

2005

## Curricular Affairs Committee Report #432

University of Rhode Island Faculty Senate

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**University of Rhode Island**

**Faculty Senate**

April 6, 2005

***Faculty Senate Curricular Affairs Committee***

***Four Hundred Thirty-Second Report***

**At the March 28, 2005 meeting of the Curricular Affairs Committee the following matters were considered and are now presented to the Faculty Senate.**

SECTION I

Informational Matters

A. College of Engineering

Department of Electrical and Computer Engineering

- a. CHANGE: Prerequisite for ELE 212 to “Pre: PHY 204 and credit or concurrent enrollment in MTH 244 or 362.”
- b. CHANGE: Description and prerequisite for ELE 305 as follows:

ELE 305 Introduction to Computer Architecture (3)

Introduction to CPU, instruction set architecture, instruction pipeline, hazard avoidance and branch prediction. Concept and evaluation of cache memory and memory management. Bus architecture and input and output interfaces. (Lec. 3) Pre: 201 and 202 and one of 205 or 208.

B. Policies adopted by the Curricular Affairs Committee in response to technical issues related to PeopleSoft implementation:

- 1. Prerequisites must be clear as to whether the courses in lists of requirements are “and” or “or” rather than continuing the use of the comma
- 2. The phrase “or equivalent” may be replaced with “or permission of instructor” and would serve the same intended purpose.
- 3. When a maximum number of repeatable credits is not specified, each department may provide Enrollment Services with a maximum number. This could be done without approval through the curricular process.

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## SECTION II

### Curricular Matters Which Require Confirmation by the Faculty Senate

#### A. College of Arts and Sciences

##### Film Studies Program

CHANGE: Name of program and minor to "Film Media."

#### B. College of Engineering

##### Department of Electrical and Computer Engineering

a. ADD: The following new courses:

1) ELE 207 Introduction to Biomedical Engineering (3)

Introduction to topics in biomedical engineering. Overview of human physiology, biomechanics, bioinstrumentation, rehabilitation engineering, assistive technologies, medical imaging, and bioelectricity. Ethical issues related to the impact of bioengineering on society. (Lec. 3) Pre: PHY 204 and MTH 142 and BIO 121.

2) ELE 208 Introduction to Computing Systems (3)

Bits, binary representations, digital logic structures, the von Neumann computing model, the machine and assembly language, interrupt and traps, input and output, subroutines, stack and high-level programming in computing systems. (Lec. 2, Lab. 3) Pre: credit or concurrent enrollment in MTH 141.

b. CHANGE: ELE 343 by reducing credits to 4 and method of instruction to (Lec. 3, Lab. 3).

c. CHANGE: Title, description, method of instruction and prerequisite for ELE 306 as follows:

ELE 306 Electronic Design Automation Laboratory (4)

Digital design, simulation, synthesis and verification using electronic design automation tools. IEEE VHDL hardware description language and rapid prototyping with FPGAs. Register transfer level design with reusable modules and cores. (Lec. 3, Lab. 3) Pre: 201 and 202.

- d. CHANGE: Curriculum for Electrical Engineering to read as follows:

### Electrical Engineering Program

#### Minimum Requirements

Humanities and Social Sciences (27 credits): see the General Education requirements for the university. Two courses in English Communication (EC, ECw) (at least one writing course), two courses in Fine Arts and Literature (A), two courses in Letters (L), two courses in Social Sciences (S) (one is ECN 201), one course in Foreign Language /Cross-cultural Competence (FC).

Mathematics (14-17 credits): MTH 141, 142, 243, 362, (451).

Basic Sciences (19 credits): CHM 101, 102; PHY 203, 273, 204, 274, 205, 275, 306.

Computer Science (4 credits): CSC 200.

Technical Elective (3-4 credits): Chosen from ELE 305, 325, IME 404, 412; MTH 215, 244 any 300- to 500-level mathematics course except MTH 381; or an additional electrical engineering design elective.

