

DEPARTMENT School of Electrical and Computer Engineering

DATE SUBMITTED 12/7/2001

DATE EFFECTIVE Fall 2002

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

PURPOSE

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

EXISTING:

PROPOSED:

Subject Abbreviation EE  
Course Number 670

Subject Abbreviation EE **ECE**  
Course Number 670

SEMESTERS OFFERED

Check All That Apply.  
Summer  Fall  Ag Winter  Spring

Proposed Title Modeling and Optimization of High-Performance Interconnects

Variable Title Yes  No

Abbreviated Title

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

CROSS LISTED COURSES

CREDIT TYPE

- Fixed Credit: Cr. Hrs. 3
- Variable Credit Range:  
Minimum Cr. Hrs  Or   
Maximum Cr. Hrs.
- Equivalent Credit: Yes  No
- Thesis Credit: Yes  No

COURSE ATTRIBUTES: Check All That Apply.

- Pass/Not Pass Only
  - Repeatable for Credit
  - Available for Credit by Examination
  - Designator Required
  - Special Fees
  - Approval Required for Enrollment
- Department   
Instructor

Instructional Type	Class Hours	FTE	Instructional Type	Class Hours	FTE	Instructional Type	Class Hours	FTE	CAMPUS(ES) INVOLVED
Primary	3		Auto-tutorial			Thesis			<input type="checkbox"/>
Secondary			Ind. Study			Observation			<input type="checkbox"/>
Laboratory			Clinic			Matis Based			<input type="checkbox"/>
Lab. Prep.			Experiential						<input checked="" type="checkbox"/>
									Calumet <input type="checkbox"/>
									Fort Wayne <input type="checkbox"/>
									Indianapolis <input type="checkbox"/>
									North Central <input type="checkbox"/>
									West Lafayette <input checked="" type="checkbox"/>
									Off Campus <input type="checkbox"/>

COURSE DESCRIPTION (PREREQUISITES INCLUDED):

Prerequisites: EE 559 (or equivalent) and EE 608 (or equivalent), or consent of instructor.  
RLC extraction of VLSI interconnects. Modeling of interconnects as RLC trees or networks. Elmore delay model. Reduced-order modeling: moment matching, Padé approximation, and Krylov-subspace methods. Device modeling with consideration of resistive shielding in the interconnection load. Delay calculation with consideration of devices and interconnects. Repeater insertion and planning at floorplanning. Timing-driven placement: zero-slack algorithm for delay budgeting, net-based placement, path-based placement. High-performance clock synthesis: zero-skew routing, bounded-skew routing, useful-skew routing. Term projects investigating interconnect-related issues will be assigned. Professor Koh.

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	Date
Indianapolis Department Head	Date	Indianapolis School Dean	Date	Appr. for Faculty	#958
				C.D. Sutton, Chair	2/1/02
				Undergrad Curriculum Committee	Date
				APPROVED	4/18/02
North Central Department Head	Date	North Central Vice Chancellor	Date	Date Approved by Graduate Council	
West Lafayette Department Head	Date	West Lafayette School Dean	Date	Graduate Council Secretary	Date
Graduate Area Committee Convener	Date	Graduate Dean	Date	West Lafayette Registrar	Date

