

THE
UNIVERSITY
OF RHODE ISLAND
FACULTY SENATE OFFICE

Green Hall, 35 Campus Avenue, Kingston, RI 02881 USA p: 401.874.2616



Serial Number #17-18-9B

TO: President David Dooley
FROM: Mark Conley, Chairperson of the Faculty Senate

1. The attached BILL titled, The Five Hundred and Forty-third Report of the Curricular Affairs Committee: Curricular Proposals, is forwarded for your consideration.
2. This BILL was adopted by vote of the Faculty Senate on November 16, 2017.
3. After considering this bill, will you please indicate your approval or disapproval. Return the original, completing the appropriate endorsement below.
4. In accordance with Section 10, paragraph 4 of the Senate's By-Laws, this bill will become effective December 7, 2017 three weeks after Senate approval, unless: (1) specific dates for implementation are written into the bill; (2) you return it disapproved; or (3) the University Faculty petitions for a referendum.

Mark Conley
Chairperson of the Faculty Senate

November 16, 2017

ENDORSEMENT

TO: Chairperson of the Faculty Senate

FROM: President of the University

- a. Approved ☒.
- b. Approved subject to Notice of the Council on Postsecondary Education ____.
- c. Disapproved ____.

Signature of the President

11.28.17
(date)

UNIVERSITY OF RHODE ISLAND FACULTY SENATE November 16, 2017

Faculty Senate Curricular Affairs Committee Five Hundred and Forty-third Report

At the October 23, 2017 meeting of the Curricular Affairs Committee and by electronic communication, the following matters were considered and are now presented to the Faculty Senate.

SECTION II Curricular Matters Which Require Confirmation by the Faculty Senate

PROGRAM PROPOSALS

COLLEGE OF THE ENVIRONMENT AND LIFE SCIENCES:

BS in Geology and Geological Oceanography: (see Appendix A)

To transfer from University College to the College of the Environment and Life Sciences as a Geology & Geological Oceanography major (or be coded as such in the College of the Environment and Life Sciences), a student must have earned at least a 2.0 grade point average in a minimum of 30 total credits, as well as a minimum of a B- in GEO 103; a minimum of a C in CHM 101, and a minimum of a C+ in Pre-calculus (MTH 103 or MTH 111) or a C in Calculus (MTH 131 or MTH 141).

COLLEGE OF ENGINEERING:

BS in Biomedical Engineering: (see Appendix B)

Updating of the BME curriculum to reflect changes in supporting courses from the Biology department, BIO 121 (4) replaced by BIO 220 (3), BIO 221 (1) and BIO 242 (3) and 244 (1) replaced by BIO 222 (3) and 223 (1).

BS in Mechanical Engineering: (see Appendix C)

The Mechanical Engineering program currently has a requirement that all students enroll in ISE 220 during the Sophomore Year. With this change, ISE 220 will no longer be a requirement for the Mechanical Engineering BS degree.

As a result of these changes, the total number of credits required for graduation will drop from 121 to 120.

Notice of Change form

Notice of Change for: Geology and Geological Oceanography

Date: September 5, 2017

A. PROGRAM INFORMATION

1. Name of institution

University of Rhode Island

2. Name of department, division, school or college

Department: Geosciences

College: Environment and Life Sciences

3. Intended initiation date of program change. Include anticipated date for granting first degrees or certificates, if appropriate.

Initiation date: September 2017

First degree date: September 2018

4. Intended location of the program

Kingston, RI

5. Summary description of proposed program (not to exceed 2 pages).

6. If applicable, please include the existing URI catalog language and proposed catalog changes indicated in Track Changes.

To transfer from University College to the College of the Environment and Life Sciences as a Geology & Geological Oceanography major (or be coded as such in the College of the Environment and Life Sciences), a student must have earned at least a 2.0 grade point average in a minimum of 30 total credits, as well as a minimum of a B- in GEO 103; a minimum of a C in CHM 101, and a minimum of a C+ in Pre-calculus (MTH 103 or MTH 111) or a C in Calculus (MTH 131 or MTH 141).

