
Minutes of the Dean's Advisory Council Meeting (DRAFT)
NMSU College of Engineering
August 5-6, 2014
Northrop Grumman, San Diego, CA

Council Attendees

Anthony Medina, Sandia National Laboratories, Council Chair
Joseph Perea, Vice Chair, ExxonMobil (telephone participant)
Lynnette Barboa, Northrop Grumman special guest
Michael Chappell, ChE Representative
Kevin Eades, Molzen-Corbin
Debra Hicks, CE Representative
Stephen Horan, ECE Representative
Aubrey Johnson, PNM
Carl Johnson, Northrop Grumman
Wencil McClenahan,
Richard Montman, Halliburton
Peggy Morse, Boeing
Bob Myers, Aerojet
Randy Rothschild, Raytheon
Jerry Shaw, Volt
Lisa Webster, EEA Consulting Engineers

College Personnel

Ricardo Jacquez, Dean
Patricia Sullivan, Associate Dean
Martha Mitchell, Associate Dean
Juan Albert, Assistant Dean
Satish Ranade, ECE Department Head
Ian Leslie, MAE Department Head
Peter Martin, CE Department Head
Tracey O'Neil, Program Manager

Welcome

Welcome and introduction of all council guests.

Approval of Minutes

Motion to approve Spring 2014 Minutes: Randy Rothschild
Motion seconded by: Lisa Webster.
Motion Approved.

Absent

Sylvia Acevedo, Communicard, LLC
Edmund Archuleta, El Paso Water Utilities
Frank Bates, El Paso Electric Company (Retired)
Thomas Beall, V-F Petroleum Inc.
Michael Beck, Associated Contractors of New Mexico
Leonard Bloom, Western Refining
David Durgin, Verge Fund
John Galassini, Sunshine Silver Mines Corp.
Arthur Hurtado, Invertix
General Lester Lyles, The Lyles Group
David Martinez, MIT Lincoln Laboratory
Bob Myers, Robert G. Myers Consulting
Brian Rashap, Intel Corporation
Michael Reischman, National Science Foundation
Robert B. Sachs, TEAM Technologies, Inc.
Albert Thomas, Bohannon-Huston

College Overview

Update on college business by Dean Ricardo Jacquez.

Discussed items: 120 credits for graduation, 6 KPI's

Presentation: Enrollment

Jacquez went over enrollment trends and their effect on the College. He discussed the growing enrollment in the undergraduate, masters and doctoral programs, and how, based on the increasing numbers in enrollment and degrees awarded, the College can make a case to increase funding. For 2014-15, enrollment is down in undergraduate, graduate and doctoral programs compared to last year's numbers. He said there is still time for these numbers to pick up before the start of the semester. Everyone is seeing a decrease in enrollment, based on the numbers reported by the other colleges on campus. NMSU enrollment has been down 5% for the last four semesters, but the College of Engineering's enrollment has been up by at least 1%.

Anthony Medina asked about a sustainability plan to continue to increase and support these numbers within the college. Jacquez said this is an area the College is focusing on with STEM outreach programs.

Presentation: Research

Jacquez then moves on to the peer institution evaluations.

Michael Chappell asked how the peer institutions are selected. Martha Mitchell clarified that these institutions were selected by the university as a whole based on comparable factors such as size, region, budgets, etc. Jacquez said the College of Engineering is one of the colleges on campus that looks for research dollars.

Medina asked why there is a decrease in the expenditures by academic department. Stephen Horan clarified that the ups and downs in expenditures is not unusual, as this is tied closely to the economic environment.

Medina asked what the council should understand from these numbers. Patricia Sullivan asked if there is a clarification the college can offer the council in terms of the research expenditures and extensions.

Jacquez showed the numbers on proposals earning \$72.61 million dollars for 2013-14. Peggy Morse said that the council would be more than willing to help with the assessment and review of proposal efforts, if that would be helpful to the college. Sullivan agreed this would be useful as the college looks to the industry to drive efforts. The council insight would ensure the college is working along the right track.

Action Item 1: College of Engineering Council to be involved in proposal review teams when and where relevant. Academy representatives will work to engage their respective academies in this endeavor. Peggy Morse, Michael Chappell, Lisa Webster, Bob Myers, Steve Horan (or other EE academy reps), all council members.

Presentation: College Update

Jacquez said they will move forward with the Masters of Engineering proposal. He said it will be going through all the formal chains to seek approval. He discussed the status of the new faculty lines.

Ian Leslie discussed the challenges associated with faculty equity and merit pay increases when compared to other universities such as Penn State. He said there is a large gap between what universities of that caliber have to offer and what NMSU is capable of offering.

Action Item 2: Distribute information regarding the bond supporting the Jett Hall renovation. Dean's office.

Break

Meeting resumes with discussion on council feedback on Medina's action item.

