UNIVERSITY FACULTY SENATE FORMS

Academic Program Approval

This form is a routing document for the approval of new and revised academic programs. Proposing department should complete this form. For more information, call the Faculty Senate Office at 831-2921.

Submitted by: __Robert Hunsperger__ phone number __302-831-8031__

Department: __Electrical and Computer Engineering__ email address __hunsperg@ee.udel.edu__

**Action:** _revise the Bachelor of Electrical Engineering degree program_

(Example: add major/minor/concentration, delete major/minor/concentration, revise major/minor/concentration, academic unit name change, request for permanent status, policy change, etc.)

**Effective term** ________

(Example: 09F, 05W)

**Current degree** __BEE__

(Example: BA, BACH, BACJ, HBA, EDD, MA, MBA, etc.)

**Proposed change leads to the degree of:** __BEE__

(Example: BA, BACH, BACJ, HBA, EDD, MA, MBA, etc.)

**Proposed name:** ___________

(Proposed new name for revised or new major / minor / concentration / academic unit of applicable)

**Revising or Deleting:**

- **Undergraduate major / Concentration:** __Electrical Engineering__
  
  (Example: Applied Music – Instrumental degree BMAS)

- **Undergraduate minor:** ___________
  
  (Example: African Studies, Business Administration, English, Leadership, etc.)

- **Graduate Program Policy statement change:** ________________
  
  *(Must attach your Graduate Program Policy Statement)*

- **Graduate Program of Study:** ________________
  
  (Example: Animal Science: MS  Animal Science: PHD  Economics: MA Economics: PHD)

- **Graduate minor / concentration:** ___________

**Note:** all graduate studies proposals must include an electronic copy of the Graduate Program Policy Document, highlighting the changes made to the original policy document.

List new courses required for the new or revised curriculum. How do they support the overall program objectives of the major/minor/concentrations)?

(Be aware that approval of the curriculum is dependent upon these courses successfully passing through the Course Challenge list. If there are no new courses enter “None”)

EGGG 101 is being added to the curriculum as required by the College of Engineering; therefore we need to adjust total credits. The College of Engineering wants a common first semester with all departments. EGGG 101 is 2 credits and will be inserted in the first semester freshmen year. Also, we are replacing ELEG 212, Signals and Communications (4 cr.) with core course, ELEG 305, Linear Systems I (new title, 3 cr.) which will adjust the total credits to 126, which is in line with the total credits of other engineering departments.

**Explain, when appropriate, how this new/revised curriculum supports the 10 goals of undergraduate education:**

[http://www.ugs.udel.edu/gened/](http://www.ugs.udel.edu/gened/)

The curriculum change accomplishes two things: it removes courses from the curriculum that were not working, and it focuses the student’s elective choices. By replacing courses that were primarily intended to excite the students about electrical engineering (ELEG 212 and ELEG 305) and replacing them with courses that seek to deepen their knowledge in fundamental areas (ELEG 305-revised and renamed, and ELEG 306-revised and renamed), the curriculum change supports goal 2, “Learn to think critically to solve problems.”
Identify other units affected by the proposed changes:
(Attach permission from the affected units. If no other unit is affected, enter “None”)
None.

Describe the rationale for the proposed program change(s):
(Explain your reasons for creating, revising, or deleting the curriculum or program.)
The addition of EGGG 101 was required for ECE to join the other engineering departments with a common first semester. The changes involving ELEG 212, ELEG 305, and ELEG 306 were desired to reorganize and update our sequence of signal processing courses.

Program Requirements:
(Show the new or revised curriculum as it should appear in the Course Catalog. If this is a revision, be sure to indicate the changes being made to the current curriculum and include a side-by-side comparison of the credit distribution before and after the proposed change.)
See attached document.

