9-26-1974

Bachelor of Science Degree in Electronic Computer Engineering

University of Rhode Island Faculty Senate

Chr-Pres LTR 11-7-74

Serial Number 74-75--8

UNIVERSITY OF RHODE ISLAND
Kingston, Rhode Island

FACULTY SENATE
BILL

Adopted by the Faculty Senate

TO: President Frank Newman

FROM: Chairman of the Faculty Senate

1. The attached BILL, titled Bachelor of Science Degree in Electronic Computer Engineering ,

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 September 26, 1974 . (date)

4. After considering this bill, will you please indicate your approval or disapproval. Return the original or forward it to the Board of Regents, completing the appropriate endorsement below.

5. In accordance with Section 8, paragraph 2 of the Senate's By-Laws, this bill will become effective on October 17, 1974 (date), 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 Regents for their approval; or (4) the University Faculty petitions for a referendum. If the bill is forwarded to the Board of Regents, it will not become effective until approved by the Board.

September 30, 1974
(date)

Albert J Lott
Albert J. Lott
Chairman of the Faculty Senate

ENDORSEMENT 1.

TO: Chairman of the Faculty Senate

FROM: President of the University

1. Returned.

2. Approved ✓ . Disapproved _____ .

3. (If approved) In my opinion, transmittal to the Board of Regents is not necessary.

11/7/74
(date)

Frank Newman
President

(OVER)

Form revised 6/74

ALTERNATE ENDORSEMENT 1.

TO: Chairman of the Board of Regents

FROM: The University President

1. Forwarded.

2. Approved.

_____ _____

(date) President

ENDORSEMENT 2.

TO: Chairman of the Faculty Senate

FROM: Chairman of the Board of Regents, via the University President.

1. Forwarded.

_____ _____

(date)

_____

(Office)

ENDORSEMENT 3.

TO: Chairman of the Faculty Senate

FROM: The University President

1. Forwarded from the Chairman of the Board of Regents.

_____ _____

(date) President

Original received and forwarded to the Secretary of the Senate and Registrar for filing in the Archives of the University.

_____ _____

(date)

Chairman of the Faculty Senate

4-year B.S. program in the Department of Electrical Engineering

ELECTRONIC COMPUTER ENGINEERING

FRESHMAN YEAR

First Semester

*CHM 101 General Chemistry Lecture I	3
*CHM 102 Laboratory for CHM 101	1
EGR 101 Introduction to Engineering and/or EGR 102 Basic Graphics	1-2
MTH 141 Introductory Calculus with Analytic Geometry	3
General education electives in Division A,C or D	6
	14-15

Second Semester

CSC 201 Introduction to Computing	3
MTH 142 Intermediate Calculus with Analytic Geometry	3
EGR 102 Basic Graphics (if not taken in first semester)	0-1
MCE 161 Mechanics I (preferred) or MCE 162 Statics or PHY 213 and 285 Elementary Physics and Physics Laboratory	3-4
General education electives in Division A, C or D	6
	15-17

SOPHOMORE YEAR

First Semester

†MTH 243 Calculus and Analytic Geometry of Several Variables	3
†ELE 210 Introduction to Electricity and Magnetism	3
MCE 263 Dynamics	3
CSC 410 Introduction to Computer Science and Algorithmic Processes *** or **Professional Elective	3
General education elective in Division A, C or D	3
	15

Second Semester

†ELE 211 Linear Systems and Circuit Theory I	3
†ELE 215 Electrical Measurements	2
CSC 410 Introduction to Computer Science and Algorithmic Processes or CSC 411 Computer Organization and Programming (Note A)	3
PHY 223 Introduction to Acoustics and Optics	3
General education electives in Division A, C or D	6
	17

JUNIOR YEAR

First Semester

ELE 312 Linear Systems and Circuit Theory II	4
ELE 322 Electromagnetic Fields I	3
MTH 362 Linear and Complex Analysis for Scientists and Engineers	3
PHY 340 Introduction to Modern Physics	3
General education elective in Division A or C	3
	16

Second Semester

ELE 313 Linear Systems	3
CSC 411 Computer Organization and Programming or CSC 412 Programming Systems	3
ELE 342 Electronics I	4
MCE 341 Fundamentals of Thermodynamics or PHY 420 Introduction to Thermodynamics and Statistical Mechanics	3
General education elective in Division A or C	3
	16

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* Required for graduation and recommended for freshman year, but not a prerequisite for the computer engineering courses of the sophomore and junior years.

** MTH 215 Introduction to Algebraic Structures or other course approved by the department of Electrical Engineering.

† Prerequisite for advanced work in computer engineering and should be taken before the junior year.

*** Substitute "CSC 311 Machine and Assembly Language Programming" if this course is approved in 1973/74

(A) Substitute CSC 311 or CSC 410 if CSC 311 is approved in 1973/74.

Summary of important features 9/26/74

(For information only, not part of official Senate bill)

ELECTRONIC COMPUTER ENGINEERING

A. Rationale for the proposed option

1. Responds to student interest in stronger preparation for the design of digital computers and other digital systems (such as hand-held calculators, digital communication systems and digital industrial controls)
2. Provides better undergraduate preparation for a field where employment opportunities are still growing
3. Makes optimum use of departmental facilities provided through past and present research and graduate activities
4. Follows recommendations (published May 1973) of a committee of the National Academy of Engineering which studied computer engineering

B. Advantages of an undergraduate option starting in the Freshman year (rather than the Senior year)

1. Earlier exposure to principles of computer "hardware" and "software" will make possible more advanced work within the four year B.S. program (particularly more advanced and realistic laboratory projects in Junior and Senior years).
2. The more extensive education in computer engineering will improve the students position in the job market.
3. A formal four-year option will provide greater visibility for the program in the state and nationwide and thus is likely to attract better students.

C. Impact on URI and Rhode Island

1. A strong program in general education, science and engineering is organized in such a way as to provide an immediately marketable skill for R. I. residents.
2. Well prepared engineers who can design digital computers, or systems incorporating digital components, are in strong demand in Rhode Island as everywhere in the Northeast. The availability of educational programs in this area is a factor in attracting desirable industry.

D. Resources required

1. No new resources are required. The recent (1974/75) addition of a new faculty position to the department of Computer Science should more than compensate for demands placed upon that department by the requirement of CSC courses in the proposed engineering program (which is not likely to increase enrollment in CSC courses by more than 5 to 10 students; see enrollment trends on p. 177 of Addendum to "Agenda for Meeting No. 16").
2. A recent (July 1974) $60,000 grant by the F. M. Roddy Charitable Trust to the College of Engineering for expansion of the Computer Graphics laboratory makes possible rapid development of an excellent hardware facility which is used for independent projects of undergraduate students as well as for research.

E. Recommendations and endorsements

1. Letter from Dr. W. Hemmerle, chairman, department of Computer Science (page 179 of Addendum to "Agenda for Meeting No. 16").
2. COSINE (Computer Sciences in Electrical Engineering) reports of the National Academy of Engineering (pages 185-192 of Addendum to "Agenda for Meeting No. 16").

Details of program are given on pages 171-192 of "Faculty Senate, Addendum to the Agenda for Meeting No. 16, May 19, 1974"