Presentation: Council Feedback

Jacquez discussed how the recently implemented tech fee will affect lab needs as described by department heads in the previous meetings. Mitchell said the budget committee had approved the top priorities for each department this year.

Presentation: Department Head's Report

Department heads report on the current status of their respective departments.

Satish Ranade said in the Electrical and Computer Engineering Department, the undergraduate electronics lab had made updates to a couple of the other labs in his department. Electromagnetic lab needs some major updates at this point and is the next area of focus for updates. He mentioned several of the classrooms are getting updated to be active learning classrooms to benefit the students. He expects one of these labs to be done this year and three on the second floor to be updated soon after.

Leslie discussed the needs of the Mechanical and Aerospace Engineering Department. He expects the tech fee to help alleviate some of the stress on support for the computer labs, which is his major area of concern at this point. The money received for the damage down by the fire in Jett Hall has helped with upgrading many of the labs, but there are still needs in the labs.

Peter Martin discussed the major equipment additions in the Civil Engineering Department. These new additions have contributed to the value of the labs in the CE department; however, there are still several items the department could use. Martin said they maintain an ongoing list of lab needs so should funds become available, they will have the place and justification to make use of it.

Mitchell reported on the needs of the Chemical Engineering Department. She said they need a kinetics experiment. Sullivan said Western Refining has supported the update of one of the major labs in the ChE department.

Sullivan discussed the impact of the Aggie Innovation Space. She said the space is now to be used to support their non-curricular activities such as the collaboration with Stanford to put on a workshop. The workshop will host 50-60 people, half from NMSU and half from other

universities from across the country. Another proposal will include collaborations with Howard University to work on recruitment, retention and student engagement through a potential immersion course. Combining curriculum and tying it to a common assessment tool through partnerships with other universities such as: integrated pop-up classes to address short skills courses for the students such as creating apps, MatLab, programming, 3D printing, etc. The purpose of the Innovation Space, specifically in the pop-up class format, is to help students transfer classroom knowledge to hands-on experiences.

Medina suggested the council look at these venues as a means of getting involved on campus to help improve the skills and knowledge of the students to better prepare them for the workforce.

Sullivan mentioned the new mentorship program the Innovation Space will be implementing this fall. She suggested this would be another means for the council to get involved as students take their ideas to the Innovation Space and look for ways to develop and improve their ideas to be marketable. Industry representatives would offer a unique guidance to the students that would allow them a competitive edge.

Bob Myers asked if the Innovation Space will have the space to support the kinds of creativity and projects that are being brought into the College. Sullivan said she and Leslie would like to build a new space big enough to support all the growth expected through these projects.

Jacquez requested the council serve as representatives as they go to their organizations and academies looking for support.

Action Item 3: Identify how each of council's respective departments can get involved in the Aggie Innovation Design Challenge. Patricia Sullivan, all council members.

Presentation: Focus Areas

Medina introduced the feedback received from the council to determine the areas of focus of the College. Peggy Morse said national rankings are important to major companies as they look to recruit students. Wencil McClenahan agreed and said these rankings do affect how the companies will pursue the university graduates as potential employees. He said many of these companies have their own internal evaluation in place as well.

Morse suggested the three areas to be of primary focus by the College should be national rankings, diversity and research. Aubrey Johnson asked what the university considers it does well as they that will determine the direction the College should drive change.

Medina asked for feedback from the small business/consulting business industry.

Debra Hicks discussed her experience with the college and how changing the students' experiences will alter the results.

Sullivan said a group of faculty went to the Teaching Academy to learn about the Flipping the Classroom. The challenge has been the facilities available to meet the curriculum needs of the Flipping the Classroom concepts. Equipment has been ordered for the classrooms available and adaptable to the needed change.

Webster emphasized the importance of catching the interest of students at an earlier age especially with women and minorities.

Horan said that we need to increase the enrollment of US students as another challenge is hiring of non-US citizens.

Sullivan said that Arrowhead Center had been instrumental in getting workshops set up across the state to address the needs of the industry. She said another area the College is working on is offering teacher training on C+, Robot C, Vex Robotics, and other areas of engineering focus to address their needs in the classroom.

Rothschild discussed his company's experience with getting students involved. He and Morse agreed that they usually hire at the bachelor's degree level rather than the masters and Ph.D. so that they can train them first and then send them back to get the degrees later.

Jacquez said he expects the face of education to change as the professors' styles change to address students' growing and extensive learning abilities.

Joseph Perea discussed how the College can focus on what they can do to be more attractive to companies. He said the college, with the help of the council, needs to be better at marketing itself. He said by marketing the skills and abilities the College is already offering, the College can increase growth while working on the other areas of expected development. This skill will transfer into the students' experience as well. The students also need to be better at marketing themselves against that of their peers. He said this is imperative to students as they interview for jobs, internships and collaborations and they need to be able to show what they have to offer.

