

University of Wisconsin – Eau Claire
University Senate Academic Policies Committee
Vol. 55, Meeting No. 20
Tuesday, April 9, 2019
Council Oak Room, 260 Davies

Present: *Members:* Janice Bogstad, Selika Ducksworth-Lawton, Der-Fa Lu, Bob Hooper, Marquell Johnson, Hans Kishel, Bill Miller, David A. Miller, Darrell Newton, Vicki Samelson
Guests: Margaret Cassidy, Marc McEllistrem, Ted Molkentin, Evan Weiher

Presiding: Chair Marquell Johnson called the meeting to order at 2:00 p.m.

Meeting Minutes

1. Approval of minutes from April 2, 2019

- Motion to approve the minutes of April 2, 2019, as distributed. Motion was seconded and approved unanimously (7-0-0).

2. Proposal for new Comprehensive Major: Biomedical Engineering (Code XXX-XXX)

- Marc McEllistrem was in attendance to provide information and answer questions.
- How does BME fit into big picture, how did MSE decide to develop this degree, how does it align with the University or take advantage of the newly formed relationship with Mayo?
 - UWEC, Stout, and River Falls initially proposed two engineering majors and System said to choose one. Originally chose Electrical Eng which is second largest engineering major and fits into Physics but worried about enrollment, Stout also wanted it. Were asked what second choice would be and chose BME. Provides good infrastructure with MSE and then the University became involved with Mayo and it sounded like a better fit because of how campus was evolving. Academic Affairs asked what the major would look like, so MSE developed a plan.
- What will the impact of BME major be on comprehensive MSE major? Will they be competing or supporting?
 - Have thought about it a lot and are unsure. Part of reason BME is a good fit is the interface between non-living materials with a living system, e.g., arterial stent or dental materials (want to match color of tooth, material should be nontoxic and set well). MSE focused primarily on material itself and less on people, whereas BME focuses on the challenge of not causing harm to the patient. Students typically arrive with an interest in engineering but unsure of specialty. Could go either way. Did a brief survey with STEM majors and undeclared students. Of 600 responses, approximately 1/3 indicated interest; 1/3 were neutral; and 1/3 were not interested.
- Have you identified a faculty or mayo expert for completing research, managing capstone projects? Also worried about preexisting courses and workload issue.
 - Some existing MSE courses could be changed to general engineering courses, the two PHYS course will be of concern. Currently, MSE is committing 2 FTE other departments (CHEM and MATH). The FTE would return to MSE and those departments would need the support; the departments are aware. Hasn't been determined whether Mayo would deliver curriculum. Mayo could provide suggestions on possible BME lab experiences which faculty would then determine whether it would work in academic setting. Faculty who work in this area need access to clinical setting, having connections would be helpful.
- Courses and seat availability, specifically, BIOL and CHEM prereq courses that Nursing and CSD require. Want to maintain 4-year graduation rates.
 - Met with Biology, Chemistry, and Physics + Math and Computer Science are aware. It's hard to determine what kind of load BME will require. If students coming in are focused on an area, we'll need more capability and the need will drive these conversations. Academic Affairs has indicated if the need is there, the funding will be there.

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- Materials Science began as interdisciplinary and requesting MSE was logical as it relates back to what was currently being done. Concern that MSE is a program and is branching out beyond their area of expertise. Seems like a hybrid.
 - A few years ago, MSE proposed to Academic Affairs that they become a department. Could now have three majors. Would like ABET accreditation for the BME degree. Don't disagree that BME represents a new area of growth but fits where we are. MSE has three faculty with engineering degrees and this major would require two new faculty.
- Does ABET have any specifications?
 - No specification on the number of faculty (more than one), but whether the institution has the faculty to deliver the curriculum + a focus on what graduates can do/is the infrastructure there to get them there
- What opportunities does a BME major have after graduation?
 - Twin Cities and Chicago are focal points (if you're not on a coast), because of this, Milwaukee and Western Wisconsin are showing an increase. Boston Scientific, Medtronic, Phillips-Medisize. UW-Milwaukee and Marquette starting BME program. Also pre-med students can take this as a "Plan B", pre-med doesn't require a certain pathway
- Concern about resources. Library doesn't receive a budget increase, currently reviewing ACS resources due to 5-10% yearly increases
- In addition to library books, data bases, periodicals, the major needs faculty and space. It's not using existing funds, want to insure it's not taking our current resources and redirecting them, needs state funding and a new science building. A lot of resource implications to do this. We have five years to implement it and want to ensure that if it's approved, we aren't eliminating other things.
- Any opportunities to obtain grant funding to help with the cost?
- If a student decides in the junior year to pursue something else, are they able to navigate out of BME and MSE programs and go, for example, into Biology or Chemistry, and not be too far delayed in finishing their degree? Does that happen sometimes?
 - Looking at MSE program, first three semesters are similar to PHYS or CHEM or even GEOL, a couple of courses won't carry over. It provides a foundation, transfer students come in and out, sophomore year seems to be a popular time to reevaluate original degree, it can be done, BME will be the same. Biology would be most problematic, their department doesn't like chosen prerequisite courses (wanted 221/222/223) but ABET requires physiology, which is why Anatomy and Physiology were chosen.
- Very important for Senate to understand: 1) There is a separate tuition structure for engineering programs; 2) The major is comprised of 93 credits, 128 total credits required; 3) Requires 6 new courses, new faculty, and new space; 4) Feel that because of the multiple programs, MSE should be structured as a department, understand MSE has a lot of components of a department already, would like Academic Affairs to reevaluate since multiple academic programs would be administered by a program/programs with subprograms ought to be at level of academic department
 - AIS, LAS, WGSS, Watershed operate with similar structure
 - New departments are approved within the institution, System and BOR aren't involved
 - Approximately 65 current MSE/MAT SCI majors, System projects 100 BME majors
- Motion to approve the proposal for a new Comprehensive Major: Biomedical Engineering (Code XXX-XXX), Motion was seconded and approved unanimously (8-0-0).

Chair Marquell Johnson adjourned the meeting at 2:56 p.m.

Respectfully submitted,

Sarah Forcier
Secretary for the Meeting