Graduate Faculty Council Minutes
December 11, 2018

Members Present: Kelly steelman (Cog Sci), Will Cantrell (Atmo Sci), Tarun Dam (BMB), Ebenezer Tumban (Bio Sci), Feng Zhao (Biomed), Mari Buche (Bus and Data Sci), Becky Ong (Chem Eng), John Jaszczak, (Chem), Veronica Webster (Civ Env Eng), Ben Ong (Data Sci), Mike Roggemann (Ele Comp Eng), Ann Maclean (FSRES), Ramon Fonkoue (HU), Steve Elmer (KIP), Leonard Bohmann (MS Eng), Quying Sha (Math), Craig Friedrich (MEEM), Yoke Khin Yap (Physics), Eugene Levin (Sc of Tech), Chelsea Schelly (Soc Sci)

Members Absent: Joel Tuoriniemi (Acct), Gary Campbell (App Nat Res), Warren Perger (Comp Sci & Eng), Jean Mayo (Comp Sci), Alex Mayer (Env eng), Chad Deering (Geo Min Eng & Sci), Stephen Hackney (MSE), Kari Henquinet (PCorps)

Guests Present: Alex Sergeyev (SoT), Adriene Minerick (SoT), Bill Predebon (MEEM) Dan Furhamnn (ECE), Steve Goldsmith (MEEM & ECE), Soonkwan Hong (SchofBus), Faith Morrison (Grad Sch), Jacque Smith (Grad Sch), Mary Stevens (Grad Sch), Deb Charlesworth (Grad Sch), Erin Matas (Library), Apurva Baruah (GSG), Dave Reed (RSP), Patricia Heiden (Senate)

Approval of November 6, 2018 minutes
The November 6 minutes passed on a voice vote with no discussion.

Business before the University Senate (V. Webster)
The Senate will be reviewing a proposal for establishing a policy of standards for online courses at the December 12 meeting. Murthy will attend the meeting. Please let her know if anyone has any comments.

Updates from the Dean (P. Murthy)
- Pushpa announced at the November 28 Senate meeting the Graduate School will award the 10,000th grad degree at the December 15 commencement ceremony. Students will be invited to attend the Alumni Reception held in the Multipurpose Room, immediately following the event. Students will receive a pennant and special pin. Please stop by if you are attending.
- Departments are asked to please make admission decisions as soon as possible. Refer to the December 3 email from Pushpa.
- The Graduate School is still accepting nominations for the Graduate Recruitment Tuition Award (GRTA) and the Graduate Academic Excellence Award (GAEA). The GAEA is to reward Michigan Tech undergraduate students to pursue an accelerated master’s degree. We should have 100 to 150 students accelerated master’s program but there are only 53 in the program. These awards are open to all programs.
- The Higher Learning Commission (HLC) interim report was submitted last July and the response was received last week was favorable. As required by HLC, the Graduate School
will be monitoring the A process yearly. The B1 and B2 processes must be completed in a timely manner and HLC will be monitoring the progress.

- Another metric HLC wants us to monitor is student success data (attrition, timely completion, and probation, and suspension). The Graduate School has been reaching out to programs about this issue during the B1 process.
- The Graduate School requested to receive a draft of each program’s graduate student handbook by the end of the Fall 2018 Semester. Handbooks should be available to students online and should include timely written evaluations, changing advisors, milestones and timelines to achieve milestones. Not all programs have responded so please do so by January 18. Those that do not respond by the new deadline will have finishing fellowship applications returned without review.
- Thank you to Jason Carter, Shekhar Joshi, Craig Friedrich, Tom Merz, and Andrew Storer for developing the Individual Development Program (IDP) and to the departments that will participate in the IDP. Pushpa presented our plan at the Council of Graduate Schools last week and it was well received with many requests for a copy of our template. Please distribute to students the first week of classes the next semester so students have time to review it and discuss with their advisors.