ROUTING AND AUTHORIZATION:  (Please do not remove supporting documentation.)
Department Chairperson __________________________ Date________________
Dean of College __________________________ Date________________
Chairperson, College Curriculum Committee __________________________ Date________________
Chairperson, Senate Com. on UG or GR Studies __________________________ Date________________
Chairperson, Senate Coordinating Com. __________________________ Date________________
Secretary, Faculty Senate __________________________ Date________________
Date of Senate Resolution __________________________ Date to be Effective________________
Registrar __________________________ Program Code __________________________ Date________________
Vice Provost for Academic Programs & Planning __________________________ Date________________
Provost __________________________ Date________________
Board of Trustee Notification __________________________ Date________________
Revised 5/02/06 /khs

Proposed - strikeout indicates changed ELEG course credits; shaded rows are proposed course addition:

UD Catalog, Bachelor of Electrical Engineering degree program to read:

UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing (minimum grade C-) ...................... 31F
First Year Experience .......... 0-4
Discovery Learning Experience .......... 3

MAJOR REQUIREMENTS

Breadth Requirements .......................................................... 181-4
College Breadth Requirements. One of these courses must fulfill the University multicultural requirement.

One of the following four courses must be taken:
33F
ENGL 301 Expository Writing
ENGL 312 Written Communications in Business
ENGL 410 Technical Writing
ENGL 415 Writing for the Professions

EGGG 101 Introduction to Engineering 21F
MATH 241 Analytic Geometry and Calculus A 41F
MATH 242 Analytic Geometry and Calculus B 41S
MATH 243 Analytic Geometry and Calculus C 42F
MATH 341 Differential Equations with Linear Algebra I 32S
MATH 342 Differential Equations with Linear Algebra II 33F
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CHEM 103</td>
<td>General Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 207</td>
<td>Fundamentals of Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 208</td>
<td>Fundamentals of Physics II</td>
<td>4</td>
</tr>
<tr>
<td>CISC 106</td>
<td>Introduction to Computer Science I</td>
<td>3</td>
</tr>
<tr>
<td>CISC 181</td>
<td>Introduction to Computer Science II</td>
<td>3</td>
</tr>
<tr>
<td>CISC 220</td>
<td>Data Structures</td>
<td>3</td>
</tr>
<tr>
<td>CPEG 202</td>
<td>Introduction to Digital Systems</td>
<td>3</td>
</tr>
<tr>
<td>CPEG 222</td>
<td>Microprocessor Based Systems</td>
<td>4</td>
</tr>
<tr>
<td>ELEG 205</td>
<td>Analog Circuits I</td>
<td>4</td>
</tr>
<tr>
<td>ELEG 242</td>
<td>Signals and Communications</td>
<td>4</td>
</tr>
<tr>
<td>ELEG 305</td>
<td>Linear Systems I</td>
<td>3</td>
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<tr>
<td>ELEG 309</td>
<td>Electronic Circuit Analysis I</td>
<td>4</td>
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<tr>
<td>ELEG 310</td>
<td>Random Signals and Noise</td>
<td>3</td>
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<td>ELEG 320</td>
<td>Field Theory I</td>
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<td>ELEG 340</td>
<td>Solid State Electronics</td>
<td>3</td>
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<td>ELEG 403</td>
<td>Communication Systems Engineering</td>
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<tr>
<td>ELEG 491</td>
<td>Ethics and Impacts of Engineering</td>
<td>2</td>
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</tbody>
</table>

Four of the following six courses must be taken: 3S, 4
- ELEG 413 Field Theory II
- ELEG 306 Digital Signal Processing
- ELEG 312 Electronic Circuit Analysis II
- ELEG 341 Solid State Electronics II
- ELEG 428 System Analysis and Control
- ELEG 403 Communication Systems Engineering

**Design Requirement**
In addition to the content of the normal program, every student must take at least four credits in ELEG courses designated as "design." Regularly offered design courses include ELEG 410, ELEG 438, ELEG 450 and ELEG 456. Other courses may be offered irregularly which satisfy the design requirement. Students should consult with their advisors before selecting their design course or courses.

**Technical Electives**
In addition to the design requirement, each student, in consultation with their advisor, must select a program of technical electives satisfying the following: (1) With some exceptions, technical electives consist of 300-level or above engineering, mathematics, natural sciences, and computer science courses. With the permission of the student's advisor, certain 200-level courses, such as PHYS 211, are permitted. (2) At least 15 technical elective credits must be taken. (3) Of the 15 technical elective credits, at least 9 must be in CPEG or ELEG courses. (4) Of the 9 credits in ELEG or CPEG, at least 6 must be in 400-level or above ELEG or CPEG courses.

**CREDITS TOTAL A MINIMUM OF**

425

126