UNIVERSITY OF WASHINGTON

OFFICE OF THE PRESIDENT

November 10, 2009

Dean Matthew O'Donnell
College of Engineering
Box 352180

Dear Matt:

Based on the recommendation of its Subcommittee on Admissions and Programs, the Faculty Council on Academic Standards has recommended approval of the revised program requirements for a Bachelor of Science in Materials Science and Engineering degree. A copy of the changes is attached.

I am writing to inform you that the Department of Materials Science and Engineering is authorized to specify these requirements beginning winter quarter 2010.

The new requirements should be incorporated in printed statements and in individual department websites as soon as possible. The *General Catalog* website will be updated accordingly by the Registrar's Office.

Sincerely yours,

Mark A. Emmert
President

Enclosure

cc: Ms. Kathleen Elkins (with enclosure)
Mr. Robert Corbett (with enclosure)
Dr. Deborah H. Wiegand (with enclosure)
Mr. Todd Mildon, J.D. (with enclosure MSE-20091012)

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UNIVERSITY OF WASHINGTON

CREATING AND CHANGING UNDERGRADUATE ACADEMIC PROGRAMS

After college/school/campus review, send a signed original and 8 copies to the Curriculum Office/FCAS, Box 355850.

For information about when and how to use this form: http://depts.washington.edu/uwcr/1503instructions.pdf

College/Campus	Department/Unit	Date 10-12-09

New Programs

- ☐ Leading to a Bachelor of _____ in _____ degree.
- ☐ Leading to a Bachelor of _____ degree with a major in _____.
- ☐ Leading to a _____ Option within the existing major in _____.
- ☐ Leading to a minor in _____

Changes to Existing Programs

- ☐ New Admission Requirements for the Major in _____ within the Bachelor of _____.
- ☐ Revised Admission Requirements for the Major in _____ within the Bachelor of _____.
- ☒ Revised Program Requirements for the Major in Materials Science & Engineering within the Bachelor of Science.
- ☐ Revised Requirements for the Option in _____ within the major in _____.
- ☐ Revised Requirements for the Minor in _____

Other Changes

- ☐ Change name of program from _____ to _____.
- ☐ New or Revised Continuation Policy for _____
- ☐ Eliminate program in _____

Proposed Effective Date: **Quarter:** ☐ Autumn ☒ Winter ☐ Spring ☐ Summer **Year:** 20 10

Contact Person: Kathleen A. Elkins	Phone: 616-6581	Email: kelkins@u.washington.edu	Box: 352120

EXPLANATION OF AND RATIONALE FOR PROPOSED CHANGE

For new program, please include any relevant supporting documentation such as student learning outcomes, projected enrollments, letters of support and departmental handouts. (*Use additional pages if necessary*).

Change the wording of an existing degree requirement to allow for additional options to the list of acceptable courses. Currently the science requirement for the BS in MSE includes "two science courses required: Physics 224, 225; Chem 162; Chem 223, 224; Chem 237, 238; Chem 455, 457." The faculty are currently adding courses to this list as available and appropriate. Rather than seek a revision to the wording each time a new course is appropriate to add, we wish to change the wording to say, "Two additional natural science courses required from department's approved list" and then provide a current list to majors trying to meet the requirement.

OTHER DEPARTMENTS AFFECTED

List all departments/units/ or co-accredited programs affected by your new program or changes to your existing program and acquire the signature of the chair/director of each department/unit listed. Attach additional page(s) if necessary. *See online instructions.

Department/Unit:	Chair/Program Director:	Date:
Department/Unit:	Chair/Program Director	Date:

CATALOG COPY

Catalog Copy as currently written. Include only sections/paragraphs that would be changed if your request is approved. Please cross out or otherwise highlight any deletions.

Science (31-35 credits): CHEM 142, CHEM 152, PHYS 121, PHYS 122, PHYS 123; two of the following: PHYS 224, PHYS 225, CHEM 162, CHEM 223, CHEM 224, CHEM 237, CHEM 238, CHEM 455, CHEM 457

PROPOSED CATALOG COPY

Reflecting requested changes (Include exact wording as you wish it to be shown in the printed catalog. Please underline or otherwise highlight any additions. If needed, attach a separate, expanded version of the changes that might appear in department publications). **Please note:** all copy will be edited to reflect uniform style in the General Catalog.

