PURDUE UNIVERSITY
REQUEST FOR ADDITION, EXPIRATION,
OR REVOLUTION OF AN UNDERGRADUATE COURSE
(10000-40000 LEVEL)

DEPARTMENT: School of Electrical and Computer Engineering (EFD 83-07) EFFECTIVE SESSION: Fall 2010

INSTRUCTIONS: 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/grade
7. Change in course attributes (department head signature only)
8. Change in instructional hours
9. Change in course description
10. Change in course prerequisites
11. Change in semesters offered (department head signature only)
12. Transfer from one department to another

PROPOSED:
Subject Abbreviation: ECE
Course Number: 47500
Long Title: Senior Participation in Vertically Integrated Projects (VIP) in Electrical and Computer Engineering

EXISTING:
Subject Abbreviation: 
Course Number: 

TERMS OFFERED:
Check All That Apply:
- Summer
- Fall
- Spring

CAMPUS(ES) INVOLVED:
- Calumet
- Cont Ed
- P. Wayne
- Indianapolis
- N. Central
- Tech Statewide
- W. Lafayette

Abbreviated title will be entered by the Office of the Registrar if omitted. (50 characters only)

CREDIT TYPE:
1. Fixed Credit: Cr. Hrs. 
2. Variable Credit Range: Minimum Cr. Hrs. (Check One) To Maximum Cr. Hrs. 1
3. Equivalent Credit: Yes No

SCHEDULE TYPE:
- Lecture
- Recitation
- Presentation
- Laboratory
- Lab Prep
- Studio
- Distance
- Clinic
- Experiential
- Research
- Ind. Study
- Pract/Observe

Minutes Per Min Meetings Per Week Weeks Offered % of Credit Allocated

Cross-Listed Courses

COURSE DESCRIPTION (INCLUDE REQUISITES/RESTRICTIONS):
See attachment

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 Chancellor Date

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

OFFICE OF THE REGISTRAR

317 273 6100
**PURDUE UNIVERSITY**
REQUEST FOR ADDITION, EXPIRATION,
OR REVISION OF AN UNDERGRADUATE COURSE
(10000-40000 LEVEL)

**DEPARTMENT:** School of Electrical and Computer Engineering (ECE 83-07)  **EFFECTIVE SESSION** Fall 2010

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

- [X] 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: 47600
- Long Title: Senior Participation in Vertically Integrated Projects (VIP) in Electrical and Computer Engineering
- Short Title: Senior Part in VIP in ECE

**EXISTING:**
- Subject Abbreviation
- Course Number

**TERMS OFFERED:**
- Check All That Apply:
  - [X] Summer
  - [X] Fall
  - [X] Spring

**CAMPUS(ES) INVOLVED:**
- Calumet
- Conf Ed
- N. Central
- Tech Statewide
- Ft. Wayne
- X. W. Lafayette
- Indianapolis

**ABBREVIATED TITLE WILL BE ENTERED BY THE OFFICE OF THE REGISTRAR IF OMITTED. (30 CHARACTERS ONLY):**

**CREDIT TYPE**
1. Fixed Credit: Cr. Hrs.
2. Variable Credit Range: Minimum Cr. Hrs: (Check One) 1 Or
   Maximum Cr. Hrs: 2
3. Equivalent Credit: Yes [ ] No [ ]

**COURSE ATTRIBUTES:** Check All That Apply
1. Pass/Not Pass Only
2. Satisfactory/Unsatisfactory Only
3. Repeatable
4. Maximum Repeatable Credit:
5. Credit by Examination
6. Registration Approval Type: Department [ ] Instructor [ ]
7. Variable Title
8. Honors
9. Full Time Privilege
10. Off Campus Experience

**Cross-Listed Courses**

**COURSE DESCRIPTION (INCLUDE REQUISITES/RESTRICTIONS):**

See attachment

**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 Chancellor**
Date ____________________________

**West Lafayette Dean**
Date ____________________________

**West Lafayette Registrar**
Date ____________________________

**OFFICE OF THE REGISTRAR**
School of Electrical and Computer Engineering (EFD 83-07)

This course provides an opportunity for undergraduate students to explore and develop comprehensive applications of electrical and computer engineering technologies, especially as they relate to active research areas of Purdue faculty members. Students will learn about the underlying research, and will work on teams to formulate applications of the research that address real-world needs. Students will attend a weekly lecture that provides an introduction to a broad range of applicable technologies and development tools -- some associated with the activities of specific teams, and some addressing topics of more general value to students enrolled in the course.