Engineering Sciences and Design (59-64 credits): (IME411); EGR 105, 106; ELE 201, 202, 205, 212, 215, 306, 313, 314, 322, 331, 342, 343, 400; five electrical engineering design elect (chosen from ELE 401, 405, 408, 423, 427, 432, 436, 437, 444, 447, 457, 458, 488, 489; two of these courses must be chosen from ELE 405, 408, 427, 436, 444, 447, 458, or 489).

Free Elective: 3 credits (any course)

The major requires 132-134 credits.

Electrical Engineering Curriculum

Freshman Year

First semester: 16 credits

1 EGR 105 Foundations of Engineering I

3 CHM 101 General Chemistry Lecture I

1 CHM 102 Laboratory for Chemistry 101

4 MTH 141 Introductory Calculus with Analytic Geometry

3 PHY 203 Elementary Physics I

1 PHY 273 Elementary Physics Laboratory I

3 General Education requirement

Second semester: 17 credits

2 EGR 106 Foundations of Engineering II

3 ECN 201 Principles of Economics: Microeconomics

4 MTH 142 Intermediate Calculus with Analytic Geometry

3 PHY 204 Elementary Physics II

1 PHY 274 Elementary Physics Laboratory II

Sophomore Year

First semester: 17 credits

4 CSC 200 Computer Problem Solving for Science and Engineering

3 MTH 362 Advanced Engineering Mathematics

3 PHY 205 Elementary Physics III

1 PHY 275 Elementary Physics Laboratory III :

3 ELE 201 Digital Circuits Design

1 ELE 202 Digital Circuits Design Laboratory

6 General Education requirements

Second semester: 17 credits

3 MTH 243 Calculus for Functions of Several Variables

3 PHY 306 Elementary Modern Physics

3 ELE 212 Linear Circuit Theory

2 ELE 215 Linear Circuits Laboratory

3 ELE 205 Microprocessor Laboratory

3 General Education requirement

Junior Year

First semester: 16 credits

4 ELE 342 Electronics I

3 ELE 313 Linear Systems

3 MTH 451 OR IME 411

3 ELE 331 Introduction to Solid State Devices

3 General Education requirement

Second semester: 17 credits

3 ELE 314 Linear Systems and Signals

3 ELE 322 Electromagnetic Fields I

4 ELE 343 Electronics II

4 ELE 306 Electronic Design Automation

3 General Education requirement

Senior Year\* Total credits for two semesters: 31-34

1 ELE 400 Introduction to Professional Practice

3-4 Technical elective\*\*\*

6 General Education requirements

3 Free elective

18-20 Five Electrical engineering design electives\*\*\*

\* See your advisor for help in preparing a suitable senior-year program.

\*\* A technical elective for this curriculum is one of the following courses: ELE 305, 325, IME 404, 412; MTH 215, 244, or any 300- to 500-level mathematics course except MTH 381; or an additional electrical engineering design elective.

\*\*\* Electrical engineering design electives may be chosen from any five of the following courses: ELE 401, 405, 408, 423, 427, 432, 437, 444, 447, 457, 458, 488, 489. However, two of the courses must be chosen from ELE 408, 427, 436, 444, 447, 458, or 489.

e. CHANGE: Curriculum for Biomedical Engineering to read as follows:

#### BIOMEDICAL ENGINEERING CURRICULUM

##### Minimum Requirements

The major requires 134-135 credits.

Humanities and Social Sciences (27 credits): see the General Education requirements for the College of Engineering, listed on page 72. Students should consult with their advisors regarding distribution of credits and approved courses.

Mathematics (17 credits): MTH 141, 142, 243, 362, three credits MTH elective (215, any 300- to 500- level course except MTH 381).

Basic Sciences (23 credits): CHM 101, 102, 124; PHY 203, 273, 204, 274; BIO 121, 442, 444.

Computer Science (3 credits): CSC 200.

