## Credit Type

<table>
<thead>
<tr>
<th>1. Fixed Credit: Cr. Hrs.</th>
<th>2. Variable Credit Range:</th>
<th>3. Equivalent Credit:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Minimum Cr. Hrs. (Check One) To</td>
<td>Yes No</td>
</tr>
<tr>
<td>2</td>
<td>Maximum Cr. Hrs.</td>
<td></td>
</tr>
</tbody>
</table>

## Course Attributes

|-----------------------|-------------------------------------|---------------|-------------------------|----------------|----------------------------------------|------------------|----------|------------------------|--------------------------|

## Course Description (Include Requisites/Restrictions)

See attachment

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**Institutional Signatures**

**Calumet Department Head**

**Calumet School Dean**

**Fort Wayne Department Head**

**Fort Wayne School Dean**

**Indianapolis Department Head**

**Indianapolis School Dean**

**North Central Department Head**

**North Central Chancelor**

**West Lafayette College School Dean**

**West Lafayette Registrar**

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**Office of the Registrar**
DEPARTMENT: School of Electrical and Computer Engineering (EFD 81-07) EFFECTIVE SESSION: Fall 2010

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

<table>
<thead>
<tr>
<th><strong>PROPOSED:</strong></th>
<th><strong>EXISTING:</strong></th>
<th><strong>TERMS OFFERED:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject Abbreviation: <strong>ECE</strong></td>
<td>Subject Abbreviation</td>
<td>Check All That Apply:</td>
</tr>
<tr>
<td>Course Number: 27900</td>
<td>Course Number</td>
<td>☑ Summer ☑ Fall ☑ Spring</td>
</tr>
<tr>
<td>Long Title: Sophomore Participation in Vertically Integrated Projects (VIP) in Electrical and Computer Engineering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Short Title: Soph Part in VIP in ECE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Abbreviated title will be entered by the Office of the Registrar if omitted. (20 CHARACTERS ONLY)

CREDIT TYPE

1. Fixed Credit: Cr. Hrs. | 1. Pass/Not Pass Only
2. Variable Credit Range: Minimum Cr. Hrs. (Check One) | 2. Satisfactory/Unsatisfactory Only
   Maximum Cr. Hrs.  | 3. Repeatable
3. Equivalent Credit: Yes No | 4. Credit by Examination

COURSE ATTRIBUTES: Check All That Apply

| 6. Registration Approval Type | 7. Variable Title
| Department | Instructors |
| 10. Off-Campus Experience |

Schedule Type | Minutes Per Mtg Meetings Per Week | Weeks Offered | % of Credit Allocated
Lecture | 50 | 3 | 16 | 100
Recitation |
Presentation |
Laboratory |
Lab Prep |
Studio |
Distance |
Clinic |
Experiential |
Research |
Ind. Study |
Pract/Observ |

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
TO: The Engineering Faculty
FROM: The Faculty of the School of Electrical and Computer Engineering
RE: New Undergraduate Level Course: ECE 279

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 279 Sophomore 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: Sophomore 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.

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

ECC Minutes #14
Date 1-22-10
Chairman ECC R. Opis

Mark J. T. Smith
Professor and Head
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 electrical and computer engineering to the design of applications solutions. [1,3,4,5,7;a,b,c,l,k]
ii. an understanding of design as a start-to-finish process. [3,4;b,c,e,k]
iii. an awareness of the customer in engineering design. [6,7;c,f,g,h,i]
iv. an ability to function as part of a team and an appreciation for the contributions of other individuals on the team. [6;d,f,g,h]
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:

<table>
<thead>
<tr>
<th>Weeks</th>
<th>Lectures</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-15</td>
<td>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.</td>
</tr>
</tbody>
</table>

Lab Outline:

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

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.
School of Electrical and Computer Engineering (EFD 81-07)

Description: 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: Sophomore standing