
Minutes of the Dean's Advisory Council Meeting
NMSU College of Engineering
Feb. 23-24, 2017
NMSU, Las Cruces, New Mexico

Council Attendees

Joseph E. Perea, Chair, ExxonMobil
Randolph Rothschild, Vice Chair, Raytheon
Eddie Benz, guest
Leonard Bloom, Western Refining
Kevin Eades, Molzen-Corbin
Ed Foreman,
Harold Foreman
John Galassini, Sunshine Silver Mines Corp.
Lou Gomez, New Mexico Spaceport
Authority
Bruce Hayes
Aubrey Johnson, PNM
Mike Johnson
Christopher Long, Orbital ATK Space
Systems Group
Wencil McClenahan, The Boeing Company
Anthony Medina, Sandia National
Laboratories
Richard Montman, Halliburton
Manny Mora
Peggy Morse, The Boeing Company
Bob Myers, Aerojet
Albert M. Thomas
Eloy Torrez
Bud Waters
Dan Whiteman
Allyson Yarbrough, The Aerospace
Corporation

College Personnel

Lakshmi Reddi, Dean
Patricia Sullivan, Associate Dean
Phillip De Leon, Associate Dean
Sonya Cooper, Associate Dean
Mark Gladden, Development Director
Stephanie Armitage, Development Director
Ray Chen, Mechanical and Aerospace
Department Head
David Jauregui, Civil Engineering
Department Head
Thomas Jenkins, Engineering Technology and
Surveying Engineering Department Head
Edward Pines, Industrial Engineering
Department Head
David Rockstraw, Chemical and Materials
Engineering Department Head
Satish Ranade, Electrical and Computer
Engineering Department Head
Linda Fresques, Academic Operations
Support Officer

Welcome

Council Chair Joseph Perea called the meeting to order and welcomed council members and guests.

- The meeting agenda was approved.
- Fall 2016 Minutes were approved.
- Action items from August 2016 meeting were reviewed.
 - Surveying engineering: council members formed a quick and rapid action group regarding the proposed elimination of this program by NMSU administration. Dean Reddi reported that the situation regarding the program was much better thanks to the effort of this group.

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- Distinguished Lecture Series: There will be a re-emphasis on developing this as a means to develop soft skills through the help of the council members.
 - Reduction of student credit hours needed for graduation to 120: Most students graduate with at least 10 percent more credit hours than are needed. This reduction would be impactful to help reduce post-graduation debt. Dean Reddi noted that this issue is still in open debate exclusively in engineering. The national average is 128 credit hours.
 - National Rankings: There was discussion about what can boost NMSU engineering national rankings. Items noted were including PSL research expenditures with engineering as was done in the past and development of a cybersecurity program. Reddi noted that the Provost has committed to fund a new professor in cybersecurity.

Dean Lakshmi Reddi: [A Vision for Learning Communities](#),

- Dean Reddi noted that recent cognitive data have shown that intra- and interpersonal skills are very important to learning. ABET had indicated that engineering educators are not doing enough in developing these skills which students need to be relevant and viable to industry. Reddi said that if we improve these skills we will be unique among our peers and give our students a path to find success in school, at work and in life.
- Our retention rates are 64 percent from the freshman to sophomore year, 47 percent from the sophomore to junior year, and 38 percent for the junior to sophomore year. Four year graduation rates are 15 percent nationally.
- As a means to address these issues, the College of Engineering has a plan to develop a central space in the Foreman Engineering complex that will serve as a single point for student to come for academic, personal and financial issues for advising. The area would be an accessible space for student groups, peer mentoring and provide a dynamic learning environment that offers a feeling of family.
- Reddi made a formal request of council members to help support the Learning Communities and spread the word about the new facility the college development officers will steer donors toward this effort and focus on continued support for teaching methods that don't rely on grant funding.

Associate Dean Phillip DeLeon: [Research Report](#)

- De Leon, who was appointed to his post this past fall, introduced himself to the group and provided some of his academic background.
- De Leon announced the two most recent NSF CAREER Awardees: Dr. Thomas Manz, ChME, awarded \$400K, 2016 and Dr. Wei Tang, ECE, awarded \$500K, 2017. He noted that this is one of the most prestigious awards made and that NMSU competes with the biggest schools.
- New research grants awarded in 2017 amount to \$2.1 million.
- More than 200 papers and conference proceedings were written by COE faculty members

who also made presentations at more than 50 conferences.

- Annual research activity is for 2015-16 is \$11.1 million, down 5.5 percent from the previous year. In 2016, \$20 million in proposals were made and \$9 million were awarded.
- Joseph Perea noted that proposal reviews and templates from industry would be a valuable way for council members to partner with the college.
- Typical load for faculty is 50 percent teaching and 50 percent research. De Leon noted that we need faculty members who are good at both. There is a 46 percent rate from research grants for overhead. Dean Reddi said that it is fairly common for that money to be used to build labs, startup money for new research facility and 25 percent to go to the faculty member for conferences and travel. Some 2.5 percent goes to the library, yet most students don't use the library, but rather access information via the internet.
- In 2015 there were 136 graduate assistants in the college and in 2016 there are 126, a decline of 7.4 percent.
- The college is home to four national research centers: ReNUWIt: Re-inventing the Nation's Urban Water Infrastructure; iCREDITS: Interdisciplinary Center of Research Excellence in Design of Intelligent Technologies for Smart Grids; CBBG: Bio-Mediated and Bio-Inspired Geotechnics; and Tran-SET: Transportation Consortium of South-Central States.
- De Leon noted the college areas of research strength: Energy, environment, food and water; data and information science; STEM education; infrastructure and structures. He further noted that quantum engineering is a particular research opportunity for the college.

