately dressed.</td>
<td>* Student occasionally uses graphics that rarely support text and presentation. * Slides are hard to read or understand. * Bullets regularly attempt to convey too much information * Presentation has some misspellings and/or grammatical errors. * Student occasionally uses eye contact, but still reads most of report. * Student incorrectly pronounces terms. * Student's voice is low. Audience members have difficulty hearing presentation. * Student is inappropriately dressed.</td>
<td>* Student's graphics relate to text and presentation. * Slides are readable and understandable. * Bullets are concise and easy to understand * Presentation only a minimal misspellings and/or grammatical errors. * Student maintains eye contact most of the time but frequently returns to notes. * Student's voice is clear. Student pronounces most words correctly. Most audience members can hear presentation. * Student is appropriately dressed.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Score</th>
<th>03/11</th>
<th>Total (20 points maximum)</th>
</tr>
</thead>
</table>

**Report Title:**

**Name:**
<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1 Beginning or Incomplete</th>
<th>2 Developing</th>
<th>3 Accomplished</th>
<th>4 Exemplary</th>
<th>Score</th>
<th>Skills That Need Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operation of Lab Equipment</strong></td>
<td><strong>● Demonstrates virtually no knowledge on how to operate lab equipment.</strong></td>
<td><strong>● Requires significant assistance with operation of test equipment.</strong></td>
<td><strong>● Demonstrates difficulties hooking up test equipment to circuit to force and measure quantities.</strong></td>
<td><strong>● Demonstrates little difficulty hooking up test equipment to circuit to force and measure quantities.</strong></td>
<td><strong>● Properly hooks up test equipment to circuit to force and measure quantities.</strong></td>
<td><strong>Score</strong></td>
<td><strong>Skills That Need Improvement</strong></td>
</tr>
<tr>
<td><strong>Use of Circuit Components</strong></td>
<td><strong>● Demonstrates nearly no ability in assembling circuit.</strong></td>
<td><strong>● Has trouble identifying circuit components needed for experiment.</strong></td>
<td><strong>● Can gather and identify all of the components needed for the circuit in a specific experiment.</strong></td>
<td><strong>● Correctly assembles all circuit components from a schematic diagram with few, insignificant errors.</strong></td>
<td><strong>● Correctly assembles circuit components from a schematic diagram with few, insignificant errors.</strong></td>
<td><strong>Score</strong></td>
<td><strong>Skills That Need Improvement</strong></td>
</tr>
<tr>
<td><strong>Application of Theory</strong></td>
<td><strong>● Demonstrates nearly no understanding of relevant theory.</strong></td>
<td><strong>● Cannot explain any of the main theoretical concepts demonstrated by experiment.</strong></td>
<td><strong>● Basic understanding of main theoretical concepts.</strong></td>
<td><strong>● Explains the main theoretical concepts demonstrated by the lab and the causes of significant errors.</strong></td>
<td><strong>● Explains all theoretical concepts demonstrated by the lab.</strong></td>
<td><strong>Score</strong></td>
<td><strong>Skills That Need Improvement</strong></td>
</tr>
</tbody>
</table>