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 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. Basic digital electronics, including introduction to transistors and integrated circuits;
2. Binary state terminology, CMOS terminology and symbology, basic logic functions, reading and construction of logic circuits;
3. Logic circuit definition, minimization, and construction;
4. Number systems, binary arithmetic, and codes;
5. Design and application of multiplexers, decoders, encoders, code converters, comparators, parity circuits, and shifters;
6. Introduction to VHDL with applications to the behavioral and structural representation of basic combinational logic devices;
7. Application of programmable logic devices (ROMs, PLDs, FPGAs) to combinational logic design;
8. Design and application of arithmetic circuits including various adders, multipliers, and arithmetic logic units (ALUs);
9. Introduction to timing defects in combinational logic circuits;
10. Introduction to the design of sequential circuits, including latches, flip-flops, registers, and counters.

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 (Samples are be available in the course materials file for inspection.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A) Ability to apply knowledge of mathematics, science and engineering.</td>
<td>4-8</td>
<td><strong>Exam 1:</strong> problems 1, 2 &amp; 3, <strong>Exam 2:</strong> problems 3, 4 and 5, <strong>Final Exam:</strong> problems 1, 2, 3 &amp; 4 Homework 3, 4, 5 &amp; 7, Labs 3, 6, &amp; 7</td>
</tr>
<tr>
<td>(B) Ability to design and conduct experiments as well as analyze and interpret data.</td>
<td>7</td>
<td>Homework 2: problem 2, <strong>Exam 1:</strong> problem 4, Labs 6 &amp; 7</td>
</tr>
<tr>
<td>(C) Ability to design a system, component, or process to meet desired needs.</td>
<td>6</td>
<td>Homework 3, 5 (problem 5) &amp; 7, Lab 7, <strong>Exam 2:</strong> problem 1</td>
</tr>
<tr>
<td>(E) Ability to identify, formulate, and solve engineering problems.</td>
<td>5 &amp; 6</td>
<td>Lab 7 and Homework 7</td>
</tr>
<tr>
<td>(K) Ability to use techniques, skills and modern engineering tools necessary for engineering practices.</td>
<td>8</td>
<td>Homework 2 (problem 5), 6 &amp; 7, <strong>Exam 2:</strong> problem 5, <strong>Final Exam:</strong> problems 6 &amp; 7, Labs 3 &amp; 4</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.

(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.

(E) Ability to identify, formulate and solve engineering problems.
(K) Ability to use techniques, skills and modern engineering tools necessary for engineering practices.

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.

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.

Signature________________________________ Date: _________________________