

Imagineering Becomes Reality



Andy Miller '18, AEST's First Imagineer

The term “Imagineering” comes from blending imagination with engineering. The term is used by Walt Disney to describe the creative force behind its theme parks and resorts. Andrew Miller, a double major (Entertainment Technology & Applied Engineering & Technology Management – Robotics & Control Systems) has always been an “Imagineer” at heart.

At 10 years old, Andrew was modifying electronic devices of all sorts since he loved video games and building LEGOs. By the age of 14, he had created his first portable game systems. Over the years he has created more than 30 portables now including ones for NES, SNES, Nintendo 64, GameCube, Wii, Dual systems, and Genesis. At 19, he broke an unofficial Guinness record by making the world’s smallest portable Nintendo 64 portable game system, the 64 Boy Micro, in Shenks Hall during his Sophomore year. Recently, he developed an ultimate portable design that plays approximately 100,000 games from over 50 gaming platforms.

Andrew’s passion for creative engineering was further harnessed and developed throughout his years at Millersville University. In the spring 2017 he and his lab partner, Weston Chambers, became the first students to design and create an autonomous hallway survival robot that would complete all ten levels of unknown conditions during the ITEC 427, Programmable Logic Controllers class’s final research and development project competition. According to Andrew, “I came from a high school where the closest thing to engineering was a ham radio club and a visual basic class. I had to teach myself soldering and understanding how game systems work through trial and error and some internet help. Millersville opened the door to the engineering skills I wish I had years prior to attending. Millersville taught me more than what I thought I knew and made my passion stronger in the process.”

As part of his AEST departmental honors project, Andrew developed a music video, a parody of Sammy Adams’ All Night Longer song, that highlights Osburn Hall, its programs, facilities, and fun/energy that students have while studying here. His experiences at Millersville were literally portrayed in the music video itself. “I tried to show future students a glimpse of how great it is at MU And I Love it” said Miller. This awesome

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Fab-Lab Capital Campaign Continues

The capital campaign to construct additional fabrication space for AEST programs and organizations continues. At the time of this writing we have raised approximately \$40,000 toward the building project. When we reach \$50,000 we will receive an additional \$50,000 in matching funds from Millersville University. At that point we will be able to enter the planning stages for constructing a “Fab-Lab”. The structure is intended to provide interior space for the construction management and construction technology programs, and to provide additional research and fabrication space for various clubs and throughout the AEST department. Here are some frequently asked questions along with my responses:

Target Funding Levels
\$100,000 <i>Superstructure</i> <small>(includes naming rights)</small>
\$25,000 <i>Pillar</i>
\$10,000 <i>Truss</i>
\$5,000 <i>I-Beam</i>
\$1,000 <i>Stud</i>
\$500 <i>Sill Plate</i>
\$250 <i>Anchor Bolt</i>
\$100 <i>Footer</i>

I don't have the big bucks. Can my contribution really make a difference?

The answer of course it can. It’s not always about the money. Contributions of any amount indicate commitment to the project and they add up as well, but they also help me to provide a response to a question I get from potential industry donors: is are your alumni committed to the project? They never ask how much people are giving. They just want to know that the AEST community is supportive of the project. I would appreciate being able to give them a resounding Yes as my response.

Why not just teach construction outside?

We have done this for years with mixed results. On a real construction site, workers can just go home when the weather is bad. This is one of the differences between industry & education. When taking a course about construction there are objectives to be met and a particular body of content to be covered. We can’t just send everyone home when the weather does not cooperate.

Has a location been chosen?

At this time there are four or five locations that have been identified as having strong potential. Once the matching funding is obtained a site analysis will be conducted to determine the best location.

How can I give?

Click here to make a tax deductible donation and go to the AEST Facilities and Equipment fund, <http://www.millersville.edu/give> Thank you for your support.

Dr. Len S. Litowitz, Department Chair ■

We Want YOU!

A Seminar for High School Girls Interested in Careers in Graphic Communication or Technology & Engineering Education

On Thursday, October 4, from 5:30 – 8:30 pm, Dr. Sharon Brusica and Prof. Donna Painter will host a seminar for high school girls—*We Want YOU!* The seminar will be held in Room 200 Osburn Hall at 40 E. Frederick Street, Millersville.

Junior and senior high school girls who are interested in learning more about career opportunities in the graphic communication field or the process of becoming a certified technology & engineering teacher are invited to attend, along with a parent or mentor. There is no cost to attend this seminar, but to participate girls must register by September 20, 2018 by emailing donna.painter@millersville.edu or sharon.brusica@millersville.edu.

