

# NEW MEXICO INSTITUTE OF MINING AND TECHNOLOGY

## FACULTY SENATE MEETING

Tuesday, February 7, 2012

Workman 101 4:00 p.m.

## Minutes

### 1. **Call to Order**

Faculty Senate Chair Dr. Borchers called the meeting to order at approximately 4:00 p.m. after ascertaining with the Secretary that a quorum had been established.

### 2. **Approval of the minutes of November 1, 2011**

The minutes of the November 1, 2011 meeting were unanimously approved as written on a motion made by Dr. Stone and a second by Dr. Hossain.

### 3. **Announcements**

- a) **Academic Affairs, Deadline Reminders** – Dr. Peter F. Gerity issued a reminder that tenure packets are due to the Office for Academic Affairs on Feb. 15, and that DARs are due on March 1. He also reported promising news from the 2012 Legislative Session after talking with President López earlier in the day. A proposal to restore the 1.75 percent is expected to go through. However, there is discussion about a possible 1 to 2 percent tuition hike. Under capital projects, Tech's number-one priority, a new building for the Bureau of Geology and Mineral Resources, is alive; with a new chemistry building and wellness center in the second and third slots respectively. Gerity reminded the Senate that a General Obligation (GO) bond with funds for the Geology building was defeated by the electorate in 2010, but could come before the voters again in November.
- b) **Distance Ed Committee** – Iver Davidson reported a total of 140 students enrolled in 39 Distance Education courses for the Spring 2012 semester. Davidson reported that EODI is converting the following classrooms to smart classroom technology: Speare 113 (CITL), Cramer 101, MSEC 101, Jones Annex 102, Jones Annex 106, Workman 109 and Weir 129. Next up for this Spring/Summer: Weir 202. Additional classrooms will be outfitted with the smart technology under federal grant programs at the Institute, including an engineering success laboratory. Davidson invited faculty to schedule time for training workshops through EODI's new Instructional Technology Specialist, Rachel Montoya. He also explained the difference between smart classrooms and DE classrooms, in that Tech cannot charge for use of the former, which are viewed as study aides. The goal is to move to a synchronous system rather than one which is asynchronous.

The committee is also working on the development of guidelines for DE assessment, in preparing for the 2014 accreditation visit from the Higher Learning Commission. One issue is to create a process whereby students listed

as DE students can be verified as such. For example, when the time comes for assessment, it's critical to ensure that a student classified as DE is the one doing the actual work, perhaps by proctoring, virtual or otherwise. A key component of this process is the presentation given by a student via live feeds. All this is in the discussion stage and open to suggestions from DE instructors.

- e) **Distinguished Research Award** – Dr. Rick Aster called for nominations for the 2012 award and announced a deadline of April 4. The committee has worked with R&ED V.P. Dr. Van Romero to clarify policies and procedures related to the award. As such, nominations are limited to 10 pages with two to four external letters of support. The deadline from now on will be the first Wednesday in April. Once nominations are in, the committee will work with Romero to select the award recipient. An “early career award” has been recommended by the committee, but no details yet.
  
- d) **Honorary Degrees and Awards Committee** – Dr. Raul Morales Juberias asked that nominations for the Langmuir Award be emailed to him by April 15 (<http://physics.nmt.edu/~raul/HDA/>). The award recognizes an outstanding research paper published in an academic journal during the past year. Nominations should include a brief letter of support and a copy of the paper in PDF.
  
- e) **MOUs** – Lillian Armijo, Director of Student Services, asked that her office be notified of any MOUs with international universities by sending a copy to Sharon Spurgin, so the office will know what's going on. Gerity explained that in the past, MOUs were negotiated with international schools for students, faculty and exchange programs without authorization. These individuals arriving on campus without prior notice can be problematic in that terms and conditions of their stay may not be acceptable. The issue affects both those coming to Tech and those going to international colleges and universities. Van Romero added that pure research agreements were outside this purview and handled by his office.
  
