Dear Members of the Graduate Faculty Executive Committee,

Faculty in Materials Engineering and Materials Science have worked to merge their graduate programs into a single program called Materials Science and Engineering. Attached is the proposal for reorganization that will lead to this merger.

For over forty years UW Madison has held two materials-related graduate programs: Materials Engineering, the graduate program for the Department of Materials Science and Engineering, and the Materials Science Program (MSP), which involves faculty from approximately 17 departments across campus. The combined programs contain approximately 115 graduate students and the majority are advised by faculty members with tenure homes in Materials Science and Engineering. Students in the two programs take similar courses and work in the same faculty laboratories. So, while at one time there might have been good reasons to have two programs, those reasons no longer exist. Instead, the detrimental effects of maintaining two programs continue to grow, including confusion among potential graduate students, unnecessary administrative requirements, and uncertainty with respect to program rankings. It comes as no surprise, then, that external and internal advisory review committees have recommended the merger and that faculty and staff in the two programs overwhelmingly support it.

Please note: the College of Engineering Academic Planning Council approved this proposal on March 11, 2015.

Thank you for your consideration

Sincerely,

James Blanchard
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A Proposal for a “merged” program:
Materials Science and Engineering
March 20, 2015

Donald Stone, Chair
Materials Science and Engineering

Ray Vanderby
Director of Graduate Studies, Materials Science Program

Date: 3/25/15

Overview
We proposed to reorganize Materials Engineering (MatE) and Materials Science Program (MSP) into a “merged” graduate program called Materials Science and Engineering. MatE is the departmental graduate program for Materials Science and Engineering, while the MSP is a campus-wide, interdisciplinary program administered through the same department. We propose to effect the merger by following campus procedures to move students and faculty from MSP into the MatE, discontinue MSP, and change the name of MatE to Materials Science and Engineering. The few students who wish to keep their degrees as Materials Science or Materials Engineering will be supported administratively by the MS&E department. This reorganization has been recommended by internal and external review committees and is overwhelmingly supported by both faculty and students in the two programs.

Specifically, relevant changes include:

1. MS, MEng, PhD – Materials Science will be discontinued effective Fall 2019.
2. MS, MEng, PhD – Materials Engineering will be renamed to MS, MEng, PhD – Materials Science and Engineering, effective Spring 2016.
3. Admissions to both Materials Engineering and Materials Science will be suspended effective Spring 2016 semester.
4. We will begin admitting students into the Materials Science and Engineering degree effective the Spring 2016 semester.
5. The last semester that the MS, MEng, PhD in Materials Engineering will be available to students for enrollment and degrees will be Fall 2016.

Lastly,

1. Materials Science and Engineering currently offers a minor called “Materials Science and Engineering.” No changes are necessary.
2. Presently, there are ~115 students in Materials Science and Materials Engineering graduate programs combined. All students were sent a survey, and of the 54 who have responded so far, over 90% stated a preference for changing their degrees to Materials Science and Engineering (50 yes, 4 no). The dates in changes #1 and #5 above are based on their responses. We continue to poll students and will be able to present campus with completed information within the next few months to help manage the draw-down of the graduate degrees in Materials Science (discontinued) and Materials Engineering (renamed).
Background and Justification

For over forty years UW Madison has held two graduate programs in materials. Materials Engineering (MatE) is the departmental program for Materials Science and Engineering (MS&E). Materials Science Program (MSP) serves faculty from approximately 17 departments across campus but is also administered by the department of MS&E. In the 1970's the distinction was useful because the department program was primarily focused on metals back then (it was called Metallurgical Engineering, or MetE) and wanted to remain that way, while the MSP, with a broader scope, served researchers from across campus. Always, the MS&E department has held a strong connection with MSP, with typically 50% to 80% of students in the MSP advised by faculty in the Materials Science and Engineering department.

In recent years the distinction between the two programs has diminished: graduation requirements are close; students in the two programs work side-by-side in the same labs doing exactly the same kinds of research; the Materials Science Program is housed in the MS&E department and now administered through it. Meanwhile, negative aspects associated with maintaining two programs have only grown. These include duplication in administration, extra work for faculty running two programs, counterproductive rivalry between programs, fragmentation of the student body, and loss of control by MS&E for its graduate program. Lastly, having the two materials programs housed within the same building but without any obvious, compelling reason for there to be two programs merely increases the confusion to external parties and detracts from the visibility of strong, campus-wide research efforts in Materials.

In the last 3 years both internal and external review committees have recommended a merger of the MSP and MatE. In November 2013 the internal Committee for a 10-Year Review of Masters and Ph.D. Degrees in Materials Engineering headed by Parameswaran Ramanathan from ECE concluded that

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\text{MSP and MatE should be merged into a single program starting in Fall 2015... College of Engineering should strongly encourage MS&E and MSP program faculties to approve a strategy for merge so that it can be implemented well before the start of the admission process for Fall 2015...}
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Furthermore, the same committee remarked that

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\text{It is not necessary for a consensus to be reached on all aspects (e.g., qualifying exam formats, course requirements, etc.) in order to have a merged program. Those details can be worked out in the coming years as part of the administration of the single program. ... The presence of issues should not itself be a hurdle to start the merging process...}
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Likewise, in May 2014 the MS&E External Review Committee appointed by Dean Ian Robertson and headed by Kevin Jones from Florida University of Florida urged a merger of the programs stating that "... This would enhance Wisconsin's standing among the leading materials department[s] in the country," and that it would "enhance graduate recruiting ...."

