

Academy of Electrical and Computer Engineering (AECE)
Minutes of Annual Business Meeting
Thursday, April 21, 2016

Members Attending:

Max Anderson	Walter Reed
Eric Aschinger	Neal Schaeffer
Michael Basler	George Schindler
Sean Bentley	Donald Shaw
Ray Catlett	David Sizemore
Michael Emanuel	John Skain
Alan Erickson	George Tomazi
Barry Freiner	Tom Van Doren
James Fricke	Roger Volk
Vincent Kunderman	Steve Watkins
Leonard Laskowski	Ronald Willoughby
Dennis Letterman	
David McNabb	
Derald Morgan	
Ken Owens	
James Paunicka	

The annual Meeting of the Academy of Electrical and Computer Engineering was held Thursday, April 21, 2016 and called to order at 8:00 a.m. The meeting was held in the Comfort Suites Conference Center. President George Schindler chaired the meeting.

Dr. Daryl Beetner, Department Chair, welcomed the Academy members. Introductions were made.

Dr. Kurt Kosbar reported on behalf of the Scholarship Committee. He reported that the Academy awarded a total of nine scholarships this year. Six scholarships were awarded from the endowed scholarship account. One award was for \$ 1,760, one award was for \$ 1,850, and the other four awards were for \$ 1,500 each. These scholarships are awarded to students who have completed a FASFA form (application for federal student financial aid) and have a combined household income of less than \$40k. The recipients were: Kyle Avola, Feyd Carr. Nicholas Covert received the \$4000 from the operating account as an incoming freshman. The renewals include Dylan Yoder, Robert Branson, and Anthony Nguyen.

Dr. Theresa Swift, Associate Teaching Professor, gave a presentation on Blended Learning. Dr. Swift went over the strengths of the partial flip. The format for Circuits II is two 50-minute class sessions per week which is down from 3. It is fully ADA compliant with online quizzes after video lessons and, three in-class exams final exam out of class homework. The format for Circuits I is short video lessons and ADA compliant with short problem solving videos. Also construction of a video library with four in-class exams and a final exam. During class students

have some traditional lecture followed by in-class group problem solving. The conclusion was that student success maintained and high student satisfaction. The blended learning allows greater flexibility and encourages students to become self-learners.

Jason Northern, Development Officer, provided a campus update. He reported a new building in Experimental Mine, also they are making renovations to Schrenk Hall that is state funded. He reported contribution on scholarship will be matched 1 to 1 up to 500,000 on scholarships. They will be rolling out a new way for Alumni to donate money to the University that will be based on a points system. Jason reported that they are working on changing the branding for the University and came up with the slogan “Miners Dig Deeper”.

He reminded everyone that Homecoming will be held October 15th and the OGS to be held sometime in 2017.

Dr. John Meyers, Acting Vice Provost and Dean of College of Engineering and Computing, reported a department update to the Academy. He reported, for Fall 2016 a 2% increase in enrollment. Dr. Meyers went over Faculty hires, Faculty hires for the ECE department are Dr. Jie Huang, Assistant Professor. Some 2015 Faculty promotions include, Dr. Mehdi Ferdowsi as well as Dr. Yahong Rosa Zheng, promoted to Professor. Dr. Rohit Dua as well as Dr. Theresa Swift, promoted to Associate Teaching Professors. Dr. Meyers went over reward received in the ECE department, these include: Dr. Jun Fan and Dr. Chengshan Xiao received the Faculty Excellence award. Dr. David Pommerenke received the Faculty Research award. Dr. Meyers reported 11 of the 31 Faculty members in the ECE department are IEEE fellows.

Dr. Meyers went over new Faculty hires for the ECE department, Assistant Professor (New,-TT, strategic hire, Controls area), Assistant Professor (New-TT, strategic hire, EMC), Cindy Tang Endowed Professor (replacement- TT), Professor (New-TT, for Ferguson line).