7. Signature of the President

David M. Dooley

Geology and Geological Oceanography

The Department of Geosciences offers a single degree: the B.S. in geology and geological oceanography, with two options, a geology option and a geological oceanography option. This degree is designed for students with an interest in earth, environmental, or oceanographic science careers or affiliated fields such as environmental law and earth/environmental science education. The two options allow students to take specialty courses focusing on a range of geoscience topics such as environmental geology/hydrogeology, sedimentology/stratigraphy/paleontology, coastal geology/oceanography, geochemistry/petrology, or geophysics/tectonics, and supporting elective courses chosen from geosciences, natural resources science, environmental economics, and oceanography. Students may use their supporting electives to pursue in-depth study within a given field or to broaden their interdisciplinary perspective. Students are required to complete an interdisciplinary core of introductory courses including GEO 103-Understanding Earth (4), NRS 100-Natural Resource Conservation (3), and EEC 105-Introduction to Resource Economics (3); geosciences core courses including GEO 204-Problem-solving in Earth History (4), GEO 210-Landforms: Origins and Evolution (4), GEO 320-Earth Materials (4), GEO 370-Structure of the Earth (4), and GEO 450-Introduction to Sedimentary Geology (4); supporting science/mathematics courses including MTH 131 (3) or 141 (4); MTH 132 (3) or 142 (4); BIO 101 (3) and 103 (1), 102 (3) and 104 (1) or GEO/BIO 272 (4) or CHM 124 (3), 126 (1); CHM 101 (3), 102 (1), 112 (3), 114 (1); STA 308 (4) or 409 (3); PHY 111 (3), 185 (1) or 203 (3), 273 (1), and PHY 112 (3), 186 (1) or 204 (3), 274 (1); and 12 credits of supporting electives taken at the 200-level or above from GEO, NRS, EEC, OCG or from another program with prior approval from the GEO department chair. Double majoring in Geology and Geological Oceanography works well with other B.S. granting programs in CELS and also many Engineering programs.

GEO 480, 491, 497, and 499 and OCG 493/494 are capstone experiences available for this major. Internship experiences are encouraged; credit may be awarded through GEO397 if work is appropriate.

To transfer from University College to the College of the Environment and Life Sciences as a Geology & Geological Oceanography major (or be coded as such in the College of the Environment and Life Sciences), a student must have earned at least a 2.0 grade point average in a minimum of 30 total credits, as well as a minimum of a B- in GEO 103; a minimum of a C in CHM 101, and a minimum of a C+ in [Pre-calculus \(MTH 103 or MTH 111\)](#) or a C in [Calculus \(MTH 131 or MTH 141\)](#).

A total of 120 credits and a 2.00 grade point average within the major are required for graduation.

Geology Option. This option allows students the flexibility to define their own area of concentration within the geosciences. Students selecting this option complete GEO 483—Hydrogeology (4); GEO 480 (4–6) or a GEO elective at the 200-level or above; and an additional GEO elective at the 200-level or above chosen in consultation with their advisor. Example areas

of concentration include environmental geology/hydrogeology, sedimentary geology/stratigraphy, and geophysics/tectonics.

Geological Oceanography Option. Students completing this option will be well prepared to pursue careers in either conventional geology/earth science or geological oceanography. Students selecting this option complete three upper-level oceanography courses including OCG 301—General Oceanography (3) or OCG 451—Oceanographic Science (3), OCG 440 or 540—Geological Oceanography (4), and an OCG elective taken at the 400-level or above; and a 3-credit senior research project, OCG 493 or 494—Special Problems and Independent Study in Oceanography (3), taken in the Graduate School of Oceanography (GSO), under the direction of a GSO faculty member. Students entering the URI Graduate School of Oceanography from this program will have a significant head start compared with those entering from most other undergraduate institutions.

Department of Geosciences website: uri.edu/geo/

Notice of Change form

Notice of Change for: BS in Biomedical Engineering

Date: Sept. 1, 2017

A. PROGRAM INFORMATION

1. Name of institution

University of Rhode Island

2. Name of department, division, school or college

Department: Electrical, Computer, and Biomedical Engineering

College: Engineering

3. Intended initiation date of program change. Include anticipated date for granting first degrees or certificates, if appropriate.

Initiation date: Sept. 5, 2018

First degree date: December 31, 2018

4. Intended location of the program

Kingston

5. Summary description of proposed program (not to exceed 2 pages).

Updating of the BME curriculum to reflect changes in supporting courses from the Biology department.