We Want YOU! is a seminar focused on encouraging young women to enter two technical fields with solid demand and ample opportunities for women—technology & engineering teaching and graphic communication. At the seminar young women will learn about the wide-range of career opportunities available in the graphic communication industry, as well as how Millersville's degree program can provide a launch point for those careers. Information will also be provided about Millersville's Technology & Engineering Education degree and the specifics of becoming a certified teacher. Both of these areas offer fulfilling and high demand careers. Seminar attendees will meet young women currently working in these fields, professors and current students at Millersville University, and tour of Osburn Hall's labs. Dinner will be provided, at no cost, for participants and their mentors.

The *We Want YOU!* seminar is free for participants and their mentors, and is being funded by the Millersville University President's Commission on the Status of Women. Their mission is to foster a university climate that promotes full and equal opportunity for women to study, work, and live.

Ms. Donna M. Painter, M.Ed. ■



Manufacturing Engineering Technology

The Department of Applied Engineering, Safety, and Technology is excited to announce that on January 25, 2018, the Board of Governors approved our newest degree, a Bachelor of Science in Manufacturing Engineering Technology (MFET). The new MFET degree will be implemented starting in the fall 2018 semester. This program is the most technical degree that our department has ever offered. Across the country engineering technology programs like this are really gaining popularity, part of which is due to changes within the Accreditation Board for Engineering and Technology (ABET) which now offers accreditation for these programs. We designed the MFET program based on considerable feedback from not only regional industry, but also using input from alumni and current students—which we strongly feel resulted in a program that meets the needs of a rapidly evolving industry that places increasing importance on automation and advanced manufacturing technologies. The intent of the program is to provide a more in-depth technical concentration of advanced manufacturing with added emphasis on automated manufacturing, robotics, and computer aided design; while at the same time, maintaining the hands-on, experiential base learning that our department is well known for.

The MFET degree differs from the existing Applied Engineering & Technology Management (AETM) degree in that the technology management core has been replaced by a very robust 54 credit technical core that pretty much includes most of our materials/processes courses and a good portion of the design and automation ones as well. Along with additional requirements in math and science, this program will produce graduates with extremely marketable technical backgrounds that should be highly competitive in both regional and national job markets.

Dr. Alex Johnson, MFET Coordinator ■

Imagineering, continued

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video is now public and you may view it here on the AEST department's YouTube Channel: <https://www.youtube.com/watch?v=NvHeISIJMWo>

Andrew also recently won a Shark Tank competition on campus for his business pitch for developing a web-based company around helping others mod their own electronics and game systems, and for DIY portable kits. He was on his way to pursuing this venture, when he received a phone call from Disney.

Andrew will become the AEST Department's first Imagineer. He secured an internship this summer as a Walt Disney Imagineering Show Electronics Engineering Specialist. Andrew's coursework is all complete and he is headed to Glendale, California (Imagineering Offices) where he will be defining control system requirements, developing specifications and test plans, producing electronic designs, supporting mock-ups and proof of concepts, supporting field installation, and providing training and post opening support for Walt Disney Land. On Fridays he will take additional classes in Anaheim to learn about Imagineering, the dream of Walt Disney, and the innovative work done over the years for the parks. "I am beyond excited for the internship - the title really sounds like me. It's like a dream coming true, and I wouldn't change a thing about all the hard work done to reach this opportunity. It helped make me, me! The toughest part will be moving out to California when most of my family is here in Pennsylvania. We're a close, big Greek family, and I love them so much."

We wish Andrew the best as he goes on to "Imagineer" fun experiences for millions of people.

Dr. John Wright, ARET Coordinator ■

Eight Research and Development Students Participate in *Made in Millersville*



Eight students from Dr. Tom Bell's ITEC 455 Research & Development in Graphic Communications course participated in the annual Made in Millersville (MIM) research conference. The conference allows students to show case their scholarly work and experience a professional conference. MIM highlights the work of students through presentations, research posters, performances and other creative works. Presenters are interviewed by professors and alumni who give feedback to the students concerning their work. Students identified in the photograph are from left to right: Marthelis Abreu, David Deighan, Madison Trilling, Willis Do, Analeesa Marvel, Brittany Myers, Connor Moyer, Nicole McNerney, and Dr. Tom Bell.

Dr. Tom Bell ■

Wireless Communications Systems Course Includes FCC Licensure

For the third year in a row, the Wireless Communications Systems course has included the opportunity to become licensed by the Federal Communications Commission (FCC). The license students vied for was the entry level amateur radio Technician License. The exam itself includes basic electrical/electronic knowledge along with the rules and regulations for transmitting on the amateur radio bands. Additionally, things like radio safety and operating station equipment are also included. Because of this, students needed more than just learning content from the wireless course itself. Additional study was required to successfully pass the exam.