- f) **Benefits Committee** – Dr. Bruce Harrison in a Power Point presentation outlined the status of the university's insurance policy and how it affects employees. New Mexico Tech is currently self-insured, but is looking to change its provider in the light of increasing premiums and co-pays, a process under way for the past year. The advantage of the current provider, HCH, is that it's flexible; the disadvantage is having a small pool of ~1,000 people with an average age of 48. Total cost in 2011 was ~\$8 million from premiums paid by the individual employee and the university. Harrison showed a 10-year aggregate showing that 89 percent of the \$8 million went to pay claims; 9 percent for excess loss premiums; and only 2 percent for administration. Trends show increasing costs for medical claims and prescriptions. Of the five companies that gave presentations to the committee, two were asked to provide detailed plans: Blue Cross/Blue Shield and Lovelace. Open issues are how these plans would affect retirees and overseas travel protection. Harrison noted that the pool was the same with either of these two plans, but that they both offered larger discounts than HCH. One other possibility is to join the

N.M. Public Insurance Company, its 35,000 employees and four plan options. Harrison closed by saying that any new plan will result in increased premiums.

- g) **MST Program** – George Becker reported 125 active students in the MST program for Spring 2012, and asked faculty to serve on committee as mentors or student advisors. Committee members would receive a \$200 stipend, while the stipend for advisors would be \$600. MST offers a great, two-hour training program that includes lunch.
- h) **ESL/Writing Center** – Dr. Steve Simpson said the Writing Center has hired additional tutors. He asked faculty to let the center know when they have instructed students to go to the center, so the center can plan the logistics. Graduate students are advised to come in early for help with their dissertations and theses, and not to wait until the week before they are due. Simpson added that the program is extending services offered to ESL students. Faculty members knowing of any non-English-speaking students who could benefit from one-on-one instruction were asked to get them in contact with Dr. Simpson.
- i) **SRS** – Dr. Mary Dezember reported that, so far, students from the Mechanical Engineering, Computer Science, Physics and E&ES departments have registered for the Student Research Symposium scheduled for April 13. The deadline is at 4 p.m. Feb. 10. Criteria and evaluation sheets can be found on the website; plus, the Writing Center and Oral Presentation Center, through the CLASS Department, are offering three workshops to guide students through the process. Dezember noted that the SRS is not a competition, but rather a learning-and-sharing experience. First-year graduate students may want to register or to serve as reviewers or mentors. She also asked that faculty excuse students from class who want to attend the symposium. Simpson also encouraged faculty to work in the SRS as an assignment, and that he is available to answer any questions. A t-shirt design contest is under way, and Registrar Sara Grijalva announced an additional incentive: the instructor with the most students attending will be offered first preference on a course classroom and time slot for the fall semester.
- j) Ms. Grijalva introduced two, new office administrative assistants, Leslie Hughes and Heather Juarez.

#### 4. Committee Reports

- a) **Space Utilization – Dr. J. Starrett.** Postponed until the March meeting because of time restrictions

#### 5. Old Business.

- a) **Nominating Committee** – Dr. Mark Samuels reported that a replacement is needed for Dr. Deidre Hirschfeld on Faculty Senate Committees. Dr. Samuels nominated replacements for her, Dr. Mojtabai for the nominating committee and Michelle Osowski on the Academic Standards and Admission Committee. There was no discussion and the motion passed.

## 6. New Business

### a) Curriculum Changes – Council of Chairs –

**The Psychology Department** would like to add two classes to the catalogue. Both courses have been taught previously. The laboratory in Child and Adolescent Development is taught and supervised by Ann Sullivan, the director of New Mexico Tech's Children's Center. Science and Pseudoscience is taught by David Thomas, currently at IRIS PASSCAL.

**PSY 323L**, 1 cr, 2 cl hrs Co-requisite: PSY 323 and Consent of Instructor

This course is intended to help students understand, through firsthand observation, theories and ideas taught in Child and Adolescent Development (Psych. 323). The class will focus on the biological, perceptual, cognitive, behavioral, linguistic and socialemotional development of preschoolers at the NMT Children's Center.

**PSY 3XX**, Science and Pseudoscience, 3 cr, 3 cl hrs

Prerequisite: PSY 121 or Consent of Instructor

This course examines methods for determining whether given claims are science or pseudoscience. Several controversial topics will be explored, with emphasis on coming to objective decisions about such claims. Topics include logical fallacies, the Scientific Method, creationism, global warming and climate change, hidden codes in the Bible, Relativity theory, 9/11 Truth conspiracy claims, Dark Matter, UFO sightings, Perpetual Motion Devices, Quantum Mechanics, and more.

