PURDUE UNIVERSITY
REQUEST FOR ADDITION, DELETION, OR REVISION OF A COURSE

DEPARTMENT: Electrical & Computer Engineering

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

1. Deletion of a course
2. New course with supporting documents
3. Add existing course offered at another campus
4. Change in course number at same level
5. Downgrading of course level
6. Upgrading of course level
7. Change in course title
8. Change in semesters offered
9. Change in course credit/type
10. Change in course attributes
11. Change in instructional hours
12. Change in prerequisites
13. Change in description of course content
14. Transfer of course from one dept. to another

EXISTING:
Subject Abbreviation: EE
Course Number: 512
Proposed Title: Advanced VLSI Devices
Variable Title: Yes
Abbreviated Title: Advanced VLSI Devices

PROPOSED:
Subject Abbreviation: ECE
Course Number: 612

CROSS LISTED COURSES

<table>
<thead>
<tr>
<th>Instructional Type</th>
<th>Class Hours</th>
<th>FTE</th>
<th>Instructional Type</th>
<th>Class Hours</th>
<th>FTE</th>
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</thead>
<tbody>
<tr>
<td>Primary</td>
<td>3</td>
<td></td>
<td>Auto-tutorial</td>
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<td>Secondary</td>
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<td>Ind. Study</td>
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<td>Laboratory</td>
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<td>Clinic</td>
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<td>Lab. Prep.</td>
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<td>Experiential</td>
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CREDITS
1. Fixed Credit: 3
2. Variable Credit Range:
   - Minimum Cr. Hrs: (Check One) To
   - Maximum Cr. Hrs: (Check One) Or
3. Equivalent Credit: Yes
4. Thesis Credit: Yes

COURSE ATTRIBUTES:
1. Pass/No Pass Only
2. Repeatable for Credit
3. Available for Credit by Examination
4. Designator Required
5. Special Fees
6. Approval Required for Enrollment

INSTRUCTIONAL CAMPUS(ES) INVOLVED
- Calumet
- Fort Wayne
- Indianapolis
- North Central
- West Lafayette
- Off Campus

COURSE DESCRIPTION (PREREQUISITES INCLUDED):
Prerequisite: EE 505 or equivalent.
Device physics of advanced transistors. Process, device, circuit, and systems considerations affecting development of new integrated circuit technologies. Review of metal oxide semiconductor (MOS) fundamentals along with key process and circuit concepts. Short channel effects in sub-micron channel length metal oxide semiconductor field-effect transistors (MOSFETs) including device scaling considerations. Device physics and technology issues for sub-100 nm (nanoscale) MOSFETs. Limits of silicon device technology and key issues in the continuing miniaturization of devices. Alternative device structures to replace bulk MOSFET. Computer simulation employed throughout course to examine device issues and prototype new device technologies.

Professor Lundstrom.

Calumet Undergrad Curriculum Committee Date

Calumet Department Head Date

Calumet School Dean Date

Fort Wayne Department Head Date

Fort Wayne School Dean Date

Fort Wayne Chancellor #949 9/5/01

Appr. for Faculty C. D. Sutton, Chair

Indianapolis Department Head Date

Indianapolis School Dean Date

Undergrad Curriculum Committee Date

APPROVED 11/15/01

North Central Department Head Date

North Central Vice Chancellor Date

Graduate Council Secretary 7/5/02

West Lafayette Department Head Date

West Lafayette School Dean Date

Debra Shull 7/5/02

Graduate Area Committee Convener Date

Graduate Dean Date

West Lafayette Registrar Date

OFFICE OF THE REGISTRAR