The teacher of a course like this one cannot provide the exam. For that, Volunteer Examiners are required. Fortunately, within the area, are two amateur radio clubs that help out with the offering of the exam. The Coordinator of the Volunteer Examiners was Rich Kaelberger (AB3RK), and Volunteer Examiners were Audra Wilder (KD3K), Larry W. Laughman (K3LWL), Phil Theis (K3TUF) and Harry Bauder (N3FMO).

There was a total of 16 people in the wireless class and two people who wished to take the exam from outside the class. Of the 18 people who took the exam, a total of 15 people passed for an 83% passing rate. Combining the wireless course with the FCC licensure is a great way to learn the technology as well as cultivate a new hobby!



Figure 1

Dr. Ken De Lucca, WA3KD ■



Figure 2



Figure 3

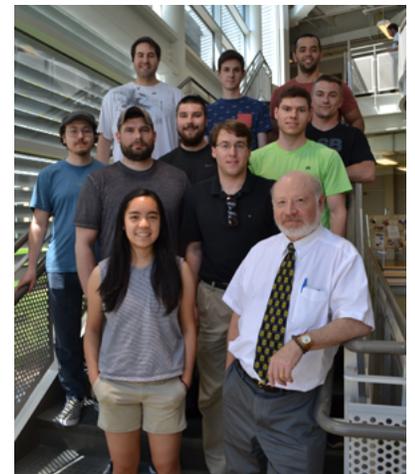


Figure 4

Figure 1: Andrew Spisak, KC3LIQ makes his first amateur radio contact with Ken De Lucca assisting

Figure 2: Volunteer Examiner-Coordinator, Rich Kaelberer AB3RK.

Figure 3: Volunteer Examiners, from left to right: Audra Wilder KD3K, Harry Bauder N3FMO, Phil Theis (standing) K3TUF, and Larry W. Laughman K3LWL.

Figure 4: New FCC Licensee's, from left to right, front to back: Anna Tran KC3LIG, Ken De Lucca-Instructor WA3KD, N.D. Powlus KC3LIP, Dietrich Gehron KC3LIM, Tyler Miller KC3LIB, Ethan Bressler KC3LIO, Nate Ceol KC3LIH, Grant Bortner (KC3LII), back row, Dan Carpenter KC3LIK, Bailey Cartusciello KC3LIN, and Julian Gonzalez KC3LIF. Not pictured: Will Fern KC3LIC, Noah Hawkins KC3LIU and Andrew Spisak KC3LIQ

Excellence in Integrative STEM

Undergraduate students in AEST's Integrative STEM Education Methods (ISEM) minor have a new way to be recognized for their exceptional efforts. This year, project staff in the National Science Foundation (NSF) funded Integrative STEM for Teachers of Young Students (iSTEM4ToYS) project (Sharon Brusic, Principal Investigator) created a new incentive for students to push themselves and become more involved in integrative STEM. The project's co-principal investigators, Drs. Janet White (Math) and Jennifer Shettel (Early, Middle & Exceptional Education) proposed and put into place a program for ISEM students to log points for activities and experiences in integrative STEM outside of class requirements. It's called the Excellence in iSTEM designation. Students who log 30 or more points over the course of their ISEM minor are eligible to purchase and wear special graduation cords with their commencement gown to recognize this achievement.



Janelle Konkle (left) and Aneshka Szczesny (right) are two of the May graduates who earned Excellence in iSTEM awards.

Students can earn Excellence in iSTEM points in a number of ways, but all experiences must be above and beyond course requirements. For example, they earn points for serving as a judge at a STEM-related competition (2 points), attending a local or regional one-day STEM conference (3 points), planning/leading a STEM activity with children in a summer or after-school program (5 points), or presenting at a national STEM-related conference (8 points).



The red/yellow/blue cords represent the Excellence in iSTEM designation.

The program was just initiated in January and students who were scheduled to graduate this spring were given the opportunity to log their past accomplishments in order to earn the recognition in time for the May

graduation. Six May graduates earned the recognition, including Megan Dougherty, Kristin Hellman, Janelle Konkle, Aneshka Szczesny, Teagan Hanlon, and Melissa Sheffer. Casey Craven also earned the recognition, but she is not scheduled to graduate until December. Congratulations go out to all of these outstanding students who are going above and beyond to be exceptional Pre-K to Grade 4 STEM educators. We wish them the best as they head out to new jobs and inspire their young students in integrative science, technology, engineering, math, and all subjects.