In a letter dated October 9, 2014, Dean Robinson made the following request:

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i \text{ask that the department develop bylaws for the operation of an affiliate faculty program that embraces and welcomes faculty from across campus that are engaged in materials science and engineering research. In developing these bylaws I encourage you to engage}
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the broader materials science and engineering community across our campus. I see this as a critical step towards establishing an interdisciplinary, collegial materials science and engineering graduate program on our campus that is lead and administered by the department.....

Finally, in a letter dated June 27, 2014 that summarized the GFEC discussion of the internal review committee report, Martin Cadwaller, Dean of the Graduate School, stated:

One recommendation is to merge with the Material Sciences Program (MSP)... Discussions of merging should continue and should engage all faculty in the MSP and MatE programs as is important in the context of faculty governance. Some concern was expressed at GFEC about the possibility of weakening the larger MSP in a merger and such a situation must be avoided. In addition, in these discussions, it should be recognized that both programs offer Master of Engineering degrees although not presently utilized. Finally, a "merger" is not an official governance action. Instead, units/programs have the following governance options available that ultimately result in what is recognized as a merger: discontinuation, rename, change in administrative unit/home....

Over the past 3 three years faculty from MatE and MSP have worked steadily on devising a new, merged program in Materials, to be known as “Materials Science and Engineering.” We have endeavored to build a single program that removes all of the disadvantages of the competing programs and enhances campus-wide research and education in materials. We have attempted to address all of the issues brought up in the recommendations. Specifically, as requested by the GFEC, we have thoroughly engaged all faculty involved in the merger. We have taken great pains to reach consensus, often to the point of delaying votes so that everybody who wishes can participate. We have held discussions with and taken recommendations from graduate students in the two programs. These students will gain stronger participation and ownership in the new graduate program. Far from weakening the MSP, we have taken steps to enhance interdisciplinary participation, a strength of the program. Consistent with the recommendation of the GFEC we have devised a plan for the merger that follows the official governance options available. Following the recommendation of Dean Robertson we have devised a vigorous program administered through the department yet nimble and responsive to the needs of researchers across campus.

Our efforts have succeeded in building overwhelming consensus and support for the proposed merger plan. Faculty voted 38-3 in favor of the preliminary plan (9/23/14) then 37-1 in favor of the revised plan (2/19/15) under which we are now operating and which is acceptable to Dean Robertson and College of Engineering APC. A survey taken last September showed graduate students 62-10 in favor of merging the two programs. In a survey taken 3/6/15, 50 students responded that they want to change the names of their degrees to Materials Science and Engineering, while 4 students stated that they wanted to keep the old names. (We are waiting for about 60 more students to respond to this survey, but based on individual discussions we know their responses will be similar to those of students who have already responded).
Reorganization plan

The requested campus-level actions are described in the Overview section, above.

The faculty approved plan for actions that need to be taken at the program-level can be provided to the committee on request. We are already taking these actions as described below. In summary, however, our plan is relatively simple: we place graduate education in Materials under the administration of Materials Science and Engineering department and bring former MSP faculty into the department as affiliates. A subset of affiliate faculty are elected as representatives and provided with joint governance appointments to vote on matters concerning the graduate program. Students gain improved (and official) participation in the new program through a student advisory committee. Administrative support is provided to the few students who wish to remain in the old graduate programs.

We have already taken the following actions:

1. MSP and MS&E have voted in approval of the revised reorganization plan.
2. MS&E has approved the necessary changes in its bylaws to admit MSP members into the department and set up guidelines for future admissions. Both steps are essential for the plan to succeed.
3. The College of Engineering APC voted unanimously on 3/11/15 to support the reorganization plan.
4. MS&E has surveyed students already in MSP or MatE to identify who among them wishes to change their degrees to Materials Science and Engineering. Out of approximately 115 students, total, the response so far is 50 yes and 4 no.
5. MS&E has surveyed MSP faculty to identify who wishes to remain in Materials and thereby enter into the department as affiliates. So far 31 faculty have said “yes,” a few have stated that they are stepping out because of retirement or another reason, and approximately 35 faculty have not responded.
6. MS&E has also surveyed faculty in MSP to identify who wishes to become affiliate representatives and thereby gain voting rights on matters pertaining to the graduate program. Four MSP faculty have answered “yes.” By department bylaws these faculty are automatically provided with joint governance appointments in the MS&E department.
7. Ray Vanderby has been asked by MS&E to continue on as Director of the new program, “Materials Science and Engineering,” and has accepted.

In the next year Ray Vanderby will work with the MS&E department to set up committees for transitioning the old graduate programs to the new. Most importantly, ad hoc committees will revise the curriculum and requirements for adoption by March of 2016.