

CIVIL ENGINEERING AND ENGINEERING ALUMNI INDUSTRIAL COUNCIL MEETING MINUTES

April 17, 2015 – 12:00 p.m. – 4:45, Vine Annex, Room 102

Members Attending: Barry Abbott, Chris Albright, Alejandro Angel, , Michael Barton, Jerry Cannon, Kathy Chavez, Michelle Dodroe, Mo Ehsani, Charles Gajda, Therese Lane, Kevin Lansey, Ann Moynihan, Nathan Palmer, Dean Papajohn, Adam Sedgeman, Spencer Tucker, Robin West, Benny Young, David Zaleski

Members Who Sent Regrets: Garry Barras, Joe Gervasio, James Glock, Tadd Johnson, George Maseeh, Mick Mathieu, Dave Mahaffy, Travis McCarthy, Mathew McDole, Tom McGovern, Tom McLean, Bill Nelson, Stan Turney, Mark Woodson

Absent: Robert Barksdale, Seth Chalmers, James Davey, Tom Draeger, John Evans, Lee Farris, Alan Forrest, Eric Froberg, David Gildersleeve, Chris Grubbs, Kevin Josker, Scott Larson, Juan Lopez, Farhad Moghimi, Jack Moody, Edward Nowatzki, William Palmer, Nancy Patania Brown, Claudia Perchinelli, Robert Rasmussen, Mark Taylor,

Others Attending: Tianna Benson, Jeffrey Goldberg, Alexis Grainger, Haley Koesters, Andisheh Ranjbari, Luis Valdez

Welcome and Introductions

Nathan Palmer called the meeting to order at 12:00 P.M. and all attendees introduced themselves. Nathan stressed the importance of the AIC Group to help with student clubs, curriculum, funding needs, and helping to keep the department in touch with industry needs, trends and technology. He thanked the group for their time and efforts.

Engineers Without Borders (EWB)

Tianna Benson, one of the project managers of the EWB group, was the spokesperson for this update. They are currently continuing the project in Bolivia that began in 2012 to build communal solar showers and family owned latrines. The rural village with a population of 300 that they are concentrating their efforts on is high on the slopes of the Andes is very primitive and a 4 hour drive from civilization. UNICEF has helped to establish a water spring for the village. The EWB group has built a communal shower and latrines and hopes to build 2 additional showers perhaps next summer. Communities must apply for help so they are not given things they do not want. Mo Ehsani from QuakeWrap offered to donate water holding tanks but the group must only use local supplies so that if they break or need maintenance the supplies or replacement parts are readily available to the community who must maintain what is provided.

Society of Civil Engineering Student Group

Luis Valdez, Haley Koesters and Alexis Grainger gave the report. The PSWC (Pacific South West Conference) 2015 was held at the University of Arizona April 9th-11th. This conference was attended by 18 universities from AZ, Southern California, Nevada, and Hawaii. They had approximately 1,200 students, 15 volunteers, 60 people from ASCE, and 20 events. The students will held a career fair during

this time which coincided with Spring Fling. The budget was \$129K plus a 15% contingency. The group raised \$180K putting the club in a good position for supplies for conference next year. The concrete canoe competition was held at Sahuarita Lake on April 10th, and the Award Banquet on April 11th was at the Pima Air and Space Museum. The UA students won 1st in the soccer competition, 2nd in the talent and 3rd in basketball. Unfortunately since they were busy preparing for the conference, they didn't fare as well in the Engineering competitions. The feedback from the conference was very positive. Helpful suggestions for next time would be better maps and signage for the location of events since it was spread across campus and other locations.

International Transportation Engineers (ITE)

Graduate student Andisheh Ranjbari, the President of ITE, was the spokesperson for this update. Dr. Wu is the faculty adviser. Dr. Felipe Ladron de Guevara of Kittleson and Associates has offered to be the Industry mentor for the group. The group of graduate and undergraduate students has been very busy this year. They have a monthly newsletter, invited speakers in which all the students are invited, attend joint SAITE meetings once a semester on campus, attend monthly meetings at PCDOT, have joint weekly graduate transportation seminars with ATLAS, attended the ITS conference in Mesa, TRB Annual Board Meeting in Washington, D.C., attended Roads and Streets conference in Tucson, and the Arizona ITE/IMSA Annual Conference in Phoenix. They also helped with the PSWC conference. Elections are in May for a new board. ITE main chapter volunteered to help with funding for traffic data collection. They appreciate the support they have received from the CEEM department, ATLAS Research Center, Southern AZ ITE and the AZ section of ITE and hope to accomplish even more next year.

