I. Assessment Outcomes from the Course Syllabus

- (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.
- (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 lifelong 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. Review of sinusoidal steady state, complex power and three-phase circuits.
2. Transmission line parameters.
3. Transmission line modeling and capacity.
4. Magnetic circuits and transformers.
5. Generalized rotating machines.
6. Induction machines.
7. Synchronous generators.
8. Power flow.
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 - 8</td>
<td>Exams</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.

I consider in-class exams to be the most rigorous measure of Outcome (A) for a theory course. There were two “midterm” exams and a final exam. The averages on the three exams were 81%, 91% and 82% while the lowest scores were 67%, 77% and 74%, respectively.

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.

All five students performed adequately on the exams and achieved C or better in the course. This demonstrates that they were all able to apply the theory from this course at an acceptable level of competence.

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.

EE 361 benefits greatly from having an accompanying lab course (EE 362) where students get to see most of the course topics “in action.” The one area where students felt the material got abstract was in talking about magnetic flux linkage and force in rotating machines. Other than the simplest geometries (e.g., single winding on round rotor with uniform air gap) it can be difficult to visualize the physics. Next time I teach this course I will briefly introduce a basic numerical magnetostatics package and have the students solve for and visualize the magnetic field as a function of rotor and stator currents and rotor angle for the various machine types.

Signature: Scott Hudson  Date: 2007-05011

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