Department Head David Jáuregui: [Civil Engineering Report](#)

- Jáuregui gave an overview of civil engineering departmental activities.
- Undergraduate headcount for fall 2016 was up 8.2 percent with 238 students. Graduate headcount was down by 4.5 percent with 70 students.
- There are eight new civil engineering scholarships and in the 2016-17 academic year, \$91,000 was awarded to civil engineering students.
- The department has one chair and five established professorships with two more in process.
- The department areas of research Expertise are inground stabilization, high performance materials, intelligent transportation systems, remote sensing, renewable energy, resilient infrastructure, structural health monitoring, sustainable construction, traffic modeling & simulation, and water conservation.

Civil Engineering Professor Paola Bandini: [Engineering Research Center for Bio-mediated and Bio-inspired Geotechnics](#)

- The NSF center comprises four universities, \$18.5M first five years (2015-2020)
- NMSU share -\$3.2M
- CBBG Objectives:
 - Develop bio-mediated and bio-inspired solutions for geotechnical infrastructure-related construction, operations, and maintenance
 - Inspire a diverse group of engineers and scientists to provide the associated workforce.

- Research at NMSU includes:
 - Bio-inspired soil reinforcement
 - Project GUSANO: utilitarian subterranean annelid inspired geo-probe
 - Microbial-enhanced iron-modified zeolite permeable reactive barrier
 - Rehabilitation and restoration of degraded soils using liquid organic fertilizer
 - Bio-inspiration for resilient earthen construction
 - Activated landfill for rapid organic degradation

Civil Engineering Professor Nirmala Khandan: [NSF Engineering Research Center for Reinventing the Nation's Urban Water Infrastructure](#)

- Funded @ \$18M for 5 years with possible extension to a further 5 years
- Four collaborating universities, lead Stanford
- From 2010 through 2020, NSF funding to NMSU will be \$4,233,599 with an additional \$436,560 from Stanford.
- Research from NMSU includes:
 - Managed riparian zones to conserve and improve water quality and habitat
 - Enhanced water recovery for reuse using cost-effective electrodialysis
 - Algal wastewater treatment and recovery of energy and nutrients

Department Head Tom Jenkins: Engineering Technology and Surveying Engineering

Jenkins gave a brief history of the department:

- Early in the 1960s, employers of engineering graduates expressed a need for trained technicians.
- College of Engineering studied the issue and formed associate degrees in mechanical, civil and electrical technology in a new department. The Technical Institute opened fall of 1963 to 43 students.
- Sixteen students were in the first graduating class in 1965, receiving associate of science degrees. At this time the name of the department became Engineering Technology.
- In 1968, each of the three associate programs (mechanical, civil, and electrical) were reviewed by ABET and fully accredited.
- In the early '70s, demand for even more knowledgeable technicians led to the creation of New Mexico's first four-year engineering technology baccalaureate programs. In '71, the program offered associate or bachelor degrees in mechanical, civil, or electrical technology.
- In 1984, all three of the baccalaureate programs (mechanical, civil, and electrical) were reviewed by ABET and fully accredited. They have remained so to this day.
- In 2005, a baccalaureate program in Information and Communication Technology was started. This non-accredited program is a two-year "completion" degree for transfer students – primarily those students with associate degrees (AS or AAS).
- In 2007, an Information Engineering Technology program was launched.
- In the spring of 2006, the Surveying Engineering and Engineering Technology were merged into the current Engineering Technology and Surveying Engineering Department. The Surveying program is accredited by the Engineering Accreditation Commission of ABET.

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- The last general review for the program was Oct. 2011. The civil, mechanical, and electronic and computer engineering technology programs were re-accredited to Sept. 2018 while the Information Engineering Technology program was accredited for the first time.

Student Presentations

The following student groups gave presentations regarding the activities of their respective organization activities.

- [Aggies Without Limits](#): Victor Meraz and Adriana Erives
- [Women in STEM](#): Marlissa Lucero and Elizabeth Meza
- [Society of Women Engineers](#): Haili Bekes and Yesenia Ibarra
- Tau Beta Pi: Caitlynn Roy and Caitlin Wendland

Action Items:

- Christopher Long and Manny Mora will develop a Legislative Liaison Committee for the Civil Engineering Department.
- Linda Fresques will provide a list of all engineering organizations to council members to develop liaison/mentor relationships. Student groups will continue to be showcased at future council meetings.
- Linda Fresques to provide a list of college activities out to council members at the beginning of the semester to facilitate scheduling of member visits.
- Phillip De Leon and Christopher Long will investigate a system for peer review of proposals and will report back to the council at the fall meeting.
- Linda Fresques will provide an updated council roster.
- Linda Fresques and will request updates and information for the council webpage from new members.
- Rankings will be a topic of discussion at all future meetings.
- Dean Reddi will provide a case statement for learning communities to be sent to council members.
- Linda Fresques will investigate telecommunication capabilities for future council meetings.

Election:

Randolph Rothschild will now assume the council chairmanship as Joseph Perea steps down.

- Bob Myers nominated Christopher Long to serve as vice chair.
- Joseph Perea nominated Albert Thomas to serve as vice chair.
- Linda Fresques will develop web-based voting method and send link to council members.

Adjourn:

The meeting commenced and members attended the Bromilow Lecture presented by fellow council member Christopher Long, vice president, Orbital ATK National Security Systems.