Deans Report

Dean Goldberg is hoping you will follow him on Twitter @UA_ENGR_Jeff_G

The College of Engineering currently has 2622 undergrads (25% women, 35% under represented), 700 Grads (56% international, 20% women, 15% under-rep.) There are 115 tenure track faculty but hoping to increase that to 140 in the future. We have \$27M in annual research expenditures. About 1/3 of our proposals are to NSF. We have been stronger with DoD, DoE, and NIH on larger awards.

Leadership Team Changes are: Assistant Dean of Graduate Education is Jim Field. The Chair of CHEE is Anthony Muscat. The Assistant Dean of Research Development is Brian Ten Eyck. The Engineering Clinic Director is Ara Arabyan. The Department Head of BME is Art Gmitro (upcoming). The search for a Department Head for MGE is ongoing as is the search for a Development Senior Director. The College is looking at a couple of possible replacements for our development officers. The University of Arizona is sorely understaffed in development as a whole.

RCM is underway where the revenues are determined by the work you do: graduate student tuition, undergraduate credit hours, undergrad head count, differential tuition, indirect cost recovery, subvention at the starting point. The costs of the University are then covered by "taxing revenues": central admin for a variety of functions, operations and salary, maintenance. Space is initially zero.

Recent developments are: BME faculty build-out funds are appropriated, ENGR, College of Medicine, Provost, VPR, Innovation Center – Marv Slepian, first RCM investment of the Provost. The College has signed a deal with All-Campus for marketing distance education with MGE, SIE, ECE and others to

follow. The Collage has also signed a deal with Academic Partnership for non-credit short courses. There has been a differential tuition increase for FY 15, advisor, recruiter, department funds. An undergraduate program in Environmental Engineering has been created.

The University's focus areas for research are defense and security, space systems, water and the arid environment, population health and health outcomes, healthcare disparities, precision medicine and neuroscience. Engineering fits into all of these with sensors, computational sensing networks and communications, safe/secure flight, image proc., space situational awareness, H2O security, H2O distribution, water-energy, resilient systems, health care devices, and point of care imaging. The current goal of the college that every undergrad student who wants and internship will have one in their academic career and that is being raised to two paying internships during their academic career.

The University has begun a cluster hire process, Provost/VPD initiative which includes salary as well as partial start up and is multi-college for space situational awareness, earth dynamics observatory and imaging technologies.

WEST (Water/Energy Sustainable Technology) is a partnership between the UofA and Pima County to promote research and business development in the region. It has an educational component for the community on water reclamation and reuse, establishes collaborative opportunities between the UA, Pima County and Tucson Water to help solve challenging water and energy sustainability issues for the region and the planet. The county will construct a new 22,000 square foot building and lease it to the UA for the cost of the utilities. The groundbreaking was Dec. 2013 with the move in summer 2015. The Founders/Directors are Ian Pepper (CALS) and Shane Snyder (ENG).

The Grad Challenge proposal was Resilient Arizona to understand vulnerabilities, develop alternatives to critical infrastructure such as water, power, transportation, agriculture and land use. This would involve many colleges and departments on campus.

Dr. Chiu's Metropia app is a free download for your smart phone and will enable the user to earn rewards and get places faster with real-time predictions, route mapping, voice navigation and emergency alerts. It also gives governmental agencies access to valuable real-time flow-data and statistics that allow for better planning and emergency response, increasing flow and reducing congestion.

The ATLAS Research Center is growing and encompasses agent-based modeling (prof. Young Jun Son), dynamic network modeling (Prof. Yi-Chang Chiu), traffic flow theory and logistics (Prof. Wei Lin), connected vehicle applications (Prof. Larry Head), big data (Prof. Yao-Jan Wu), transportation economics (Prof. Ashley Langer), autonomous vehicles (Prof. Jonathan Sprinkle), sensor systems engr. (Adj. Prof. Don Bruyere), structures (Professors Robert Fleischman and Hongki Jo), hydrodynamic flows (Prof. Jennifer Duan), geotechnical (Prof. Lianyang Zhang) and intelligent infrastructure (Prof. Kevin Lansey). The ecosystem of transportation is changing from cars and roads to travelers, autonomous and connected vehicles and intelligent infrastructure. Some ATLAS projects are:

- VASTO – agent based simulation modeling for large scale regional planning and operations (FHWA Exploratory Advanced Research Project)

- MMITSS – Multi Modal Intelligent Traffic Signal System (USDOT/Pooled Fund Project-Dynamic Mobility Applications – in partnership with UC Berkeley PATH, Maricopa County DOT, and California Department of Transportation.
- City of Tucson Bluetooth Travel Time Project – use of Bluetooth readers to measure travel time on critical corridors in Tucson.
- University of California Center on Economic Competitiveness in Transportation. UCCONNECT – The use of big data.
- Monitoring bridges in water run off areas.