Johnson said that one of the issues students face is how they are presenting themselves to their superiors. He discussed the difference in students he has worked with and how they conducted themselves in a corporate lunch. From conversational preparations to proper attire for the setting, students are coming ill-prepared for the world outside of academia. The council agreed and discussed ways to better prepare students in these environments.

Sullivan said that one of the major issues with the students is that students do not come to the university prepared. Some of them come from small towns and have little to no experience interacting at a professional level. They do not know where to go for help or even how to ask.

Aubrey Johnson asked about the size of the entry math courses for the engineering students. Ranade said they are around 45 students per class. Johnson said this is an area the college should look at, possibly involving the parents in the development of the students. He suggested a STEM Parent program to assist with this effort.

Juan Albert said that mentoring should be an area of focus to help the students in the community as many of the families these students come from have not gone to college and can offer little advice on how to make the most of their student's academic experience.

Richard Montman said diversity and increasing research. He said that the math experience is one of the areas, not engineering, that is most discouraging to the students pursuing engineering

degrees. He said this is an area that should have some more importance placed on it and on how the College can help. He said math has not been presented as a tool, but just as a necessary requirement and this does the students a disadvantage.

Jacquez said this had been an area of concern for the college they had been working to address. The new mentor program is expected to help the freshman students in their first year.

Lynnette Barboa agreed math was valuable, but still has not seen how math and engineering tie together. She said that developing the support and mentorship of the students will be imperative to the student's development.

Jacquez discussed the quality initiative is writing. He discussed the other top concern for a student is money. Sullivan said that many students chose to attend Dona Ana Community College instead of NMSU due to cost, \$30 versus \$300 per credit hour. The College of Engineering has shown one of the lowest debt for students compared to the other colleges. She attributed much of this to the generous donations by corporate partners and alumni to the College scholarship funds.

Medina asked for council feedback on topics to discuss with the President and Provost.

Jerry Shaw suggested inviting the President to a council meeting for him to hear from all council members. McClenahan suggested instead of an all-day meeting with the president and the whole council, but more of a roundtable discussion with him and a small subset of the council to share feedback.

Hicks suggested the agenda for the President's meeting be short and concise and open it up for discussion. Myers said they should build a model of how the engineering students impact industry and come back and impact the university.

Horan suggested the council look at their objectives for the College and tailor it to address the President's mission of discovery. Albert said the President would be interested in learning about the College's fundraising plans.

The council suggested stressing the strong collaborative partnership between the College and industry partners to ensure a strong engineering workforce for NM and the nation. Focus on employment (in state and out of state), student mentorship, research opportunities, and their willingness to continue investing in the College's programs to ensure long-term success. Discussion should highlight the importance of improving facilities and equipment in the various departments to ensure a positive educational experience for the students.

Action Item 4: Continue to provide feedback of corporate engagement to build relationships in their respective areas including mentorship opportunities.

Action Item 5: Department Academies continue working with department heads to improve student experience through improvements to facilities.

Action Item 6: College will provide an updated report on improvements made to the College as a result of tech fee.

Action Item 7: Report on the meeting with the President and Provost. Anthony Medina, Joseph Perea.

Action Item 8: Schedule a roundtable discussion with engineering students and faculty during E-Week to discuss corporate perspective and career opportunities. (Identify panel participants.) Aubrey Johnson, Lisa Webster, Council subcommittee and assign council members to visit respective departments.

Action Item 9: Department heads and academy members will work with the faculty in their departments to be more activity involved in promoting innovation design projects.

Next Meeting: Feb. 26-27

Volt offered to host Fall 2015 meeting.

Meeting adjourned.

Action Items

1. College of Engineering Council to be involved in proposal review teams when and where relevant. Academy representatives will work to engage their respective academies in this endeavor. *Peggy Morse, Michael Chappell, Lisa Webster, Bob Myers, Steve Horan (or other EE academy reps), all council members.*
2. Distribute information regarding the bond supporting the Jett Hall renovation. *Dean's office.*
3. Identify how each of council's respective departments can get involved in the Aggie Innovation Design Challenge. *Patricia Sullivan, all council members.*
4. Continue to provide feedback of corporate engagement to build relationships in their respective areas including mentorship opportunities.
5. Department Academies continue working with department heads to improve student experience through improvements to facilities.
6. College will provide an updated report on improvements made to the College as a result of tech fee.
7. Report on the meeting with the President and Provost. *Anthony Medina, Joseph Perea.*
8. Schedule a roundtable discussion with engineering students and faculty during E-Week to discuss corporate perspective and career opportunities. (Identify panel participants.) *Aubrey Johnson, Lisa Webster, Council subcommittee and assign council members to visit respective departments.*
9. Department heads and academy members will work with the faculty in their departments to be more activity involved in promoting innovation design projects.