Engineering Sciences and Design (61-62 credits): EGR 105, 106, ELE 201, 202, 205, 212, 215, 282, 305, 313, 314, 322, 342, 343, 382, 400, 482, 488, 489; two engineering electives (chosen from CHE 333, 347, 547; CVE 220, 374; ELE 331, 423; IME 404, 411, 412; and MCE 323, 341, 354.); two electrical engineering electives (chosen from ELE 401, 405, 408, 427, 432, 436, 437, 444, 447, 457, and 458).

Free Elective: 3 credits.

## Biomedical Engineering Curriculum

### Freshman Year

First Semester: 16 credits

3 CHM 101 General Chemistry Lecture I

1 CHM 102 Laboratory for Chemistry 101

1 EGR 105 Foundations of Engineering I

4 MTH 141 Introductory Calculus with Analytic Geometry

3 PHY 203 Elementary Physics I

1 PHY 273 Physics Laboratory I

3 General Education requirement

### Freshman Year

Second Semester: 17 credits

3 ECN 201 Principles of Economics: Microeconomics

2 EGR 106 Foundations of Engineering II

4 MTH 142 Intermediate Calculus with Analytic Geometry

3 PHY 204 Elementary Physics II

1 PHY 274 Physics Laboratory II

4 BIO 121 Human Anatomy

### Sophomore Year

First Semester: 17 credits

3 CHM 124 Introduction to Organic Chemistry

3 CSC 200 Introduction to Computer Programming for Engineers

3 ELE 201 Digital Circuits Design

1 ELE 202 Digital Circuits Design Laboratory



1 ELE 282 Biomedical Engineering Seminar I

3 MTH 362 Advanced Engineering Mathematics I

3 General Education requirement

Sophomore Year

Second Semester. 17 credits

3 ELE 212 Linear Circuit Theory

2 EIE 215 Linear Circuit Laboratory

3 ELE 207 Introduction to Bioengineering

3 MTH 243 Calculus for Functions of Several Variables

3 General Education requirement

Junior Year

First Semester: 18 credits

3 ELE 205 Microprocessor Laboratory

3 ELE 313 Linear Systems

4 ELE 342 Electronics I

1 ELE 382 Biomedical Engineering Seminar II

3 BIO 442 Mammalian Physiology

1 BIO 444 Experimental Physiology

3 General Education requirement

Junior Year

Second Semester: 18 credits

3 ELE 314 Linear Systems and Signals

3 ELE 322 Electromagnetic Fields I

4 ELE 343 Electronics II

1 ELE 482 Biomedical Engineering Seminar III

3 Engineering elective 1

3 General Education requirement

Senior Year

First Semester: 16-17 credits

4 ELE 488 Biomedical Engineering I

3-4 Electrical engineering design elective 2

3 Engineering elective 1

3 Mathematics elective 3

3 General Education requirement

Senior Year

Second Semester: 15 credits

1 ELE 400 Introduction to Professional Practice

4 ELE 489 Biomedical Engineering II

4 Electrical engineering design elective

3 Free elective

3 General Education requirements

f. CHANGE: Curriculum for Computer Engineering to read as follows

Computer Engineering

Minimum Requirements

The major requires 128-131 credits.

Humanities and Social Sciences (27 credits) See the General Educational Requirements for the College of Engineering. Students should consult their advisors regarding distribution of credits and approved courses. (ECN 201 is included in the 27 credit total.)

Mathematics (20 credits) MTH 141, 142, 243, 362, 447, IME 411 or MTH 451.

Basic Science (12 credits) CHM 101, 102; PHY 203, 273, 204, 274.

Computer Science (at least 12 credits) CSC 211, 212, 412, and from CE electives.

Engineering Sciences and Design (42 credits) ELE 201, 202, 208, 212, 215, 305, 306, 313, 342, 400, 405, 408, 437; EGR480.

Computer Engineering Elective (13-16 credits) From the following courses: any ELE 300- or 400-level course not otherwise required by the major, any ELE 500-level course with petition, and CSC 301, 305, 402, 406, 415, 436, and 481.