We have very strong partnerships with ADOT, Maricopa County DOT, Maricopa Association of Governments (MAG), City of Tucson, Pima Association of Governments (PAG), USDOT and FHWA, ASU, NAU, and UC Berkeley.

Andisheh Ranjbari and Dr. Chiu are working on the high speed bus transit for the Tucson-Phoenix corridor.

Dean Goldberg then gave the trends in new freshmen for the fall over the last ten years. First year GPA and retention are trending up. He also gave a breakdown of the undergrad population. The graduate population is increasing.

More graduate students are needed to help the departments grow in this new RCM (Responsibility Centered Management) budget model. Scholarships for graduate student tuition would go a long way to help the department.

Review of the Minutes

The minutes from the October 10, 2014 had been sent to the group by email. Chuck Gajda asked that the acronym of DPMA on page 4 in the Department Head's report be spelled out. Chuck then made a motion that the minutes be approved as amended. The motion passed unanimously.

Treasurer's Report

Ann Moynihan reported that to date for this fiscal year the department has received \$55,935 for scholarship and student support, \$4,700 for homecoming, \$17030 for department discretionary, \$10,361.89 for the Mohr's Circle, \$2,500 for department endowments, \$15,500 construction course.

Homecoming Report

Ann reported that the department has \$689 left from last year's homecoming donations which is the first time we have had excess. The last Centennial lunch we held in 2013 cost \$4,545. The Centennial Awards Luncheon will be Friday, October 23rd and the barbecue will be Saturday, October 24th 3 hours prior to kick off. The College has been donating the flowers for our events from the Engineering breakfast every year and this year they want us to kick in \$100 which is fair. They will be used for both the lunch and the barbecue. We will charge for the luncheon but we still need to cover the award winners, their guest, the room rental and awards. We are hoping to find donor sponsors whose name and/or logo will be in the program as well as any donor who gives \$1,000 or more will be on our homecoming banner.

A discussion ensued about the venue for the Centennial luncheon. The Marriott was unavailable at the noon hour, Aloft is not able to accommodate a lunch of 100 during homecoming and the Student Union has no availability. Quotes from Arizona Inn, the Double Tree, Hotel Congress and Skyline Country Club have been obtained. The group decided Hotel Congress would be the best. Mike Barton said he would look into getting discount tickets for people to travel on the modern streetcar from campus to the hotel.

Construction Committee Report

This report was given by Dean Papajohn and Kevin Lansey. Construction Engineering Management (CE 381) was offered again in the fall. The second class, Construction Project Planning, started this semester. CE 381 is not a prerequisite. Industry is supporting these courses. Our donors are Ashton, the Henry George Mackintosh Foundation, Granite, KE&G, and Sundt. Some were one time donations and others are continued pledges. Consistent contributions will allow us to add more courses. The Oversight Committee consists of: Bill Vail – Ashton, Travis McCarthy, Mike Hoover and Kurt Wadlington – Sundt, Todd Keller and Jeremy Bohne – Granite, Chris Albright and Adam Sedgeman – KE&G, Mike DiNapoli – Jacobs, Sal Boenzi – Psomas, Bob Wortman, Maher Salah – URS, Dean Papajohn, Dave Zaleski, Ana Olivares – Pima County, and Todd Emery and Rod Lane – ADOT. The goal is to have 4 courses and have a professor of practice on campus to teach them. More donors are needed to continue current classes and to increase the number of topics offered. Speak with Dean if more information is wanted of course content.

Awards Committee Report

Dr. Lansey is forming committees for the Centennial Awards. Information and nomination form are in the packets that were handed out at the meeting and are on the Department's website.

Young Alumni Report

This report was given by Spencer Tucker. This group has been spending most of its efforts helping the SCE club prepare and hold the PSWC this year. Their future plans are to focus on mentoring the students.

Department Head Report

Kevin Lansey brought in one of the Senior Design teams to talk to the AIC about their Senior Capstone project. Mierya Moleres (team lead), Gabrielle Brambilla, Joel Amarillas, Blake Brennan, Haley Koesters spoke about their experience in CE 408A and CE 408B. The first semester was spent doing research and preliminary design. The second semester was spent finishing the project. Industry speakers have come to talk to the class and those who are on the ball are able to ask intelligent questions to help them with their projects. After the students presented their project, a discussion was held about what the students get from this course and what they don't have time to cover such as getting through the process of permits, codes, special project management, utility coordination and budget limitations. What they do get is learning to work within a team, applying the skills they have used from their other courses to a project and integrating different disciplines into their work. Adam Sedgman suggested we combine construction engineers with civil engineers for the Sr. design project. Alejandro can offer sites to Mick that have core samples already done if he needs them. It is hard to know how much to help the students get started.

