
Minutes of the Engineering Advisory Council Meeting

NMSU College of Engineering

February 26, 2021

From NMSU, Las Cruces, New Mexico via Zoom

Council Attendees

Debra Hicks
Art Hurtado
Lisa Webster
Chris Long
Joseph Perea
Randolph Rothschild
Michael Johnson
Ron Seidel
Richard Leza
Wencil McClenahan
Peggy Morse
Bud Waters
Eloy Torrez
Wayne Savage
Allyson D. Yarbrough
Kevin W. Eades
Jack Davis
Leonard Bloom
Bruce Hayes

College Personnel

Lakshmi Reddi, Dean
Hongmei Luo, Associate Dean of Research
Antonio Garcia, Associate Dean of Academics
Patricia Sullivan, Associate Dean of Outreach and
Recruitment
Gabe Garcia, Assistant Dean of Student Success and
Experiential Learning
David Jauregui, Civil Engineering Department Head
Hansuk Sohn, Industrial Engineering Interim Department
Head
Steven Stochaj, Electrical and Computer Engineering
Interim Department Head
David Rockstraw, Chemical and Materials Engineering
Department Head
Jay Frankel, Mechanical and Aerospace Engineering
Department Head
Stefan Zollner, Physics Department Head
Linda Fresques, College Chief of Staff
Shashidhar Chintalapati, Data Management Specialist
Kara Clem, Director of Development
Connor Adams, Development Director
Kimmie Cravens, Development

Welcome

Council Chair Chris Long called the meeting to order and welcomed council members and guests. Introductions were made

- October 2020 minutes were approved.
- Action items from October 2020 meeting were reviewed.

Dean Lakshmi Reddi

A video of the NMSU Engineer's Week Rube Goldberg machine was shown

<https://www.youtube.com/watch?v=yhxdWHElKo>

NMSU Foundation representatives Kara Clem, Connor Adams and Kimmie Cravens were introduced. Council Members introduced themselves.

College Overview

Pandemic Response

The COVID-19 pandemic has presented challenges and some opportunities. On the opportunity side, the college now has the ability to offer flexibility in course offerings through blended or hybrid methods to expand synchronous teaching. More course content is online and expanded use of technology and outfitting of classrooms support online teaching. Adaptive learning methods have been adopted to improve student success and the catalog of online courses is being expanded.

On the challenge side, there are still serious accessibility and connectivity issues for students. Both students and instructors are feeling Zoom fatigue. Lab classes and unstructured classwork are difficult to conduct. Students need a uniform platform for their online classes. Student surveys show they prefer face-to-face classes.

The NMSU Canvas system has been designed to help with high-school student transition with reinforced lower-division course content and study skill strategies.

The college is planning to offer micro-credentials and expansion of online professional master's programs.

Research

College of Engineering research awards increased by approximately 50% two years in a row. Faculty members are conducting a lot of scholarly work. This cannot be sustained without more faculty and equipment.

Engineering Demand Data Analysis

Shashidhar Chintalapati, data analyst for the college, has been collecting data showing the regional and national demand for engineering disciplines and comparing with the college degree programs on the BS and MS levels. This information shows that there is a big demand for systems engineering, information communication technology, environmental engineering and electric energy systems.

Enrollment

Enrollment totals from 2018 have gone down in 2020. Freshman enrollment is increasing; however, retention is an issue. Credit hours are up due to curricular efficiencies. Gabe Garcia, assistant dean of student success, has been investigating causes and discovered that we are losing students at important transition points, for example Math 191. The college took action this semester to develop a program to offer basic, pre-engineering coursework taught by highly talented instructors for all to new engineering students before they branch off into their intended disciplines. This program may take several years to yield results.

From fall 2017 to spring 2021, the college lost 1,642 students. Garcia reviewed their transcripts and discovered most of them have 60-70 credit hours. The college has good retention of freshmen but they are getting stuck at the junior level. The top 10 courses that engineering students repeat are all math courses. Five out of 10 students are not successful in passing so they take general education classes to maintain full-time status. Engineering 190 was created at a lower degree of complexity to give students struggling with math a better foundation. Garcia is looking at courses that require

math pre-requisites and investigating ways to help students pass required math courses and avoid stalling their degree program progress.

Thomas and Brown Hall

The quest to erect a new Thomas and Brown Hall is underway. The facility will continue housing electrical and computer engineering and will serve as a space for labs, student support and faculty collaboration areas. It is intended to be a signature facility across campus. Blueprints have been developed. A general obligation bond will be on New Mexico's ballot this fall to produce funds for this project. The college will begin a capital campaign to raise additional funds through corporate and individual donations to augment state funds.

Differential Tuition

The college will propose a plan for differential tuition, an additional fee to engineering student tuition, to the NMSU Regents. This is necessary due to the higher salaries needed to attract and retain engineering faculty and the cost of specialized equipment as compared to other fields of study. The college plans to make strategic faculty hires in several disciplines, including information technology, electrical and aerospace engineering.

Action Items

- ⇒ A discussion of steps taken for strengthening interdisciplinary areas will be added to the next meeting's agenda.
- ⇒ Members will receive an expanded view of the student demand data later.
- ⇒ Patricia Sullivan will provide CREW description for the group.
- ⇒ An annual report will be forthcoming and provided to the group.