10-28-2004

Curricular Report No. 2004-2005-1 from the Graduate Council to the Faculty Senate: Proposed Graduate Certificate in VLSI Design

University of Rhode Island Faculty Senate

UNIVERSITY OF
Rhode Island

Faculty Senate

Serial Number #04-05--3

TO: President Robert L. Carothers

FROM: Chairperson of the Faculty Senate

1. The attached BILL, titled Curricular Report No. 2004-2005-1 from the Graduate Council to the Faculty Senate: Proposed Graduate Certificate in VLSI Design, is forwarded for your consideration.
2. The original and two copies for your use are included.
3. This BILL was adopted by vote of the Faculty Senate on October 28, 2004.
4. After considering this bill, will you please indicate your approval or disapproval. Return the original or forward it to the Board of Governors, completing the appropriate endorsement below.
5. In accordance with Section 10, paragraph 4 of the Senate's By-Laws, this bill will become effective November 18, 2004 three weeks after Senate approval, unless: (1) specific dates for implementation are written into the bill; (2) you return it disapproved; (3) you forward it to the Board of Governors for their approval; or (4) the University Faculty petitions for a referendum. If the bill is forwarded to the Board of Governors, it will not become effective until approved by the Board.

October 29, 2004
(date)

G. Faye Boudreaux-Bartels
Chairperson of the Faculty Senate

ENDORSEMENT

TO: Chairperson of the Faculty Senate

FROM: President of the University

Returned.

a. Approved ✓.

b. Approved subject to final approval by Board of Governors ___.

c. Disapproved ___.

11/8/04
(date)

President

Form revised 9/98

UNIVERSITY OF RHODE ISLAND
The Graduate School

Curricular Report from the Graduate Council to the Faculty Senate
Report No. 2004-2005, 1

At Meeting No. 396 held on 8 October 2004, the Graduate Council approved the following proposal that is now submitted to the Faculty Senate.

SECTION I
BACKGROUND INFORMATION

ABSTRACT

The Graduate Council approved a proposal from the Department of Electrical Engineering of the College of Engineering for a Post-baccalaureate Certificate program in Very Large Scale Integrated (VLSI) circuits. The program is designed to address what is seen as the need of working engineers for advanced training in the design and testing of very large scale integrated circuits. The program will be made up entirely of existing courses and will be offered in Kingston and on-site at regional companies or agencies.

BACKGROUND

The proposal states:

Regional entities such as ON Semiconductor in East Greenwich, Texas Instruments in Attelboro, and the Naval Undersea Warfare Center in Newport hire engineers to work in the area of semiconductor design of very large scale integrated (VLSI) circuits. These engineers typically have an undergraduate degree in engineering and they have a need for graduate level VLSI courses in order to advance in their profession. Some, but not all, of these engineers are interested in obtaining a Master's degree. Because they are part-time students, many do not want to pursue a Master's, but would be interested in a certificate focused on VLSI.

The proposal was reviewed under the process established by the Faculty Senate in which the Graduate Council serves as the Coordinating and Review Committee. Announcements of the receipt of the proposal were sent to the Provost and the Council of Deans, the Budget Office, and Department Chairs and Directors. Recommendations were sought from each of these. The Budget Office reviewed the proposal with the understanding that no additional budgetary resources would be required for its implementation. The Council of Deans unanimously endorsed the program. Comments remain on file in the Graduate School.

SECTION II
RECOMMENDATION

The Graduate Council approved the proposal for the Post-baccalaureate Certificate Program at its meeting number 396 on 8 October 2004, and forwards it to the Faculty Senate at the Class C* level with a recommendation for approval.

* **8.85.30 Classification**. When new programs are approved by the Faculty Senate, approval may be classified as follows: approval Class A will mean that the program is deemed to be of such merit as to justify the recommendation of the immediate allocation of funds for its implementation; approval Class B would recommend that proposed new programs compete for resources on an equal basis with all other University activities; approval Class C would recommend funding of the proposed new program should additional funds be made available to the University.

A Proposal for a Graduate Certificate in VLSI Design and Test
Spring, 2004

1. Name of Department: Electrical and Computer Engineering

2. Title of proposed program: Graduate Certificate in VLSI Design and Test

3. Intended date of implementation: Fall 2004

4. Anticipated date of granting first certificate: Spring 2005. (Note that most of the courses associated with this certificate program have been offered at ON Semiconductor in East Greenwich for the past two years.)

5. Intended location of the program: Separate programs will be offered at Kingston as well as on site at regional companies or agencies. Students in an on-site (off-campus) offering would have to register separately to enroll in an on-campus course.

6. Description of the program:

(a) Program goals and objectives

In order to meet the need of working engineers for advanced training in the design and test of very large scale integrated (VLSI) circuits, this certificate program consists of a choice of three courses in this field, subject to certain distribution requirements. This program will contribute to the professional advancement of the engineers who complete it.

(b) Course Requirements: Four courses, at least one each from the following groups, for a total of 13 to 15 credits.

At least one of the following Device Physics courses:
ELE 531 Solid State Engineering I
ELE 532 Solid State Engineering II
ELE 533 Bipolar Devices
ELE 534 MOS Devices

At least one of the following Design courses:
ELE 447 Digital Integrated Circuit Design I
ELE 535 BiCMOS Integrated Circuit Design
ELE 537 Digital Integrated Circuit Design II
ELE 539 Analog Integrated Circuit Design
ELE 545 Design of Digital Circuits

At least one of the following Testing courses:
ELE 540 Theory of Integrated Circuit Testing
ELE 541 Semiconductor Test Engineering Instrumentation

(c) Workforce or professional development need:

Regional entities such as ON Semiconductor in East Greenwich, Texas Instruments in Attelboro,
and the Naval Undersea Warfare Center in Newport hire engineers to work in the area of semiconductor design of very large scale integrated (VLSI) circuits. These engineers typically have an undergraduate degree in engineering and they have a need for graduate level VLSI courses in order to advance in their profession. Some, but not all, of these engineers are interested in obtaining a Master's degree. Because they are part-time students, many do not want to pursue a Master's, but would be interested in a certificate focused on VLSI.

(d) Existing graduate curriculum:

All courses in this proposed certificate program are currently offered in the Department of Electrical and Computer Engineering as part of its graduate program

(e) Admission requirements:

A B.S. degree in engineering with sufficient background in semiconductor physics and electronics as determined by a review of the student's transcript. The GRE test will not be required. Note that admission into this certificate program does not imply admission into a Master's program.

(f) Completion requirements:

A grade of C+ or better in each of the three courses and a total GPA of 3.0 or better for the three courses. The courses must be completed within a three year period, and no courses can be transferred from another university for this certificate program.

(g) Faculty:

The faculty for this certificate program will be drawn from full-time and adjunct faculty currently associated with the graduate programs offered by the Department of Electrical and Computer Engineering.

(h) Administration:

This certificate program will be administered by the Electrical and Computer Engineering Graduate Program Director in consultation with the Department Chair. Administration of this certificate program will be part of the normal duties of the Graduate Program Director and Department Chair.

(i) Advising

The Graduate Program Director in the Department of Electrical and Computer Engineering will provide advising to all students in the certificate program.

(j) Budget

This program is made up of existing courses and the administration and advising will be part of the regular duties of the Graduate Program Director and Department Chair. Thus, no additional resources are required to offer this program.

(k) Links to the M.S. program in electrical engineering:

Admission into this certificate program does not imply admission into the M.S. program. However, interested students may apply for the M.S. program through the usual channels. If a student is accepted into the Master's program, the courses taken for the certificate may be used toward the M.S. degree.