Dr. Mihail Cutitaru, Assistant Teaching Professor presented for Senior Design. Dr. Cutitaru received his PhD. ECE, Old Dominion University Norfolk, VA. His teaching and research include Engineering Education, Embedded Systems, Computer Architecture, Hardware Security and, Low Power Computing. Currently in Senior Design there is 1 permanent faculty + 1 other faculty member. They have poster presentations at 5 weeks. For the future. Dr. Cutitaru sees continued improvement in, innovation in education grant program, re-design lab portion to include discovery interviews. Dr. Cutitaru would like to see more Faculty feedback as well as have more interaction with Faculty advisors.

The first Senior Design Team that presented to the Academy included, Ben Blackson, Colton Pierce, Christian Moreno, Shirly Damti. The presentation was titled Autonomous Sentry. Their presentation was a deterrent device for residential homes. This is a real-time communication camera for the owners of the home. This will be a low cost, easy to use set up surveillance system that provides a deterrence mechanism and will always keep you up to date. It covers a large area and does not require external hardware and, will operate with an android application.

The second Senior Design team to present their project included, Adina Hoyle, Charles Phillips, and Nathan Viehmann. This presentation is called The Sentinel Seat. Their goal is an infant car

seat that will alert the public when a child is left in a dangerously hot vehicle. Features include visible/ audible alarm, temperature and weigh sensors, cooling fans to reduce body temperature. On average 38 child die each year by being left in a locked, they hoping to reduce that number with their product.

Dr. Daryl Beetner presented a department update to the Academy, reporting that for fall 2015 the department had a total enrollment of almost 749 students, with approximately 464 undergraduates (174 CpE and 290 EE) and 285 graduate students (57 CpE and 2228 EE). The off-campus student enrollment is 86.

The department had 31 faculty members and 6 teaching professors. He reported that the hiring of three new faculty members has been completed: Dr Jie Huang, Dr. Ian Ferguson, Tayo Obafemi-Ajayi joins MSU program. Dr Beetner reported the Search for Faculty from these areas Controls, EMC, Cindy Tang Endowed Chair (CpE), Cooperative hire (Cyberphysical Systems/Communications).

Dr. Beetner reported the status of the ongoing initiatives.

- Advising and Recruiting Specialist
 - On hold. Hoping for approval in Fall
- Focus on distance education
 - Created an Associate Chair for Distance Ed.
- Blended learning
 - Converting Circuits I to blended format
 - Incorporating blended learning in first week of labs

Dr. Beetner reported on the numerous student awards from the last year. They included:

- Leann Krieger, HKN-IEEE Board of Governors
- Anthony Nguyen, first place at the IEEE St. Louis section Digital Black Box competition
- Kyle Harper and Kyle Gassell, first place IEEE Region 5 Circuit Design competition
- Justin Hoyt, second place IEEE Region 5 Paper competition
- Ben Conley, 2015 IEEE James Klouda Memorial Scholarship in EMC
- HKN Outstanding Chapter Award
- 14 years in a row!
- Keenan Johnson, runner up for the national IEEE-HKN Outstanding Student Award
- Jacob Self and Neil Heilman – national Power Engineering Society scholarship
- Ali Foudazi, American Society for non-destructive testing Graduate fellowship award

- Faculty awards were given to: Dr. Sarangapani and Dr. Fan elevated to IEEE Fellow
 - 11 Fellows in ECE
- Dr. Xiao: 2015 IEEE Wireless Communications Technical Committee Recognition Award
 - NSF Program Director
- Dr. Erickson: IEEE Region 5 Outstanding Educator
- EMC Group: IEEE EMC Symposium Best paper, both Best Student papers, Student hardware design contest
- Dr. Zheng: Distinguished Lecturer of IEEE Vehicular Technology

- Dr. Stanley
 - St. Louis Section Outstanding Educator Award
 - IEEE Region 5 Outstanding Educator Award
 - IEEE-USA national Achievement Award
- Drs. Fan and Xiao: S&T Faculty Excellence Award
- Dr. Pommerenke: S&T Faculty research Award
- Drs. Erickson, Kosbar, Sarangapani, Swift, Stanley, and Zoughi: S&T Outstanding Teaching Awards
- Dr. Wunsch: International Neural Network Society (INNS) Gabor Award

Dr. Beetner reported he had five new planned initiatives for the department.