6. If applicable, please include the existing URI catalog language and proposed catalog changes indicated in Track Changes.

The biomedical engineering major requires 123–124 credits.

Freshman Year First semester: 15 credits

CHM 101 (3), 102 (1); ECN 201 (3); EGR 105 (1); MTH 141 (4); and general education outcome(s)¹ (3).

Second semester: 17 credits

BME 181 (1); CHM 124 (3); EGR 106 (2); MTH 142 (4); PHY 203 (3), 273 (1); and general education outcome(s)¹ (3).

Sophomore Year First semester: 16 credits

BIO ~~121~~ ~~(4)~~ 220 (3), 221 (1); BME 281 (1); ELE 201 (3), 202 (1); MTH 362 (3); and PHY 204 (3), 274 (1).

Second semester: 15 credits

BIO ~~242~~ 222 (3), ~~244~~ 223 (1); BME 207 (3); ELE 212 (3), 215 (2); and MTH 243 (3).

Junior Year First semester: 16 credits

BIO 341 (3); BME 307 (3), 360 (3), 361 (1); ELE 313 (3); and general education outcome(s)¹ (3).

Second semester: 16 credits

BME 362 (3), 363 (1); ELE 314 (3); ISE 311 (3) or STA 409 (3); general education outcome(s)¹ (6).

Senior Year First semester: 14–15 credits

BME 461 (3), 464 (3), 465 (1), 484 (3) [**capstone**]; ELE 400 (1); and approved professional elective² (3–4).

Second semester: 14 credits

BME 466 (3), 468 (3), 485 (2) [**capstone**]; and general education outcome(s)¹ (6).

¹ *General Education Outcomes (A1–D1)*: if all outcomes are satisfied in fewer spaces than provided, you must take a course of your choice (Free Elective) to fill each remaining space in order to meet the required earned credit total of your degree plan. A complete detailing of these requirements are listed in the college's curriculum requirements section of this catalog.

² *Professional Elective Requirement*: One (1) course from the following: CHE 333, 347, 574; CSC 522; ELE 322, 338/339, 343/344, 435/436, 437, 438, 444/445, 447/448, 458/459, 470, 501, 506; ISE 304, 312; MCE 341, 354, 372; MTH 442, 451, 462, 471; **with prior approval** of the Electrical, Computer, and Biomedical Engineering department chairperson, any other 300-, 400-, or 500-level College of Engineering course not required by the BME major.

7. Signature of the President

David M. Dooley

Name _____

ID # _____

BIOMEDICAL ENGINEERING - Class of 2022**(DRAFT)****120-121 Credits**

SPECIFIED MATH, SCIENCE, AND ENGINEERING COURSES											
INTRODUCTORY ENGINEERING						ENGINEERING SCIENCE AND DESIGN (MAJOR)					
Sem	Course	Cr	Grade	QP	Note	Sem	Course	Cr	Grade	QP	Note
	EGR 105 (A4)	1					BME 181	1			
	EGR 106 (A4)	2					BME 207	3			
		3					BME 281	1			
SUPPORTING ENGINEERING							BME 307	3			
	ELE 201	3					BME 360	3			
	ELE 202	1					BME 361	1			
	ELE 212	4					BME 362	3			
	ELE 215	1					BME 363	1			
	ELE 313	3					BME 461	3			
	ELE 314	3					BME 464	3			
	ELE 400	1					BME 465	1			
		16					BME 466	3			
NATURAL SCIENCES							BME 468	3			
	BIO 220	3					BME 484 [capstone] (D1)	3			
	BIO 221	1					BME 485 [capstone] (D1)	2			
	BIO 222	3									
	BIO 223	1						34			
	BIO 341	3				**PROFESSIONAL ELECTIVE					
	CHM 101 (A1)	3						3-4			
	CHM 102	1				MATHEMATICS					
	CHM 124	3					MTH 141 (A1 & B3)	4			
	PHY 203 (A1)	3					MTH 142 (B3)	4			
	PHY 273 (A1)	1					MTH 243 (A1 & B3)	3			
	PHY 204 (A1)	3					MTH 362	3			
	PHY 274 (A1)	1					STA 409 or ISE 311	3			
		26						17			
*GENERAL EDUCATION OUTCOMES											
Sem	Course	Cr	Grade	QP	Note	Sem	Course	Cr	Grade	QP	Note
Science, Technology, Engineering, and Math (STEM) (A1)						Civic Knowledge & Responsibilities (C1)					
---	CHM & PHY (see above)	11	---	---	---						
Social and Behavioral Sciences (A2)						Global Responsibilities (C2)					
	ECN 201	3									
Humanities (A3)						Diversity & Inclusion (C3)					
Arts & Design (A4)						Ability to Synthesize (D1)					
---	EGR 105 & 106 (see above)	3	---	---	---	---	BME 484 & 485 (see above)	5	---	---	---
Write Effectively (B1)						Grand Challenge (at least one course must be coded with a "G")					
Communicate Effectively (B2)						Free Elective					
						If you fulfill all Outcomes in fewer spaces than indicated on page one, you must use those					
Mathematical, Statistical, or Computational Strategies (B3)						additional spaces to take course(s) of your choice to reach your degree credit total (120-121)					
---	MTH (see above)	11	---	---	---						
Information Literacy (B4)											

