

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: Kenneth Barner phone number (302) 831-6937

Department: Electrical and Computer Engineering email address barner@udel.edu

Action: (1) Add New Concentration and (2) Revise Graduate Policy

(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 08S
(use format 04F, 05W)

Current degree MS, Ph.D
(Example: BA, BACH, BACJ, HBA, EDD, MA, MBA, etc.)

Proposed change leads to the degree of: MS, Ph.D (no change in degree)
(Example: BA, BACH, BACJ, HBA, EDD, MA, MBA, etc.)

Proposed name: Concentration name: Materials and Devices

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: _____
(Example: African Studies, Business Administration, English, Leadership, etc.)

Graduate Program Policy statement change: _____
(Must attach your Graduate Program Policy Statement)

Graduate Program of Study: MS in Electrical and Computer Engineering; PhD in Electrical and Computer Engineering
(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.

Three copies of the graduate policy are attached: (1) old policy [2005], (2) new policy, and (3) new policy with changes highlighted. Note that in addition to the highlighted sections, new material includes the appendices that describe each of the concentrations. The appendices are all new text, and are therefore not highlighted.

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")

None. The concentrations are based on existing courses.

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

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 concentrations provide course structure to each of the sub discipline areas served by the department. Students typically specialize in one of the areas covered by the proposed concentrations. Official concentrations will thus enable them to formally designate a concentrated field of work and add structure to their program. Students following a multidisciplinary or other specialized program of study need not designate a concentration area. Thus adding concentrations will enhance our program, but not limit students (who do not choose concentrations) to specific courses of study.

The requirement that students have a minimum specified GPA to be eligible for the Qualifying Examination is designed to ensure that students demonstrate a certain level of competency before sitting for the examination. Prior results show that students not demonstrating this level of mastery tended to fail the exam. The change also gives students strong motivation for doing well in 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.

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 Affairs & International Programs _____ Date _____

Provost _____ Date _____

Board of Trustee Notification _____ Date _____

Department of Electrical & Computer Engineering

Graduate Studies Concentration in

Materials and Devices

Students in the Materials & Devices (MD) concentration focus on research and coursework in solid-state physics, semiconductor growth, device fabrication, and electro-magnetic measurement & characterization. The MD concentration is available to students in the MScE and Ph.D. degree programs. Students in the MD concentration must complete the following:

Course Requirements

Required Courses

ELEG 646 – Nanoelectronic Device Principles	3 Credits
ELEG 622 – Electronic Materials Processing	3 Credits
ELEG 661 – Materials and Devices Seminar (each semester)	0 Credits

A minimum of two courses from the following:

ELEG 640 – Opto-Electronics	3 Credits
ELEG 648 – Advanced Engineering Electromagnetics	3 Credits
ELEG 639 – Magnetism & Spintronics	3 Credits
ELEG 627 – THz and MMW light generation and detection	3 Credits
ELEG 647 – Optical Properties of Solids	3 Credits
ELEG 650 – Semiconductor Device Design and Fabrication	3 Credits

General Requirements

Students must also complete the general degree requirements as detailed in the Electrical and Computer Engineering Graduate Policy and University Catalog. These requirements include credit requirements and, for Ph.D. and thesis option MScE students, the carrying out of research and completion of a dissertation/thesis.