Some teams are well organized and figure out what to do right away and others waste time now knowing where to begin. There is value in letting them struggle to learn this but Barry Abbott suggested providing a “road map” to the students to help them get started and what to do at each phase. The Young Alumni group offered to help with Mick’s class on projects.

The CEEM Department participated in the Construction Career Days at the Pima County fairgrounds again this year. This is a fun event with simulators and hands on things for the high school juniors and seniors to do. About 1000 people attended this event in November. ATB now runs it. It is thought that 10% of these students will be college bound. There is an initial planning meeting April 24th.

The ABET report is due June 2016. The Department is already preparing for this.

AIC Mission

After our return from a short break, Nathan Palmer thanked the AIC again for their participation and reminded them of all the good they have done for the department such as creating the Friends of the Department, the Centennial Awards, the Young Alumni Group, the construction course that they were instrumental in starting and funding, and fundraising for the department. It is important to have everyone attend the meetings since there is a need for everyone’s input.

Department Head Report Cont.

Curriculum changes were discussed. The department is limited to 128 total units for graduation. We were at 136. Second year goes from general science to applied sciences. CEEM added 1 class Mat Lab in the sophomore year which will be taught by AME. 2.25 GPA is required for advanced standing to get into the 300 and 400 level courses. CE 440 Foundation Engineering has been added. Soil mechanics went from 4 to 3 units. Engr Communication was bumped from 2 units to three to add more writing in the curriculum so the additional unit had to be taken from elsewhere. The students who have signed up for the Leadership seminar are getting one unit of credit but it doesn’t count toward their degree. This has been a very successful course.

The Department receives \$163/student credit hour and \$768/major under the new RCM. 83% of graduate student tuition is returned 75% by major and 25% based on course enrollment. Indirect cost return is 52% on research costs and 86% of that will be returned. Another source of income is on-line graduate courses of which 40% goes to the Department/College, 35% for marketing and 25% to UA. Almost all philanthropy goes to the department as well as funds from short courses. The department received about 15% of patent revenue. To increase our revenue the department wants to increase the undergraduate recruiting, begin the architectural engineering course, continue and increase distance education to include graduate distance and graduate innovative programs. We now have a certified FRP testing laboratory. We are organizing a conference on Science Diplomacy and a short distance course on DYNJUST.

Several Universities were contacted regarding their Architectural Engineering programs to see how many graduates they produce each year, how strong the hiring is for AE students after graduation, if the hiring is cyclical or consistent, what type of firms are hiring their students and if any of the firms hiring their students are in the west. Email correspondence between Dr. Lansey and the Universities was provided. The UA College of Architecture is interested in collaborating with us.

Dr. Lansey has done some undergrad recruiting and found that the younger generation does it much better. The students are interested in innovative, unique and exciting projects as opposed to the regular civil work they may have heard about. The AIC will work with the department to help with this.

International opportunities have presented themselves and the Department is working to take advantage of them. Dr. Vafai has been instrumental in fostering collaboration with the Tehran University.

Dr. Lansey asked the group where the Department should be spending its emphasis. Nathan thought that it is important not to lower the standards to get or retain students. The group thought it is important to keep revenues up so that the department can accomplish its task of educating students.

Summary of Action Items

Kevin Lansey will ask for photos of interesting projects that include the alumni on Linked In.

Kevin Lansey will look into what is needed to offer short courses and get back with Ann Moynihan. The Business School currently has a good model.

Kevin Lansey will form a committee to help with getting the Architectural Engineering Program up and running.

Nathan Palmer will send letters to those inactive members asking if they wish to continue on the board.

AIC will form a subgroup that will talk to high school senior classes to recruit them to apply to UA Civil Engineering and Engineering Mechanics Department.

AIC is to send nominations for the Centennial awards.

AIC will wear Red and Blue to the next meeting so we can pose for a photo at the beginning of the meeting

Therese Lane will send an email regarding details of the homecoming football tickets that are available if purchased as a group to the AIC.

Mike Barton and Ann Moynihan will help with the planning and transportation for the Centennial Awards luncheon at Hotel Congress

Next AIC Meeting:

Next meeting date is September 25, 2015 in the Vine Annex, room 102. The meeting will begin at noon with a light lunch beginning at 11:30 a.m.

Meeting Adjourned: The meeting was adjourned at 5:00 p.m.