* **General Education Outcomes:** at least 40 credits must be completed. (A1-D1) must be met by at least three credits. A single course may satisfy one or two outcomes, and at least one course must be a "Grand Challenge". No more than twelve credits can be from the same course code except HPR. General education courses may also be used to meet requirements of your major(s) or minor(s) when appropriate.

** **Professional Elective - One (1)** course from the following: CHE 333, 347, 574; CSC 522; ELE 322, 338/339, 343/344, 435/436, 437, 438, 444/445, 447/448, 458/459, 470, 501, 506; ISE 304, 312; MCE 341, 354, 372; MTH 442, 451, 462, 471; with prior approval of the ECBE department chairperson any other 300-, 400-, or 500- level College of Engineering course not

BIOMEDICAL ENGINEERING - Class of 2022 (Draft)

Total Credits = 120- 121

Freshman Year *Fall* Semester

Course Code	Description	Cr	
CHM 101	General Chemistry Lec I (A1)	3	
CHM 102	General Chemistry I Lab	1	
ECN 201	Principles of Microeconomics (A2)	3	
EGR 105	Foundations of Engineering I (A4)	1	
MTH 141 +	Calculus I (A1, B3)	4	
	General Education Outcome(s)*	3	

15

Freshman Year *Spring* Semester

Course Code	Description	Cr	
BME 181	Biomedical Engineering Seminar I	1	
CHM 124 +	Intro to Organic Chemistry	3	
EGR 106	Foundations of Engineering II (A4)	2	
MTH 142 +	Calculus II (B3)	4	
PHY 203	Elementary Physics I (A1)	3	
PHY 273	Elementary Physics Lab I (A1)	1	
	General Education Outcome(s)*	3	

17

Sophomore Year *Fall* Semester

Course Code	Description	Cr	
BIO 220	Human Anatomy & Physiology I	3	
BIO 221	Human Anatomy & Physiology Lab I	1	
BME 281	Biomedical Engineering Seminar II	1	
ELE 201	Digital Circuits Design	3	
ELE 202	Digital Circuits Design Lab	1	
MTH 362	Advanced Engineering Mathematics I	3	
PHY 204	Elementary Physics II (A1)	3	
PHY 274	Elementary Physics Lab II (A1)	1	

16

Sophomore Year *Spring* Semester

Course Code	Description	Cr	
BIO 222	Human Anatomy & Physiology II	3	
BIO 223	Human Anatomy & Physiology Lab II	1	
BME 207	Intro to Biomedical Engineering	3	
ELE 212 +	Linear Circuit Theory	4	
ELE 215	Linear Circuits Lab	1	
MTH 243 +	Calculus for Functions of Several Vars (A1, B3)	3	

15

Admission to the COE required for enrollment in "300" level and higher COE courses. Admission requires at least a 2.0 cumulative GPA and a C- or higher in each of the following; EGR 105 & 106, CHM 101/102, MTH 141 & 142, PHY 203/273, and either PHY 204/274 or CHM 112/114

Junior Year *Fall* Semester

Course Code	Description	Cr	
BIO 341	Principles of Cell Biology	3	
BME 307	Bioelectricity	3	
ELE 313 +	Linear Systems	3	
BME 360	Biomeasurement	3	
BME 361	Biomeasurement Lab	1	
	General Education Outcome(s)*	3	