Restrictions: Must be enrolled in the School of Electrical and Computer Engineering

Prerequisites: Senior standing
TO: The Engineering Faculty
FROM: The Faculty of the School of Electrical and Computer Engineering
RE: New Undergraduate Level Course: ECE 479

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

ECE 479 Senior Participation in Vertically Integrated Projects (VIP) in Electrical and Computer Engineering
Sem: 1 and 2. Class: 1; Lab: 0 or 1; Credit: 1 or 2.
Prerequisite: Senior Standing in Engineering.

This course provides an opportunity for undergraduate students to explore and develop comprehensive applications of electrical and computer engineering technologies, especially as they relate to active research areas of Purdue faculty members. Students will learn about the underlying research, and will work on teams to formulate applications of the research that address real-world needs. Students will attend a weekly lecture that provides an introduction to a broad range of applicable technologies and development tools—some associated with the activities of specific teams, and some addressing topics of more general value to students enrolled in the course.

Reason: This course will provide an opportunity for students to apply the concepts that they are learning in their classes to the solution of real-world problems that are aligned with the research interests of Purdue faculty members. It provides a structured environment for design activities that engage students in team-work under the guidance of faculty members and graduate students. Presently, there is no course offering within ECE that provides this opportunity. The most similar courses are those associated with EPICS; but in contrast to EPICS, VIP focuses on design tasks related to research issues and research applications, rather than providing technology solutions to community needs.

Mark J. T. Smith
Professor and Head

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

ECC Minutes 14
Date 1-22-10
Chairman ECC R. Cipra
Supporting Documentation

Required Text: None.

Recommended References: None.

Course Outcomes: A student who successfully fulfills the course requirements will have demonstrated:

i. an ability to apply knowledge of communications, signal processing, and computer engineering to the design of applications solutions.. [1,2,3,4,5,7;a,b,c,e,l,j,k]
ii. an understanding of design as a start-to-finish process.. [3,4,6,7;b,c,e,f,h,k]
iii. an awareness of the customer in engineering design and professional and ethical responsibility.. [6,7;f,g,h,j]
iv. an ability to function as part of a team and an appreciation for the contributions of other individuals on the team.. [6,7;d,f,g,h,j]
v. an ability to communicate effectively with both technical and non-technical audiences.. [6,d,g]

Assessment of Outcomes: Each student will be required to keep his or her own design notebook. Students will be evaluated individually and as part of their team on the basis of their design notebooks, midterm and final design presentations, homework assignments that will be collected and graded, and final oral examinations conducted by faculty team advisors.
Lecture Outline:

Weeks Lectures
1-15 All students in VIP have one common lecture hour each week. During this hour, students will attend lectures that address a broad range of electrical and computer engineering technologies including topics that are relevant to the team projects and the development of applications based on these technologies. Lectures also address good design principles, project management, and project communications.

Lab Outline:

Week Major course milestones
2 Team Organization and Semester Planning
3 Personal Semester Goals
4 Project Proposal (new projects); Project Demonstration (continuing projects)
5 Review of Design Notebooks
8 Peer Evaluation and Self Assessment
9 Progress Report
11 Midterm Project Review
15 Final Project Presentation, Team Report; Review of Design Notebooks; Peer Evaluation and Self Assessment

Additional Information:

Lectures will be drawn from a pool of 36 different lectures; so students can register for VIP courses as many as three times and still see new lecture material each semester. Together, the VIP courses in ECE create a vertical project track under which students work in multidisciplinary teams on long-term engineering projects. Each team consists of a mix of sophomores, juniors, and seniors. Projects of at least one year in duration are intended to solve real problems that are defined in consultation with advisors who are Purdue faculty members, graduate students, or representatives of industry or the end-user population. Students are encouraged to participate in a VIP team for two or more semesters. Projects that serve customers from community service or educational organizations will be conducted within the EPICS framework rather than VIP.