UAA Bachelor of Science in Electrical Engineering (BSEE) Recommended Course Sequence & Prerequisites Flowchart 2016/2017

**High School or Equivalent**
- Math Placement Test OR MATH 108, OR MATH 109
- English Placement Test or HS Chemistry OR CHEM 055
- Physics Placement Test OR PHYS 130

**Freshman**
- Fall (18)
  - ENGR 151 (1) Intro to Engr
  - MATH 251 (4) Calc I
  - ENGL 111 (3) Written Comm
  - CSE 205 (3) C Prog. Lang.
- Spring (17)
  - COMM 111/235 237/241 (3)
  - MATH 252 (4) Calc II
  - ENGL 212 (3) Tech. Writing
  - CHEM 105/L (4) Chem I

**Sophomore**
- Fall (16)
  - GER (3)
  - MATH 253 (4) Calc III
  - EE 203 (4) Fund. EE
  - EE A261 (1) Matlab for EE
- Spring (18)
  - GER (3)
  - MATH 302 (3) ODE
  - EE 241 (4) Computer Hardware Concepts
  - PHYS 211/L (4) Gen. Phys I

**Junior**
- Fall (15)
  - ES 209 (3) Statics
  - ES 302 (3) Data Analysis
  - EE 307 (3) Intro to Power Systems
  - CSCE 248 (3) Comp. Org.
- Spring (16)
  - ES 210 (3) Dynamics
  - EE 465 (3) Telecom
  - EE 308 (3) Inst. & Meas.
  - EE 343 (3) Electronic Devices

**Senior**
- Fall (15)
  - ESM 450 (3) Economic Analysis and Operation
  - EE 471 (3) Automatic Controls
  - EE A333 (4) Electronic Devices
  - EE 441 (3) I.C. Design
- Spring (15)
  - EE 438 (3) Capstone
  - Advanced Engr. Elective (3)
  - Advanced Engr. Elective (3)
  - GER (3)

**Key:**
- Prerequisite
- Prerequisite or Concurrent
- Either Class as Prerequisite
- Offered EVERY Semester
- Offered FALL only
- Offered SPRING only

130 Total Credits Required for the Degree

Find more information on the web at https://www.uaa.alaska.edu/electricalengineering/

Revised 3/10/2016

Preparatory Coursework: Must be completed with a grade of C or better

"Major" Status Courses must be completed with a grade of C or higher, and all courses listed in the major requirements must be completed with a grade of C or higher.
**Advanced Electrical Engineering/Science Electives (15 credits)**

Course approval is required from your Engineering Faculty Advisor.

BSE students specializing in Electrical Engineering are required to take 12 credits from the following list of elective courses. Most courses require prerequisites and faculty advisor approval is required. Students should coordinate the other degree requirements to satisfy any prerequisite requirements.

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Description</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCE A445</td>
<td>Computer Design &amp; Interfacing</td>
<td>4</td>
<td>EE A204, EE A241, and CSE A225</td>
</tr>
<tr>
<td>CSCE A365</td>
<td>Computer Networking for Engineers</td>
<td>3</td>
<td>CSE A215</td>
</tr>
<tr>
<td>CSCE A465</td>
<td>Network Security</td>
<td>3</td>
<td>CSE A355</td>
</tr>
<tr>
<td>EE A407</td>
<td>Power Distribution</td>
<td>3</td>
<td>EE A307</td>
</tr>
<tr>
<td>EE A417</td>
<td>Green Electricity</td>
<td>3</td>
<td>EE A353</td>
</tr>
<tr>
<td>EE A451</td>
<td>Digital Signal Processing</td>
<td>3</td>
<td>EE A354</td>
</tr>
<tr>
<td>EE A458</td>
<td>Antenna Theory</td>
<td>3</td>
<td>EE A324</td>
</tr>
<tr>
<td>EE A462</td>
<td>Communication Systems</td>
<td>3</td>
<td>EE A354</td>
</tr>
<tr>
<td>EE A472</td>
<td>Advanced Linear Systems</td>
<td>3</td>
<td>EE A471</td>
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<tr>
<td>EE A494K</td>
<td>Power Electronics</td>
<td>3</td>
<td>EE A307</td>
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<tr>
<td>EE/ME A306</td>
<td>Dynamics of Systems</td>
<td>3</td>
<td>EE A203, ES A208, and MATH A302</td>
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<tr>
<td>PHYS A303</td>
<td>Modern Physics</td>
<td>3</td>
<td>Physics 212</td>
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<td></td>
<td><em>CE A403 or CE A603 (Arctic Engineering)</em></td>
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<td></td>
<td><em>or ES 411 Northern Design (3 credits).</em></td>
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<td><strong>Only one of these courses may be taken.</strong></td>
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</table>

>>>Other courses may also be taken for Advanced Engineering Electives but must first be approved by your engineering faculty advisor and petitioned.

**Advanced Mathematics Electives (3 credits)**

BSE students are required to take 3 credits from the following list of elective courses. Some acceptable electives require additional prerequisite courses. So, students are advised to carefully select the elective that best fits their course history and course plan.

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Description</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH A310</td>
<td>Numerical Methods</td>
<td>3</td>
<td>MATH A314</td>
</tr>
<tr>
<td>MATH A314</td>
<td>Linear Algebra</td>
<td>3</td>
<td>MATH A202</td>
</tr>
<tr>
<td>MATH A321</td>
<td>Analysis of Several Variables</td>
<td>3</td>
<td>MATH A202, MATH A314</td>
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<td>MATH A371</td>
<td>Stochastic Processes</td>
<td>3</td>
<td>MATH A201, STAT A307</td>
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<td>MATH A407</td>
<td>Mathematical Statistics I</td>
<td>3</td>
<td>MATH A202, STAT A307</td>
</tr>
<tr>
<td>MATH A410</td>
<td>Introduction to Complex Analysis</td>
<td>3</td>
<td>MATH A202</td>
</tr>
<tr>
<td>MATH A422</td>
<td>Partial Differential Equations</td>
<td>3</td>
<td>MATH A302</td>
</tr>
<tr>
<td>MATH A423</td>
<td>Advanced Engineering Mathematics</td>
<td>3</td>
<td>MATH A302</td>
</tr>
</tbody>
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