16

Junior Year *Spring* Semester

Course Code	Description	Cr	
BME 362	Biomedical Instrumentation Design	3	
BME 363	Biomedical Instrumentation Design Lab	1	
ELE 314	Linear Systems and Signals	3	
ISE 311 or STA 409	Probability and Statistics for Engineers or Statistical Methods in Research I	3	
	General Education Outcome(s)*	3	
	General Education Outcome(s)*	3	

16

Senior Year *Fall* Semester

Course Code	Description	Cr	
BME 461	Physiological Modeling and Control	3	
BME 464	Medical Imaging	3	
BME 465	Medical Image Processing Lab	1	
BME 484	BME Capstone Design I (D1)	3	
ELE 400	Intro to Professional Practice	1	
	Professional Elective**	3-4	

14 -15

Senior Year *Spring* Semester

Course Code	Description	Cr	
BME 466	Biomaterials	3	
BME 468	Neural Engineering	3	
BME 485	BME Capstone Design II (D1)	2	
	General Education Outcome(s)*	3	
	General Education Outcome(s)*	3	

14

***General Education Outcomes:** if all Outcomes are satisfied in fewer spaces than provided, you must take a course of your choice (Free Elective) to fill each remaining space in order to meet the required earned credit total of your degree plan. See the "General Education Outcomes" section at the bottom of page two for more information on satisfying these requirements.

****Professional Elective:** One (1) course from the following: CHE 333, 347, 574; CSC 522; ELE 322, 338/339, 343/344, 435/436, 437, 438, 444/445, 447/448, 458/459, 470, 501, 506; ISE 304, 312; MCE 341, 354, 372; MTH 442, 451, 462, 471; with prior approval of the ECBE department chairperson any other 300-, 400-, or 500- level College of Engineering course not required by the BME major.

+ Course prerequisites include grade requirements in previous coursework, see catalog or eCampus course description for details

Notice of Change for requirements for graduation for BS in Mechanical Engineering
Date: September 13, 2017

A. PROGRAM INFORMATION

1. Name of institution

University of Rhode Island

2. Name of department, division, school or college

Department: Mechanical, Industrial & Systems Engineering

College: Engineering

3. Intended initiation date of program change. Include anticipated date for granting first degrees or certificates, if appropriate.

Initiation date: September 6, 2017

First degree date: May 23, 2021

4. Intended location of the program

URI Kingston campus

5. Summary description of proposed program (not to exceed 2 pages).

The Mechanical Engineering program currently has a requirement that all students enroll in ISE 220 during the Sophomore Year. With this change, ISE 220 will no longer be a requirement for the Mechanical Engineering BS degree.

As a result of these changes, the total number of credits required for graduation will drop from 121 to 120.

If applicable, please include the existing URI catalog language and proposed catalog language changes that relate to your request.

The mechanical engineering major requires ~~121~~ 120 credits.

Freshman Year First semester: 15 credits

CHM 101 (3), 102 (1); EGR 105 (1); MTH 141 (4); and general education outcome(s)¹ (6).

Second semester: 16 credits

EGR 106 (2); MTH 142 (4); PHY 203 (3), 273 (1); and general education outcome(s)¹ (6).

Sophomore Year First semester: 14 credits

[ISE 240 (3) and 241 (1) or MCE 201 (3) ~~and ISE 220 (1)~~]; MCE 262 (3); MTH 243 (3); and PHY 204 (3), 274 (1).

Second semester: 16 credits

CVE 220 (3); [ISE 240 (3) and 241 (1) or MCE 201 (3) ~~and ISE 220 (1)~~]; MCE 263 (3); MTH 244 (3); and Science Elective² (3).

Junior Year First semester: 15 credits

CHE 333 (3); MCE 301 (3), 341 (3), 354 (3), 372 (3).

Second semester: 15 credits

ELE 220 (3); MCE 302 (3), 313 (3), 348 (3), 366 (3).

Senior Year First semester: 15 credits

MCE 401 (3) **[capstone]**, 414 (3); professional electives³ (6); and general education outcome(s)¹ (3).

Second semester: 15 credits

MCE 402 (3) **[capstone]**; professional electives³ (6); and general education outcome(s)¹ (6).