They are:

- New lab exercises/ lab equipment
- Supports modification to signal processing curriculum and new required communications lab
- Expect to fund through alumni endowments
- First run completed Fall 2016. Full roll-out Spring 2017.
- On the horizon: Advanced Computer Engineering Lab; HKN “maker space”

Dr. Jie Huang, the newest Electrical Engineering faculty member, then presented to the Academy. Dr. Huang received his BS, Optical Engineering, Tianjin University China 2009. He received his MS ECE, Missouri University of Science and Technology, 2012, his PhD ECE, Clemson University, 2015. His current research interest are Fiber optics sensors, Ultra-fast laser machining, processing and characterization of micro/nano structures, Materials and devices, sensors and instrumentation for applications in harsh environments and, Optical biomedical imaging and sensing. He currently teaches EE 3600: Electromagnetics, EE 3420: Communication Systems. His current research includes optical fiber and fiber sensors. Dr. Huang’s main objective is, development and demonstration of sensors that could survive at high-Temp (up to 1600°C) and dynamic gas pressure. Dr. Huang’s long term goal is to design and detect chemical gas and chemical vapor.

Dr. Sahra Sedigh Sarvestani, Associate Chair for Distance Education then presented to the Academy, Dr Sahra went over current status ECE offers graduate degree programs and graduate certificates, nearly all classes take place in distance education classrooms produced by the VCC, distance revenue is shared with the department (20%, currently \$600) and instructor (20%). Promotion and marketing are through Global Learning. Current objectives include: Triage advising of distance students, Survey ECE faculty, alumni and Academy, and last objective planning frequency and format of distance offering. Dr. Sahra has said, she has reached and spoken with at least every distance twice. Current list of Graduate Certificates include:

- Computational Intelligence (joint with EMSE)
- Electric Machines and Drives
- Electric Power Systems Engineering
- Information Assurance and Security Officer Essentials (joint with CS)
- Network-Centric Systems (joint with EMSE)

There are currently 17 distance (graduate courses offered and 45 student in enrolled in the distance program. Task completed/In progress:

- Coordination with Global Learning

- Employment of GTA for distance learning
- Survey of (recent) past and current offerings, enrollments, etc.
- Audit of all current distance students
- Three-course pilot of ad-hoc distance classroom
- Development of short- and long-term plans and evaluation metrics for distance education in ECE

George Schindler called the business meeting to order by welcoming the new inductees that were present.

Leonard Laskowski made a motion to approve the minutes from the April 2015 meeting. Mike Emanuel seconded the motion. Motion carries.

Michael Emmanuel explained the Treasurer's reports. Dennis Leitterman made a motion to accept the financial reports as prepared. Derald Morgan seconded the motion. Motion carried.

John Skain gave a report for the Membership. He reported that three new members would be inducted into the Academy this year and reminded everyone to send in their nominations for next year.

Eric Aschinger then presented the Nominations committee report. Eric asked for a vote by acclamation for Mike Perry to term up (3 year term) Mike Matthew and Mark Nealon (3 year term) to fill the two vacant board seats, George Schindler motion to elect board members Derald Morgan seconded the motion, motion carried.

George Schindler gave a report on 20/20 Endowed Scholarships:
 Scholarships were written where Student Financial Aid (SFA) or AECE could award.
 SFA was awarding scholarships without AECE input
 This was done 2 years in a row, not acceptable to AECE
 With the help of the Development Office and the Department Chair, we have an agreement with SFA to rewrite the endowments to remove SFA involvement from the endowment (Thanks to Jason and Daryl!)
 This process will take a couple of months, but I will continue to follow it.