This material is based upon work supported by the National Science Foundation under Grant No. DUE-1611652. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

Dr. Sharon Brusic, TECE Coordinator

Students Earn Professional Certification

Total Quality Management Students took the Certified Technology Manager (CTM) Professional Certification Exam on May 10th. 19 of the 25 students passed the open-book, 160-question, multiple-choice examination. The CTM includes questions on Leadership/Self-Management, Systems, Processes, Operations, People, Project, Quality, and Risk.



While the exam's national pass rate has hovered around 60% for the last two years, our Applied Engineering and Technology Management (AETM) students exceeded this rate significantly with a 76% pass rate. The CTM is one of several professional certifications offered by The Association of Technology, Management, and Applied Engineering (ATMAE). ATMAE is also the professional accreditor for the Department's AETM Bachelor of Science degree program. Congratulations to the following students for passing the CTM!

Brent Bingham, Connor Bossom, Nicholas Bozzelli, Ethan Clark, Daniel Close, Matthew Coleman, David Deighan, Jay Dreiling, Andrius Fink, Tyler Gross, John Hutchins, Brit-tany Myers, Daniel Poff, Kevin Riegel, Samuel Suder, David Thomas, Joshua Warner, Philip Weber, Leisha Wilt

Dr. John Wright, ARET Coordinator

TEECA@MU Went to Atlanta

Atlanta, Georgia was the site of this year's International Technology & Engineering Educators Association (ITEEA) conference from April 12-14 and thirteen members of AEST's Technology & Engineering Education Collegiate Association at Millersville University (TEECA@MU) were there to participate in this annual event. The students who participated this year ranged from freshmen through seniors and included Michael Clappison, Carla DiStasio, Vivian Feliciani, Alaric Gallo, Rebecca Howell, Thomas Kauffman, Adam Kennedy, Marie Leatherman, Tia Mauro, Saarahi Navarrete, Sidney Scoralick, Jeffrey Swartz, and Lauren Woods. All of these students are studying to be K-12 Technology & Engineering teachers.

Students were able to participate in numerous professional development sessions at the ITEEA conference and discover new strategies and curriculum ideas. They were also able to peruse the vendor exhibits and network with other professionals in the field. There was special programming for TEECA members specifically, including a banquet on the final evening. This banquet was extra special because TEECA @ MU had nominated one of their co-advisors, Dr. Sharon Brusic, for the National TEECA Advisor Award. It was a distinct honor for Dr. Brusic to be awarded this recognition at the banquet.



TEECA @ MU members were supported for their travel to this conference from a few sources. Students received some funding from MU's Student Government Association. But, they also received a generous financial gift from alumnus Mr. Brent Frey, a 1983 graduate of what was then called MU's Industrial Arts program. **Thank you, Mr. Frey, for your generosity and support!**

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SME Accomplishes BAJA Challenge

The SME student group has been involved in a number of projects for fundraising and community outreach over the last several years, but this year the group took on the Baja SAE collegiate challenge for the first time. According to the competition website, "Baja SAE challenges engineering students to design and build an off-road vehicle that will survive the severe punishment of rough terrain..." The benefits include a real-world environment where, "...these future engineers work together as a team to discover and resolve technical challenges in design, test, and manufacturing, as well as business issues."



The competition was challenging in more than just engineering aspects. At the start of last semester, the student group had no space to perform their work, lacked the basic tools needed, and had no experience documenting and meeting the numerous safety, technical, and reporting requirements associated with this competition. Furthermore, this competition is populated by the nation's top engineering schools and groups with over a decade of experience.



Despite a lack of manpower and resources, the students in this inaugural effort were able to get the what they needed and wade through the regulatory requirements. Not only did we make it to the competition (many teams do not even make it there), but we were competitive. Based on the quality of our vehicle, judges and fellow competitors alike were surprised that it was our first year. They were even more surprised when we outperformed prestigious universities in demanding events such as the suspension and traction course and the four-hour endurance race. The credit goes to the group of students who dedicated long hours to making it a reality. Additionally, we are grateful for the financial and material assistance of our sponsors, without whom we would not be able to compete. We look forward to next year's competition and are excited to bring on new team members and sponsors. If you are interested in learning more about the group, visit our Facebook page (<https://www.facebook.com/MillersvilleBAJA/>). If you'd like to get involved, stop by our department or contact the faculty advisor, Dr. Mark Atwater (mark.atwater@millersville.edu).

Dr. Mark A. Atwater ■