6. Signature of the President

David M. Dooley

ID # _____

Total Credits = 120

[illegible]

MECHANICAL ENGINEERING - Class of 2022 (DRAFT)

Total Credits = **120**

Freshman Year *Fall* Semester

Course Code	Description	Cr	
CHM 101	General Chemistry Lec I (A1)	3	
CHM 102	General Chemistry I Lab	1	
EGR 105	Foundations of Engineering I (A4)	1	
MTH 141 +	Calculus I (A1, B3)	4	
	General Education Outcome(s)*	3	
	General Education Outcome(s)*	3	

15

Freshman Year *Spring* Semester

Course Code	Description	Cr	
EGR 106	Foundations of Engineering II (A4)	2	
MTH 142 +	Calculus II (B3)	4	
PHY 203	Elementary Physics I (A1)	3	
PHY 273	Elementary Physics Lab I (A1)	1	
	General Education Outcome(s)*	3	
	General Education Outcome(s)*	3	

16

Sophomore Year *Fall* Semester

Course Code	Description	Cr	
ISE 240 and 241 or MCE 201	Mfg Processes and Systems (3), Mfg Processes and Systems Lab (1) ----- Engineering Graphics (3)	3 or 4	
MCE 262	Statics	3	
MTH 243 +	Calculus for Functions of Several Vars (A1, B3)	3	
PHY 204	Elementary Physics II (A1)	3	
PHY 274	Elementary Physics Lab II (A1)	1	

13-14

Sophomore Year *Spring* Semester

Course Code	Description	Cr	
CVE 220	Mechanics of Materials	3	
ISE 240 and 241 or MCE 201	Mfg Processes and Systems (3), Mfg Processes and Systems Lab (1) ----- Engineering Graphics (3)	3 or 4	
MCE 263	Dynamics	3	
MTH 244	Differential Equations	3	
	Science Elective**	3	

15-16

Admission to the COE required for enrollment in "300" level and higher COE courses. Admission requires at least a 2.0 cumulative GPA and a C- or higher in each of the following; EGR 105 & 106, CHM 101/102, MTH 141 & 142, PHY 203/273, and either PHY 204/274 or CHM 112/114

Junior Year *Fall* Semester

Course Code	Description	Cr	
CHE 333	Engineering Materials	3	
MCE 301 +	Application of Mechanics in Design	3	
MCE 341	Fundamentals of Thermodynamics	3	
MCE 354	Fluid Mechanics	3	
MCE 372	Engineering Analysis I	3	

15

Junior Year *Spring* Semester

Course Code	Description	Cr	
ELE 220	Passive and Active Circuits	3	
MCE 302	Design of Machinery	3	
MCE 313	Intro to MCE Experimentation	3	
MCE 348	Heat and Mass Transfer	3	
MCE 366	System Dynamics	3	

15

Senior Year *Fall* Semester

Course Code	Description	Cr	
MCE 401	Mechanical Egr Capstone Design I	3	
MCE 414	Mechanical Engineering Experimentation	3	
	Professional Elective***	3	
	Professional Elective***	3	
	General Education Outcome(s)*	3	

15

Senior Year *Spring* Semester

Course Code	Description	Cr	
MCE 402	Mechanical Egr Capstone Design II (D1)	3	
	Professional Elective***	3	
	Professional Elective***	3	
	General Education Outcome(s)*	3	
	General Education Outcome(s)*	3	

15

* **General Education Outcomes:** if all Outcomes are satisfied in fewer spaces than provided, you must take a course of your choice (Free Elective) to fill each remaining space in order to meet the required earned credit total of your degree plan.

See the "General Education Outcomes" section at the bottom of page two for more information on satisfying these requirements.

** **Science Elective:** choose from CHM 112, CHM 124, or PHY 205 & PHY 275

*** **Professional Electives:** Must be satisfied by a minimum of **three (3) three (3)-credit** MCE courses (no more than **two (2)** courses from the *MCE47*/CHE47* series*), **two (2)** of which must be taken at URI; the **fourth** course may be a 300-, 400-, or 500-level course offered by the College of Engineering, CHM, CSC, PHY, or STA; or a 400 or 500-level MTH course. Professional elective courses taken outside URI are subject to URI transfer credit rules and require prior written approval.