I. Assessment Outcomes from the Course Syllabus

X (A) Ability to apply knowledge of mathematics, science and engineering.
(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.
X (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.
(K) Ability to use techniques, skills and modern engineering tools necessary for engineering practices.

II. List of Course Topics from the Course Syllabus

1. Introduction to circuit theory and Ohm’s law.
2. Kirchoff’s laws.
3. Power and independent sources.
4. Voltage and current dividers.
5. Superposition.
7. Dependent sources
8. Operational Amplifier
9. Waveforms – unit-step function, sinusoidal, exponential
10. Thevenin and Norton equivalents.
11. Source Transformation and Maximum Power Transfer
12. Dependent sources and Op Amps
15. Complex numbers and phasor analysis.
16. Impedance in the frequency domain.
17. RC, RL and RLC circuits.
18. Introduction to AC power.
20. Power factor and power factor correction
21. Three-phase power systems

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>1-20</td>
<td>Circuit analysis problems requires a knowledge of mathematics and basic science. (See HW#9 from Chapter 7 and Exam #3).</td>
</tr>
<tr>
<td>(E) Ability to identify, formulate, and solve engineering problems</td>
<td>1-20</td>
<td>Homework and exam problems require understanding basic concepts, laws, and methods. (See HW #5 and Exam #2).</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. Understanding of physics, advanced algebra, and calculus were demonstrated on exams. For example, the 3rd exam and final exam demonstrated students’ ability to derive differential equations. The average final exam score was 75%, illustrating the importance of giving students plenty of time in order to demonstrate their knowledge and understanding of mathematics. Lecture material on three-phase systems was given in order to do the lab in EE262. This topic wasn’t assessed in the course due to time constraints.

(E) Ability to identify, formulate, and solve engineering problems
Exam and homework problems required solving engineering problems. (See above specific measures for details).
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 types of problems given on exams demonstrated that the students did achieve the desired outcomes of competency for ABET Criterion (A) & (E).

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.

Due to time constraints, second-order circuit analysis and three-phase systems were briefly covered in order to do the lab (EE 262). The students have a difficult time doing first-order circuits, and therefore more time was spent in covering the derivations for RC and RL circuits.

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.