PURDUE UNIVERSITY
REQUEST FOR ADDITION, EXPIRATION,
OR REVISION OF AN UNDERGRADUATE COURSE
(100-400 LEVEL)

DEPARTMENT: ECE
EFFECTIVE SESSION: F07

REASONS: Please check the items below which describe the purpose of this request.

☐ 1. New course with supporting documents
☐ 2. Add existing course offered at another campus
☐ 3. Expiration of a course
☐ 4. Change in course number
☐ 5. Change in course title
☐ 6. Change in course credit/type
☐ 7. Change in course attributes (department head signature only)
☐ 8. Change in instructional hours
☐ 9. Change in course description
☐ 10. Change in course requisites
☐ 11. Change in semesters offered (department head signature only)
☐ 12. Transfer from one department to another

PROPOSED:

Subject Abbreviation: ECE
Course Number: 665
Long Title: Superconductive Electronic Devices
Short Title: Supercon Elect Devices

EXISTING:

Subject Abbreviation: ECE
Course Number: 665

TERMS OFFERED:

Check All That Apply:
☐ Summer
☐ Fall
☐ Spring

CAMPUS(ES) INVOLVED:

☐ Calumet
☐ Cont Ed
☐ Ft. Wayne
☐ Tech Statewide
☐ W. Lafayette
☐ Indianapolis

Abbreviated title will be entered by the Office of the Registrar if omitted. (22 CHARACTERS ONLY)

CREDIT TYPE:

1. Fixed Credit: Cr. Hrs.
2. Variable Credit Range:
   Minimum Cr. Hrs: (Check One)
   Maximum Cr. Hrs:
3. Equivalent Credit: Yes □ No □
4. Thesis Credit: Yes □ No □

COURSE ATTRIBUTES: Check All That Apply

1. Pass/No Pass Only
2. Satisfactory/Unsatisfactory Only
3. Repeatable
   Maximum Repeatable Credit:
4. Credit by Examination
5. Designator Required
6. Special Fees

Instructional Type

Lecture
Recitation
Presentation
Study
Distance
Clinic
Experiential
Research
Ind. Study
Prac/Observ

Minutes Per Mtg
Meetings Per Week
Weeks Offered
% of Credit Allocated
Delivery Method
Delivery Medium (Audio,
Internet, Live, Two-based, Video)

Cross-Listed Courses

COURSE DESCRIPTION (INCLUDE REQUISITES):

Calumet Department Head Date:
Calumet School Dean Date:

Fort Wayne Department Head Date:
Fort Wayne School Dean Date:

Indianapolis Department Head Date:
Indianapolis School Dean Date:

North Central Department Head Date:
North Central School Dean Date:

West Lafayette Department Head Date:
West Lafayette College/School Dean Date:
West Lafayette Registrar Date:

OFFICE OF THE REGISTRAR
TO: The Faculty of the College of Engineering

FROM: The Faculty of the School of Electrical and Computer Engineering

RE: Deletion of ECE 655

The faculty of the School of Electrical and Computer Engineering has approved the deletion of the following course. This action is now submitted to the Engineering Faculty with a recommendation for approval.

ECE 655  Superconducting Electronic Devices
Sem. 2. Class 3, cr. 3. (Offered in alternate years.)
Prerequisite: ECE 606. Authorized equivalent courses or consent of instructor may be used in satisfying course pre- and co-requisites.

Wave equation called the Bogoliubov-de Gennes equation, consisting of two Schrodinger equations for the electron and time-reversed electron coupled by a 'paring potential' AE(r), is developed and used to describe electronic motion in superconductors. The first half of the course shows how the Bogoliubov-de Gennes equation, combined with a scattering theory of electronic transport, is used to obtain the current-voltage and current-phase relations for various types of superconducting devices. The second half of the course is devoted to a microscopic description of superconductivity, the electron-phonon interaction, experiments that demonstrate the macroscopic phase-coherence of the superconducting state, and defects, such as vortex motion, that limit the performance of superconducting devices.

Reason: Course has not been taught for an extended period of time. Course has been deleted from the curriculum.

Mark J. T. Smith, Head
School of Electrical & Computer Engineering

APPROVED FOR THE FACULTY
OF THE SCHOOLS OF ENGINEERING
BY THE ENGINEERING
CURRICULUM COMMITTEE

ECC Minutes  #10
Date  5-3-07
Chairman ECC