Free Elective (3 credits) A free elective is any course.

College of Engineering (3 credits) EGR105 (1) and EGR106 (2)

#### Computer Engineering Curriculum

##### Freshman Year

First semester: 16 credits

3 CHM 101 General Chemistry Lecture I

1 CHM 102 Laboratory for Chemistry 101

1 EGR 105 Foundations of Engineering I

4 MTH 141 Introductory Calculus with Analytic Geometry

3 PHY 203 Elementary Physics I

1 PHY 273 Elementary Physics Laboratory I

3 General Education Requirement

Second semester: 16 credits

3 ELE 208 Introduction to Computing Systems

3 ECN 201 Principles of Economics: Microeconomics

2 EGR 106 Foundations of Engineering II

4 MTH 142 Intermediate Calculus with Analytic Geometry

3 PHY 204 Elementary Physics II

1 PHY 274 Elementary Physics Laboratory II

Sophomore Year

First semester: 17 credits

4 CSC 211 Introductory Programming and Design

3 ELE 201 Digital Circuits Design

1 ELE 202 Digital Circuits Design Laboratory

3 MTH 362 Advanced Engineering Mathematics I

6 General Education Requirements

Second semester: 15 credits

4 CSC 212 Data Structures and Abstractions

3 ELE 212 Linear Circuit Theory

2 ELE 215 Linear Circuit Laboratory

3 MTH 243 Calculus for Functions of Several Variables

3 General Education Requirement

Junior Year

First semester: 16 credits

3 ELE 305 Introduction to Computer Architecture

4 ELE 342 Electronics I

3 ELE 313 Linear Systems

3 MTH 451 Introduction to Probability and Statistics

3 General Education Requirement

Second semester: 17 credits

4 ELE 306 Electronic Design Automation Laboratory

4 CSC 412 Operating Systems and Networks

3 MTH/CSC 447 Discrete Mathematical Structures

6 General Education Requirements

Senior Year

31-34 credits

4 ELE 405 Digital Computer Design

3 ELE 437 Computer Communications

1 ELE 400 Introduction to Professional Practice

4 ELE 408 Computer Organization Laboratory

13-16 Computer Engineering Electives

3 General Education Requirement

3 Free Elective

### C. College of the Environment and Life Sciences

#### Department of Natural Resources Science

ADD: The following minors:

1) GIS and Remote Sensing. This minor field of specialization provides students in-depth training in the use of GIS and Remote Sensing technology and application of geospatial data processing methods of environmental problem solving. Students who declare minor in GIS and remote Sensing must complete 18 credit hours consisting of the following core courses: NRS 409, NRS 410, NRS 415, NRS 516, and NRS 522. The remaining credits may be taken from NRS 423, NRS 524, NRS 533, or CPL 511. Students minoring in GIS and Remote Sensing are encouraged to take capstone courses that allow (NRS 522, 524).

2) Soil Environmental Science. This minor field of specialization provides students in-depth training in the application of soils information to solve environmental problems and issues. Students fulfilling the requirements of the Soil Environmental Science minor meets the qualifications for basic membership in the Society of Soil Scientists of Southern New England, are eligible for certification as a soil scientist under the American Registry of Certified Professional Soil Scientists, and meet the requirements for federal job listings under soil scientists. Students who declare a minor in Soil Environmental Science must complete 18 credits from the following courses: NRS 212, NRS 312, NRS 351, NRS 361, NRS 412, NRS 426, NRS 450, NRS 452, NRS 471, NRS 510, NRS 567, or GEO 515. Students minoring in Soil Environmental Science are encouraged to take a capstone courses that allow them to apply their analytical skills in a real-world application (NRS 450, 452).

3) Wildlife and Conservation Biology. This minor field of specialization provides students in-depth training in, the principles of managing wildlife populations and their habitats. Students who declare a minor in Wildlife and Conservation Biology must complete at least 8 credits of NRS courses within the WCB major curriculum, at least 12 of these 18 credits must be at the 200 level or higher, and all courses in the minor must be taken for a letter grade. Students minoring in Wildlife and Conservation Biology are encouraged to take a capstone courses that allow them to apply their analytical skills in a real-world application (NRS 402, 403 or NRS 423, 424).

