



SACRAMENTO STATE

# Program Proposal Form B



Academic Group (College): <b>Engineering and Computer Science</b>	Date of Submission to College Dean:
Academic Organization (Department): <b>Electrical and Electronic Engineering</b>	Requested Effective: Fall __, Spring <u>X</u> , 2010.
Department Chair: <b>Suresh Vadhva</b>	Contact if not Department Chair: <b>Perry L Heedley</b>

Title of the Program (Please be specific; indicate minor, undergraduate or graduate degree, etc.):  
**Certificate Program in Mixed-Signal Integrated Circuit Design (graduate level)**

Type of Program Proposal:

- Modification in Existing Program:
  - Substantive Change
  - Non-Substantive Change
  - Deletion of Existing Program
- New Programs
  - Initiation (Projection) of New Program on to Master Plan
  - New Degree Programs
    - Regular Process
    - Fast Track Process
    - Pilot Process
  - New Minor, Concentration, Option, Specialization, Emphasis
  - New Certificate Program

PLEASE NOTE: Form B is to be used only as a Cover Form. Additional information is requested for each of the above as noted in the corresponding procedure in the Policies and Procedures for Initiation, Modification, Review and Approval of Courses and Academic Programs found at <http://www.csus.edu/manual/acad.htm>

Briefly describe the program proposal (new or change) and provide a justification.

Graduate students studying mixed-signal integrated circuit (IC) design take several courses focused in this area to become knowledgeable and proficient in the different skills this demanding field requires. This requires studying multiple subjects such as amplifier design, device physics and matching, analog layout techniques, and key mixed-signal building blocks. In addition, they need to learn the methods and tools used to design and layout ICs. This new certificate in mixed-signal integrated circuit design will recognize the commitment and accomplishments of graduate students studying in this area, and provide potential employers with evidence of the skills these students have developed. No additional fiscal or space resources are required.

Approvals:

Department Chair: Suresh Vadhva Date: 10/12/2009

College Dean: John Colebury Date: 10/14/09

University Committee: \_\_\_\_\_ Date: \_\_\_\_\_

Associate Vice President and Dean for Academic Affairs: \_\_\_\_\_ Date: \_\_\_\_\_

## Proposed Requirements for the Certificate Program in Mixed-Signal Integrated Circuit Design (graduate level)

### Itemized list of required courses :

1. EEE 230 (3 units) Analog & Mixed-Signal Integrated Circuit Design
2. EEE 231 (3 units) Advanced Analog & Mixed Signal Integrated Circuit Design
3. EEE 232 (3 units) Key Mixed-Signal Integrated Circuit Building Blocks
4. EEE 236 (3 units) Advanced Semiconductor Devices
5. EEE 235 (1 units) Mixed-Signal Integrated Circuit Design Laboratory

### Plus one of the following elective courses :

1. EEE 234 (3 units) Digital Integrated Circuit Design
2. EEE 238 (3 units) Advanced VLSI Design-For-Test I
3. EEE 239 (3 units) Advanced VLSI Design-For-Test II
4. EEE 110 (3 units) Advanced Analog Integrated Circuits

**TOTAL = 16 units**

### Certificate Program in Mixed-Signal Integrated Circuit Design

This certificate in mixed-signal integrated circuit design will recognize the commitment and accomplishments of graduate students studying in this area, and provide potential employers with evidence of the skills students have developed. Graduate students studying mixed-signal integrated circuit (IC) design will become knowledgeable and proficient in the different skills this demanding field requires. This requires studying multiple subjects such as amplifier design, device physics and matching, analog layout techniques, and key mixed-signal building blocks. In addition, students will learn the methods and tools used to design and layout ICs.

<b>NEW PROGRAM</b>	<b>OLD PROGRAM</b>
<b>A. Required Courses</b>	
(13 units)	
<b>EEE 230 (3 units)</b>	+++++
Analog & Mixed-Signal Integrated Circuit Design	
<b>EEE 231 (3 units)</b>	+++++
Adv Analog & Mixed Signal Integrated Circuit Design	
<b>EEE 232 (3 units)</b>	+++++
Key Mixed-Signal Integrated Circuit Building Blocks	
<b>EEE 236 (3 units)</b>	+++++
Advanced Semiconductor Devices	

**EEE 235 (1 unit)**

+++++

Mixed-Signal Integrated Circuit Design Laboratory

**B. Elective Courses**

(select 1 from the following list)

**EEE 234 (3 units)**

+++++

Digital Integrated Circuit Design

**EEE 238 (3 units)**

+++++

Advanced VLSI Design-For-Test I

**EEE 239 (3 units)**

+++++

Advanced VLSI Design-For-Test II

**EEE 110 (3 units)**

+++++

Advanced Analog Integrated Circuits