Science (31-35 credits): CHEM 142, 152; PHYS 121, PHYS 122, PHYS 123; two additional natural science courses from department's approved list

APPROVALS

Chair/Program Director:	Date: 10/12/09
College/School/Campus Curriculum Committee:	Date: 10/20/09
Dean/Vice Chancellor:	Date: 10-21-09
Faculty Council on Academic Standards/ General Faculty Organization/Faculty Assembly Chair:	Date: Nov. 6, 2009

POST TRI-CAMPUS APPROVAL (when needed)

Faculty Council on Academic Standards/ General Faculty Organization/Faculty Assembly Chair:	Date:

MSE

BS in Materials Science and Engineering (tracking sheet)

College of Engineering Requirements--

Mathematics (24)

Course	Quarter	Credits	Grades
Math 124		5 credits	
Math 125		5 credits	
Math 126		5 credits	
Math 307		3 credits	
Math 308 or 318		3 credits	
Elective; Math 309 (3), Ind E 315 (3), Math 324 (3) or Stat/Math 390 (4)		3 cr. min.	

Natural Science (31)

Course	Quarter	Credits	Grades
Chem 142		5 credits	
Chem 152		5 credits	
Physics 121 w/ lab		5 credits	
Physics 122 w/ lab		5 credits	
Physics 123 w/ lab		5 credits	
Science Electives (select 2)		6 credits min.	

Written and Oral Communication (12)

Course	Quarter	Credits	Grades
English Comp.		5 credits	
TC 231		3 credits	
TC 333 (pre-req: TC 231)		4 credits	

VLPA and Individuals and Societies (24)

10 Credits VLPA			
10 Credits I&S			
4 Add'l Credits Either VLPA or I&S			

Engineering Fundamentals (24)

Course	Quarter	Credits	Grades
CSE 142 OR Amath 301		4 credits	
MSE 170		4 credits	
AA 210		4 credits	
CEE 220 (pre-req: AA 210)		4 credits	
Engr. Electives (select 2):		8 credits	
ME 123, EE 215, ME 230, IndE 250 or CHEM E 260			

Core Course Requirements--

Junior Year, Autumn

Course	Credits	Grade
MSE 310	3 credits	
MSE 311	2 credits	
MSE 321	4 credits	
MSE 331	3 credits	

Junior Year, Winter

Course	Credits	Grade
MSE 312	2 credits	
MSE 322	4 credits	
MSE 342	3 credits	
MSE 351	3 credits	
MSE 499	1 credit	
Science Req.*	3 credits	

Junior Year, Spring

Course	Credits	Grade
MSE 313	2 credits	
MSE 333	3 credits	
MSE 352	3 credit	
MSE 362	3 credits	
Science Req.*	3 credits	

Senior Year, Autumn

Course	Credits	Grade
MSE 431	3 credits	
MSE 442	3 credits	
MSE 499	x credits	
Tech Elective**	xx credits	

Senior Year, Winter

Course	Credits	Grade
MSE 491	1 credit	
Tech Elective**	xx credits	
Tech Elective**	xx credits	
MSE 499	x credits	

Senior Year, Spring

Course	Credits	Grade
MSE 492	3 credits	
Tech Elective**	xx credits	
MSE 499	x credits	

*2 Science courses required: Physics 224, 225; Chem 162; Chem 223, 224; Chem 237, 238; Chem 455, 457

**Tech Electives: 16 credit minimum

x credits: must take a minimum of 4 credits of MSE 499, can take up to 5 credits of MSE 499; 1 cr. Of 499 must be taken during the Winter quarter of the Senior year.