#### D. College of Human Science and Services

##### 1. School of Education

CHANGE: Catalog description of teacher certificate program as follows:

Teacher Education Programs - Certification. Page numbers refer to 04-05 Catalog

##### 1) Page 41 (04-05 Catalog) under Teacher Education Programs - Certification

Current text reads: A teaching certificate is, for all practical purposes, a license to teach in a given state, at a specific level and in a certain type of job. Rhode Island, like other states, requires its public elementary and secondary teachers to hold certificates to ensure that students are taught only by persons who meet specified standards of preparation, health, citizenship, and moral character.

Add to this paragraph: Students in the School of Education, graduate and undergraduate certification and licensure programs, will be required to take and pass a content area exam(s) in their area of certification and W1Y other exam required for state licensure prior to student teaching or final internship. Contact the Office of Teacher Education for the "passing" scores required for each discipline.

2) Page 104 (04-05 Catalog) - Under Program Requirements:

Current text reads: Failure to return grade averages to acceptable standing after one semester leads to dismissal from the program.

Add to this paragraph: Students in the School of Education, graduate and undergraduate certification and licensure programs, will be required to take and pass a content area exam(s) in their area of certification and any other exam required for state licensure prior to student teaching or final internship. Contact the Office of Teacher Education for the "passing" scores required for each discipline.

3) Page 156 (04-05 Catalog)- Under Teacher Certification:

Current text reads: A test of basic skills is required as part of the application process.

REPLACE with: Passing the PPST is required as part of the application process: Reading 172, Writing 171, Math 171 or a score of 1100 on the SAT is required as part of the application process.

Page 156 - (04-05 Catalog) Under Teacher Certification:

a) Current text reads: Students admitted to the TCP program are governed by the same academic standards as matriculated graduate students.

Add to this paragraph: Students in the School of Education, graduate and undergraduate certification and licensure programs, will be required to take and pass a content area exam(s) in their area of certification and any other exam required for state licensure prior to student teaching or final internship. Contact the Office of Teacher Education for the "passing" scores required for each discipline.

b) Current text reads: Students admitted to the TCP program are governed by the same academic standards as matriculated graduate students.

Add to this paragraph: Students in the School of Education, graduate and undergraduate certification and licensure programs, will be required to take and pass a content area exam(s) in their area of certification and any other exam required for state licensure prior to student teaching or final internship. Contact the Office of Teacher Education for the "passing" scores required for each discipline.

## 2. Department of Textiles, Fashion Merchandising and Design

DELETE: TMD 340 Historic Costume (3) pending approval of TMD 441



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### SECTION III

Joint Report of the Curricular Affairs Committee and Graduate Council on 400-level courses

At the February 14, March 7, and March 28, 2003 the Curricular Affairs Committee and the April 4, 2005 meeting of the Graduate Council the following matters were considered and are now presented to the Faculty Senate.

#### A. Informational Matter

College of Human Science and Services

Department of Textiles, Fashion Merchandising and Design

CHANGE: Prerequisite for TMD 440 to "Pre: 303 and 313 or permission of instructor."

#### B. Curricular Matters Which Require Confirmation by the Faculty Senate

##### 1. College of Arts and Sciences

Department of Sociology and Anthropology

CHANGE: Level and number and prerequisite for APG 317 as follows:

APG 417 (317) Archeological Method and Theory (3) ... Pre: permission of instructor.

##### 2. College of Human Science and Services

Department of Textiles, Fashion Merchandising and Design

ADD: TMD 441 History of Western Dress (3)

Study of western dress from earliest civilizations to early 20th century and factors that affect design, production and use; material culture analysis of a pre-twentieth century garment or accessory. (Lec.3) Pre: 303 and 313 or permission of instructor.