**There was no discussion and the motion passed.**

**Proposed Petroleum Engineering curriculum changes, Dr. Engler moved for the following changes:**

**Delete from our course requirements:**

ES 110 and ES 111 EARTH 206

**Delete** the following courses: PETR 442, 464, 465

**Add new required course:** PETR 111 – Computer Applications for Petroleum Engineering

**Add EES elective**

**Add new elective course:** PETR 4xx/5xx- Directional drilling and Innovative drilling methods

**Change existing elective** course to required course: PETR 441-Natural Gas Reservoir Engineering

**Change credit hours**

Increase PETR 424 and lab from 3 to 4 hrs

Increase PETR 425 from 2 to 3 hrs.

**Modify course descriptions** for PETR 101, 411

**Change pre- or co-requisites** for PETR 245, 345, 424L

*Minimum credit hours required—134:*

- PETR 101 (1), **111 (3)** 245 (3), 311 & 311L (4), 345 & 345L (4), 370 (4), 413 & 413L (3), 424 & 424L (4), 425 (3), **441 (3)**, 445 (3), 450(2), , 471(2), 472 (2)
- , 201 (3), 216 (3), 302 (3), 303 (3), 316 (3), 332 (3), 347 (3)
- MATH 231 (4), 335 (3)
- EARTH 101 & 103L (4), 460 (3)

- **EES Elective: Erth 203, 325, or 440 or other 200-level or higher EES course with approval of the faculty advisor.**

PETR 101, Introduction to Petroleum Engineering, 1 credit hour, 1 lecture, 1 lab, 1 discussion, 1 computer lab, 1 total hours  
 Petroleum Introduction to **energy supply and demand. Define** reservoir, drilling and production aspects of petroleum engineering. **Included are professionalism and ethics in the work environment.**

**PETR 111, Computer Applications for Petroleum Engineering, 3 cr., 2 cl hrs, 3 lab hrs**

*Corequisite: Math 104*

Development of algorithms in Excel™ to solve petroleum engineering problems: gas factor, static and flowing gradients, pump design, well testing functions and others.

PETR 245, Petroleum Fluids, 3 cr, 3 cl hrs *Prerequisites: CHEM 122; MATH 132; PETR 111*

Characteristics and properties of reservoir fluids. Representation of fluid property data for computer uses with models and regression.

PETR 345, Reservoir Engineering I, 3 cr, 3 cl *Prerequisites: PETR 245*

Properties of reservoir rocks and homogeneous and multiphase fluid flow in reservoirs. Capillary

phenomena, relative permeability, compressibility, and fluid saturation distribution.

Material balances. Statistical analysis using regression, probability concepts, and computer applications to reservoir data

*Prerequisite: PETR 311 or consent of instructor*

Drilling operations technology with an emphasis on field practices and techniques.

Advanced topics including **drilling fluids rheology and hydraulics. Mechanics of BHA in vertical and directional holes. Directional well trajectory predictions and design. Modeling of drag and torque. Dynamics of drill string, wellbore measurements, deepwater drilling and heat transfer in wells.**

PETR 424, Production Engineering, 3 cr, 3 cl hrs *Prerequisite: PETR 345*

Elements of producing oil and gas wells. Flow of single and multiphase fluids in vertical and horizontal pipes. Choke performance. Nodal analysis systems approach to well production performance optimization. Production decline analysis using exponential, harmonic, and hyperbolic decline curves applied to actual well production data.

Introduction to artificial lift techniques.

**PETR 424L, Production Engineering Laboratory, 1 cr, 3 lab hrs**

*Prerequisite: PETR 111, ES 216 Corequisite: PETR 424*

Design and determination of pressure losses for various components in a flow loop. Design of

artificial lift systems including rod pumps, submersible pumps and gas lift.

PETR 425, Well Completions, 3 cr, 3 cl hrs *Prerequisites: PETR 345* Well completion methods. Design and selection of tubing; perforating performance; sand, water and gas control. Introduction to stimulation operations, selection of stimulation techniques, design of acid and hydraulic fracture treatments.