Dave McNabb gave an overview of the Chancellor's Academy Presidents Forum. The Academy President's Forum allows us to share ideas, information and issues among the Academies and with the Chancellor. Chancellor's office now has an individual who is a Strategic Planning resource and is working on a University Dashboard. Project Lead the Way – Missouri is the fastest growing nationally in PLTW. S&T is training teachers in PLTW. A lot of academies are having issues keeping websites up to date. University will be implementing a web person and will look at providing work/study help for Academies.

George Schindler then reviewed the AECE Strategic Plan. George stated that the AECE strategy is to provide focus on what we will do to help the department and university. The Strategic plan has 5 themes. AECE Theme A, recognize past ECE graduates who have been successful practitioners of Electrical and Computer Engineering and encourage participation in AECE.

AECE Theme B, provide support to the Students of the ECE Department. AECE Theme C, provide support to the ECE Department. AECE Theme D, provide guidance to Department Chair, Faculty and Students. AECE Theme E, promote the ECE Department and University. Strategy implementation will include, budget item for Theme E, Lever D Need volunteers for “Mentoring to Student Design Teams” (Theme B, Lever C) Need volunteers for “Provide industry input in support of faculty proposals” (Theme D, Lever C). Need a team to work with student organizations to provide a mentoring program (Theme B, Lever B)

George Schindler gave a brief overview of meeting expenses. He explained that overall giving is up. Giving the past three years has been excellent. Academy endowments are funding six students. For 2015 meeting receipts exceeded expenses. If every member who has given gave \$250.00 in 2016-2017, we could raise \$33, 00.00. With that extra money we could, Increase scholarships, increase lab endowment, provide more scholarships from operating account, and fund more student projects and trips. With a higher sustained giving, we can make bigger impact on the department, students and the university.

George talked about the Academy Metrics. This is April 2015 Missouri S&T Data. AECE Ranks (out of 8 Academies)

3rd on number of members (139)

8th on percent who give (94%) 3rd 8th

8th on percent of OGS members (35%)

8th on lifetime giving per member

George Schindler then addressed the Academy in regards to the lab endowment. The lab endowment will provide money to support the department labs. The endowment agreement has been signed. A total of \$ 19,950 has been raised. The proposed budget will fund the remaining \$5,050 to establish the endowment.

Michael Emanuel presented the proposed budget for the 2016-2017 operating year.

Roger reported that the next meeting of the AECE would take place on Thursday, April 20th, 2017.

Matthew Horst then presented his current research to the academy. He is working on developing a real time microwave camera. Matthew is working with microwave imaging, NDE Applications include, dielectric composite structures, aircraft radome and corrosion under paint. He then went over the advantages of using 2D array, real time imaging data acquisition, no bulky mechanical system. Some of the challenges of designing a 2D array are, spatial sampling controlled by antenna size, and can be complex and expensive.

Nicholas Covert, scholarship recipient made a brief presentation to the Academy. Nicholas was born and raised in Pacific, MO. He was actively involved in Boy Scouts for 12 years and, band since 6th grade. Nicholas was originally a Physics major but switched to Computer Engineering his Senior year, when he started building his own computer. His future goal is to graduate with a BS in Computer Engineering. He would like to design computer graphic processors and work with a big name such as AMD, Intel or, IBM.

Feyd Carr, scholarship recipient, also made a brief presentation to the Academy. Feyd Carr is the oldest son of Douglas Carr and Bridget Hussey. He is a 20 year old second semester sophomore. Feyd was the Valedictorian for his high school class. He said without the generosity of the Academy he wouldn't be at this school. Feyd is a hopeful graduate of 2018. In the future he plans to Graduate, succeed and give back to those who gave to him.

The next AECE Meeting and Banquet of the Academy of Electrical and Computer Engineering will be Thursday, April 20, 2017. Mark your calendars and plan to attend

Minutes submitted by David McNabb
Minutes taken and prepared by Ashlee Johnson

April 19, 2017