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MSE TECHNICAL ELECTIVES

Materials Science and Engineering Technical Electives* (8 credits minimum from the following list)

Course	Topic	Credits
MSE 421	*Thermodynamics of Solids (Winter)*	3
MSE 443	*Extractive Metallurgy (Spring)*	3
MSE 452	*Functional Properties of Materials II (Winter)*	4
MSE 462	*Mechanical Behavior of Materials II (Winter)*	4
MSE 463	*Corrosion and Wear of Materials (Spring)*	4
MSE 471	*Introduction to Polymer Science and Engineering (Autumn)*	3
MSE 473	*Noncrystalline state (Spring)*	4
MSE 475	*Introduction to Composite Materials (Autumn)*	4
MSE 477	*High Temperature Materials (Spring)*	4
MSE 481	*Science and Technology of Nanostructures (Winter)*	3
MSE 485/MSE 487	*Intro to Electronic Packaging & Materials w/ lab (Autumn)*	4
MSE 486/MSE 489	*Fundamentals of Integrated Circuit Tech w/ lab (Winter)*	4

***Course schedules and quarters offered are subject to change**

Other Electives (8 credits from the courses below or from MSE Electives List above)

Course	Course
AA—all 400 level courses	ME 355, Introduction to Manufacturing Processes, 4
Amath 352, Appl. Linear Algebra & Numerical Analysis, 3	ME—all 400-level courses
Amath 383, Intro Continuous Math Modeling, 3	
Bioc 405, Intro to Biochem, 3	PHYS 315, Applications of Modern Physics, 3
CEE 363, Constructional Materials, 4	PHYS 334, 335, Electric Circuits Laboratory , 3, 3
CEE –all 400-level courses	PHYS 434, Application of Computers to PhysMeas (3)
ChemE 355, Biological Frameworks for Engineers, 3	
ChemE –all 400-level courses	**Business Courses:**
EE—all 400-level courses	BA 470, Accounting and Finance for Non-business Majors, 3
ENVIR 450, Sustainability, 5	BA 471, Marketing Analysis and Strategy for Non-business Majors, 3
IE 316, Design of Experiments, 4	BA 472, Human Resources for Non-business Majors
I E 321, Statistical Quality Control, 4	BioEng 599T, Prog. In Technology Commercialization, 4
I E 337, Introduction to Manufacturing Systems, 4	ENTRE 370, Entrepreneurial Thinking, 4
IE—all 400-level courses	ENTRE 440, Business Plan Competition Practicum, 4
MATH 300, Introduction to Mathematical Reasoning, 3	ENTRE 475, Planning for Business Growth, 4
MATH 326, Advanced Multivariable Calculus II, 3	*(a maximum of 6 qtr hr of business coursework—e.g.,BA, BioEng, BPOL,ENTRE-- can be counted toward technical electives in MSE)*
MATH 381, Discrete Mathematical Modeling, 3	
MATH 394, 395, 396,Probability I, II,III, 3 cr. each	

Technical Electives
For the BS Degree in Materials Science and Engineering, there is a 16-credit Technical Elective requirement. A minimum of 8 of these credits must be MSE courses at the 400- or 500- level (refer to "Materials Science and Engineering Technical Electives" list above; MSE 520 and 599 will not count). Please contact the individual instructor of the graduate level course that you are interested in taking for technical elective credit; you may need to receive their permission to register for their course.

All non-MSE engineering courses at the 400-level or higher are approved for the "other electives" section except for TC (which can be petitioned individually). If you would like to take a 300-level (at least) engineering or physical science/mathematics course outside the MSE Department to complete part of this requirement and the course is not on the above "Other Electives" list, the course must first be approved by the MSE Department's Undergraduate Committee. The courses that you choose to designate as Technical Electives must not be classes already required for graduation. Only one credit of the required 16 credits may be MSE 498 or MSE 499. (3/09)

REQUEST FOR A MSE TECHNICAL ELECTIVE COURSE

Name_____

E-mail address_____ Student ID #_____

Signature_____ Date_____

I am requesting to use the following course as an MSE Technical Elective. The course is currently not on the approved Materials Science and Engineering Undergraduate Technical Elective list, but I feel that the course content is applicable to my area of interest in engineering. The course that I propose has a materials component and is equivalent to a 300-level course offered in the College of Engineering.

I understand that this request must be approved **BEFORE** I enroll and complete the class.

Course: _____

Justification:

Please attach a syllabus of the course and supporting documentation whenever possible.

Submit completed request form to Kathy Elkins in the MSE Advising Office in Roberts Hall Room 302.

ACTION: **Approve**_____ **Deny**_____ Add to Tech Elect List?_____

Comments:

Signature:_____ Date_____

Professor Fumio Ohuchi, Chair of Undergraduate Committee