I. Assessment Outcomes from the Course Syllabus

X (A) Ability to apply knowledge of mathematics, science and engineering.
X (B) Ability to design and conduct experiments as well as analyze and interpret data.
(C) Ability to design a system, component, or process to meet desired needs.
(D) Ability to function on multidisciplinary teams.
(E) Ability to identify, formulate, and solve engineering problems.
(F) An understanding of professional and ethical responsibility.
(G) Ability to communicate effectively in written and oral formats.
(H) A broad education necessary to understand the impact of engineering solutions in global, economic, and societal context.
(I) Recognize the need for, and have the ability to engage in life long learning.
(J) Have a broad education and knowledge of contemporary issues.
X (K) Ability to use techniques, skills and modern engineering tools necessary for engineering practices.

II. List of Course Topics from the Course Syllabus

1. Orientation – Safety and measurements
2. Laboratory Equipment - Oscilloscope, ohmmeter, potentiometer, and ammeter.
4. Computer simulation using PSPICE
5. Thevenin and Norton Equivalents - Theorems and maximum power transfer.
7. Operational Amplifiers - Characteristics and uses, and superposition.
8. Capacitors and Inductors - Characteristics and uses, and mutual inductance.
11. Computer Modeling of RLC Circuits using PSPICE
12. Sinusoidal and Phasors Analysis - Phase angle measurements.
13. Power and power factor - Power triangle.
14. Three-Phase Circuits - Wye and delta.
III. Course Assessment Summary Table: one row of the table should be devoted to each of the checked outcomes in part I.

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Topics</th>
<th>Specific Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A) Ability to apply knowledge of mathematics, science and engineering.</td>
<td>2-13</td>
<td>Laboratory assignments have pre-labs that require applying circuit theory learned in class to the experiments. (See Lab #10)</td>
</tr>
<tr>
<td>(B) Ability to design and conduct experiments as well as analyze and interpret data.</td>
<td>2-13</td>
<td>Laboratory assignments require analyzing and interpreting the data. (See Lab#5 and Lab #9)</td>
</tr>
<tr>
<td>K) Ability to use techniques, skills and modern engineering tools necessary for engineering practices.</td>
<td>2-13</td>
<td>Lab assignments require using typical test equipment, such as oscilloscopes, function generators, meters, etc. PSPICE is used for several lab experiments to confirm results. (See Lab #3 and Lab #11 for PSPICE, and Lab #5 and Lab #12 for Lab equipment techniques).</td>
</tr>
</tbody>
</table>

IV. Using the table as a guide, for each outcome summarize your evaluation of the students’ achievement of that outcome; cite student performance on the identified measures as evidence to support your conclusions.

(A) Ability to apply knowledge of mathematics, science and engineering.
   Overall, most of the students displayed an adequate ability to apply concepts learned during the course. This was evident in the average lab score of 89%.

(B) Ability to design and conduct experiments as well as analyze and interpret data
   All labs required interpreting data obtained from lab experiments performed. The average lab score of 89% demonstrated good student performance in demonstrating knowledge of the lab experiments.

(K) Ability to use techniques, skills and modern engineering tools necessary for engineering practices. Most labs require using basic test equipment in order to get data needed for interpretation. Several lab experiments require PSPICE computer simulation and two labs are totally devoted to computer modeling.
V. Qualitative Assessment of Student Performance: using the arguments above and other data support the claim that students who completed this course with a grade of C or better have achieved each of the intended outcomes of this course.

The students did very well on the lab assignments. Average score of 89% on lab assignments demonstrated that the students did achieve the desired outcomes of competency.

VI. Concerns: state any concerns you may hold about this class – were the students adequately prepared coming into it? Are there topics or outcomes where (some) students were weak after completing the course? Other concerns? Were there any comments on students’ course evaluations that should be addressed in future instances of the course? This section is very important for improving our program: it provides critical input to the curriculum committee for identifying areas requiring attention.

Concerns for students in knowing all the details in writing a PSPICE program and remembering how to interpret their results from experiments. Average lab exam of 52% indicates problems retaining this information.

Signature __________________________________________ Date: _______________________
Please email a copy of the completed form to Patricia Arnold, patricia@eecs.wsu.edu and deliver a signed hardcopy to her mailbox.