1. **Course:** 055:0780 – Electromagnetic Theory

2. **Credit and contact hours:** 3

3. **Coordinator:** David Andersen


5. **Specific course information**
   a. Brief description. Electric and magnetic forces, Maxwell's equations, wave propagation, applications, including radiation, transmission lines, circuit theory.
   b. Prerequisites: 22M:037 and 029:082
   c. Required for all majors

6. **Specific goals for the course**

<table>
<thead>
<tr>
<th>Course Goal</th>
<th>Basis For Goal Assessment</th>
<th>Supports ABET Outcomes</th>
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</thead>
<tbody>
<tr>
<td>1. The student will acquire the ability to analyze systems of static electric and magnetic fields.</td>
<td>Homework, exam questions</td>
<td>a(●), e(●), i(●), k(●)</td>
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<tr>
<td>2. The student will be able to apply boundary value methods to solve static field problems.</td>
<td>Homework, exam questions</td>
<td>a(●), e(●), i(●), k(●)</td>
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<tr>
<td>3. The student will be able to apply Maxwell’s equations to electromagnetic wave propagation problems.</td>
<td>Homework, exam questions</td>
<td>a(●), e(●), i(●), k(●)</td>
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<td>4. The student will be able to analyze signal propagation on transmission lines.</td>
<td>Homework, exam questions</td>
<td>a(●), e(●), i(●), k(●)</td>
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7. **Brief list of topics to be covered**
   a. Review of vector analysis
   b. Static electric fields
   c. Static magnetic fields
   d. Analytical analysis of boundary value problems
   e. Time-varying electromagnetic fields
   f. Electromagnetic wave propagation
   g. Transmission lines
   h. Review and two exams (3 classes)