

# 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:** \_\_\_\_\_ Charles Boncelet \_\_\_\_\_ phone number \_\_\_ 302 831 8008 \_\_\_\_\_

**Department:** \_\_\_ Electrical & Computer Engineering \_\_\_ email address \_\_\_ boncelet@udel.edu \_\_\_

**Action:** \_\_\_\_\_ creation of minor in Electrical & Computer Engineering \_\_\_\_\_  
(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** \_\_\_\_\_ 11F \_\_\_\_\_  
(use format 04F, 05W)

**Current degree** \_\_\_\_\_  
(Example: BA, BACH, BACI, HBA, EDD, MA, MBA, etc.)

**Proposed change leads to the degree of:** \_\_\_\_\_  
(Example: BA, BACH, BACI, HBA, EDD, MA, MBA, etc.)

**Proposed name:** \_\_\_\_\_ Minor in Electrical & Computer Engineering \_\_\_\_\_  
Proposed new name for revised or new major / minor / concentration / academic unit (if applicable)

### Revising or Deleting:

**Undergraduate major / Concentration:** \_\_\_\_\_  
(Example: Applied Music – Instrumental degree BMAS)

**Undergraduate minor:** \_\_\_\_\_ Electrical & Computer Engineering \_\_\_\_\_  
(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")

**Explain, when appropriate, how this new/revised curriculum supports the 10 goals of undergraduate education: <http://www.ugs.udel.edu/gened/>**

A minor in Electrical & Computer Engineering supports the 10 goals as follows:

- Goal 1: It will assist students in their understanding of quantitative reasoning and information technology.
- Goal 2: Solving problems is an essential engineering skill.
- Goals 3, 4, and 6: Depending on the specific courses selected, these goals can also be enhanced.

**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.)

Many students from outside the Electrical & Computer Engineering department have asked about minoring in ECE. The ECE department feels it will be advantageous to offer a minor. The minor might help fill our classes and serves as a potential recruitment tool for additional students. For students in other majors, such as Mechanical Engineering, Physics, or Computer Science, a minor in ECE will help expand their knowledge and capabilities and make them more desirable employees in many jobs.

**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.)

**DESCRIPTION:**

The minor in Electrical & Computer Engineering requires the successful completion of either 15 or more credits in ELEG or CPEG courses or 12 or more credits in ELEG or CPEG courses and the completion of Math 242 or CISC 181 or Physics 208.

The minor is not available to students majoring in Electrical Engineering (ELEG) or Computer Engineering (CPEG).

**RATIONALE:**

Completing 12-15 credits in ECE typically requires the completion of four or five courses. We feel that is enough to demonstrate a sufficient grasp of ECE to justify awarding a minor.

This minor will not be easy to achieve. Currently, Computer Science majors take one CPEG course (CPEG 202, though there is discussion of changing that requirement to CPEG 222). Bioengineering majors take two ELEG courses (ELEG 305 and ELEG 479). No other majors outside ECE are required to take any ELEG or CPEG courses.

We expect most students pursuing the minor will take either Math 242, CISC 181, or PHYS 208, and the three introductory circuits courses, ELEG 205 (4 credits), CPEG 202 (3 credits), and CPEG 222 (4 credits), and an additional 3 credits in upper level ELEG or CPEG courses.

Students in computer science might take CISC 181 and four of the following courses: CPEG 202 (3 credits), CPEG 222 (4 credits), CPEG 323 (3 credits), CPEG 324 (3 credits), CPEG 419 (3 credits), and CPEG 455 (3 credits).

Students with an interest in energy might take PHYS 208, and four of the following courses: ELEG 205 (4 credits), ELEG 415 (3 credits), ELEG 437 (3 credits), ELEG 467 (Electric Power II, 3 credits, will be added to the permanent catalog next year), ELEG 467 (Electric Motors and Generators, 3 credits, will be added to the permanent catalog next year), and ELEG 482 (3 credits).

Students with an interest in mathematics might take MATH 242 and four of the following courses: ELEG 305 (3 credits), ELEG 310 (3 credits), ELEG 403 (3 credits), ELEG 418 (3 credits), and ELEG 471 (3 credits), or CPEG 471 (3 credits).

Students with an interest in physics might take PHYS 208 and four of the following courses: ELEG 205 (4 credits), ELEG 320 (4 credits), ELEG 340 (3 credits), ELEG 341 (3 credits), ELEG 437 (3 credits), ELEG 413 (3 credits), and ELEG 424 (3 credits).

**RESOURCES AVAILABLE:**

All ELEG and CPEG courses for the ECE minor are offered within the ECE department. We do not anticipate any difficulty accommodating any additional students in any of the courses listed above.

MATH 242, CISC 181, and PHYS 208 are all large courses. We expect that all or almost all students pursuing this ECE minor will take at least one of these courses in pursuing their major degree. This minor will not appreciably increase the teaching load in any of these courses.

Students pursuing the minor can get advice from the ECE office and from the Associate Chair for Undergraduate Studies in the ECE department.

**ROUTING AND AUTHORIZATION:**

(Please do not remove supporting documentation.)

Department Chairperson \_\_\_\_\_ Date 12/7/10

Dean of College \_\_\_\_\_ Date 12/8/10

Chairperson, College Curriculum Committee \_\_\_\_\_ Date 12/7/2010

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 Affairs & International Programs \_\_\_\_\_ Date \_\_\_\_\_

Provost \_\_\_\_\_ Date \_\_\_\_\_

Board of Trustee Notification \_\_\_\_\_ Date \_\_\_\_\_