Old Business

Proposal for New Graduate Degree Masters in Engineering Management (MEM) (S. Hong), School of Business and Economics

- Questions and suggestions raised by GFC at the last meeting have been addressed and an update to the HLC in section 17 of the proposal was corrected.
- The Masters in Engineering Management passed on a voice vote with no discussion. The proposal will be forwarded to the Senate.

New Business


- The MEEM and ECE departments are proposing the Graduate Certificate in Safety and Security of Autonomous Cyber-Physical Systems. The certificate focus includes autonomous vehicles, manufacturing systems, robotics, infrastructure, land, and water vehicles.
- The certificate requires a total of 15 credits that includes two required core courses, one course in a focus area, and two elective courses.
- The curriculum focuses on advanced skills in the design and security of physical engineered systems and sub systems (ex. acceleration, steering, and/or breaking, of a car).
- The ASME news brief study shows there is a need for 5,000 engineers in industry autonomous vehicles and this certificate will help recruit students to Michigan Tech.
- Course EE5310 will be changed to EE5315.
- Section 18 HLC assessment subsection will be changed to sections three and four.
• Faith suggested to include in section 9 “3000 or below level courses are not acceptable” and in section 11 “must complete two electives”.
• Pushpa said many universities are awarding some certificates with 12 credits, compared to Michigan Tech’s requirement of 15 credits. Another issue for future discussion is whether some programs can be more flexible and offer microcredentials or stackable microcredentials consider bundling a smaller number of credits. We will discuss these topics at a future meeting.
• The Graduate Certificate in Safety and Security of Autonomous Cyber-Physical Systems will be voted on at the January 22 meeting.

New Proposals for Master of Science and Graduate Certificate in Mechatronics
(A. Sergeyev), School of Technology

• Adrienne Minerick, Mike Roggeman, Dan Furhmann, and the Graduate School helped develop the proposal. Recent demands of graduates require knowledge in advanced manufacturing and automation. Mechatronics is a multidisciplinary field in electrical, mechanical, computer, and with a special emphasis in controls automation and robotics.
• Students in EE, EET, ME-EM, and MET programs will be able to apply up to six credits of approved coursework from their BS towards the MS degree in Mechatronics. Students, while pursuing their BS degree, will be allowed to take up to four graduate level courses.
• Current students, alumni, and industry completed surveys to collect feedback of their interest of a MS degree in Mechatronics. 77% of student participants indicated an interest in enrolling in a MS degree in Mechatronics and most prefer the internship option. Industry also prefers graduates have a degree in Mechatronics and prefers the internship option.
• Faith suggested creating a new course number for the internship as a part of the degree requirement.
• GFC reviewed and supported the Master of Science and Graduate Certificate proposals. Discussion will continue at the January meeting.

Note: The Master of Science in Mechatronics and Graduate Certificates are now two independent proposals with somewhat similar content.

The current versions for the proposals as follows:
A. Proposal for a Master of Science in Mechatronics Version 15 (January 17, 2019)
B. Proposal for a Graduate Certificate in Mechatronics Version 15 (January 17, 2019)

• The following changes have been made to the previous version of the proposal:
  1. All the core courses are now at 5000 level
  2. Graduation pathways have been modified based on the comments from GS – now they are aligned with the current MS degrees at Michigan Tech and comprised of 3 options: a) Coursework, b) Thesis/Report, c) Internship
  3. Internship course with the description (tentatively EET 5995/96/97) has been proposed to account for the internship with industry
  4. Degree learning objectives for have been modified based on the comments from GS.
5. Courses for Graduate Certificate in Mechatronics (GCM) are now summarized in the table and add up to a total of 16 credits (per recommendation from GS). Learning objectives for GCM have been added to the proposal.
6. All the Senate Policies are now addressed in both proposal.
7. Some verbiage has been added to reflect on possible modifications (upon the program development) in the various courses architecture and for different majors.
8. Proposal's graphics now should reflect all the changes in the proposal.