**PETR 4xx/5xx. Directional drilling and Innovative drilling methods, 3 cr, 3 cl hrs.**

*Prerequisite: PE 311 or permission of instructor.*

Two and three dimensional directional well path design; horizontal drilling; Mathematical model deflection tool analysis; 2D and 3D vector application; Down-hole motors and MWD techniques; Underbalanced drilling; casing while drilling; coiled-tubing drilling. Shares lectures with PET 4xx, but is graded separately and additional work is required at the graduate level.

PETR 442, Equilibrium Stagewise Processes, PhPrEsT R Proceses, 3 cr, 3 cl *Prerequisite: ES 347 or consent of instructor*

The process approach to solving problems that involve equilibrium in binary and multicomponent

mixtures. Phase equilibrium, absorption, distillation (binary and multicomponent), liquid-liquid extraction, leaching. Design of staged operations for separating gas-liquid, liquid-liquid, solid-liquid, and gas-solid

PETR 464, Natural Gas Engineering, 3 cr, 3 cl hrs *Prerequisite: PETR 245*

Composition and properties of natural gas. Gas separator design. Recovery of liquefiable products

from gas. Conditioning, transmission, and compression, measurement of gas, gas pipeline design,

PETR 465, Corosion Engineering, 3 cr, 3 cl hrs *Prerequisite: PETR 424 or consent of instructor*

Engineering study of problems in petroleum and natural gas industry, specifically those associated with drilling, production and enhanced recovery. Principles of cathodic protection and effects of electrolysis on metals analysis and optimization of rate of penetration, abnormal pressure detection, formation fracture resistance, well control, bottom hole assembly and drillstring design, and advanced drilling.

Dr. Tom Engler asked to delete ES 110, ES 111 and EARTH 206 from course requirements for Petroleum Engineering, and to add an E&ES elective to replace EARTH 206, which would maintain the number of credit hours needed to graduate. Dr. Bill Stone noted that EARTH 203 and EARTH 206 are pre-requisites for EARTH 460. Engler noted that enrollment in that course would be left up to the instructor of 460 so far as pre-requisites. In the discussion Dr. Stone responded that this proposal was an inadequate solution. Dr. Stone then moved to divide the motion for approval into two parts, with the first motion to drop EARTH 206, and the rest of the changes in the second motion. Romero said he was not speaking to the fact that the recommendation for approval came from the Council of Chairs, but that there could be some interaction if the original motion was amended, as had been suggested. The motion to divide the original motion into two parts then was put to a vote and passed.

The discussion questioned the motion to drop EARTH 206, which, it was noted, had been thoroughly vetted by the Council of Chairs. Engler said, to date a situation where a course instructor denied permission to a student to take a course, resulted in delaying the student's graduation had yet to happen. Stone then reiterated that a pre-requisite should not depend on instructor consent. Dr. Aster said the issue has already been discussed with the instructor for EARTH 460, and then asked Grijalva if there were any other courses with an instructor-approval pre-requisite. "They're all over the catalogue," responded the registrar. Dr. Gerity noted that the issue before the Senate already had been dissected through two Council of Chairs sessions, with the department of Earth and Environmental Science weighing in on it. The motion was put to a verbal vote, and then to a show of hands. The motion passed on a 21 to 3 vote. The second part of the original motion passed unanimously.

#### **b) Final Schedule –**

Registrar Grijalva pointed out that the final exam schedule prepared last semester is too crowded, and made a motion to schedule final exams from Saturday, May 4 through Friday, May 11 as needed (no exams on Sunday, May 5). The motion was seconded.

Students who have filed Intent to Graduate forms but are not on the exam list for Thursday or Friday will not have enough time for their exams to be graded before Saturday's Commencement, but may walk and will receive their diplomas later. Becker said he would meet with Dezember and Davidson on proctoring DE exams for these students planning to graduate. The motion passed.

Before the meeting adjourned, Dr. Liebrock announced that the Graduate Office would no longer use NR as a grade option. Gerity explained that under a new legislative initiative, New Mexico Tech would be penalized for any I (incomplete) grades, even though it had been previously announced there would be a grace period before the policy was implemented. Another change is the way the university records its grades. Gerity said the issue of how to apply the new policy would first go to the Council of Chairs and then the Senate. Liebrock added that the new rule is effective this semester, even though "we were just told this morning." The values have not changed, just the rules. "We need to change the NRs to what they should be and clean up the record," she said.

The meeting was adjourned at 5:05 p.m.