

# Manufacturing and Engineering Technology Annual Report 2012

## **Mission Statement**

The Department of Manufacturing and Industrial Technology offers a four-year baccalaureate degree program designed to prepare technologists and applied engineering workforce dedicated to solving complex technological problems.

## **Faculty and Staff**

- 4 Faculty Members
- 2 Staff

Ahmed H. ElSawy, Professor and Chair

Fred Vondra, Professor

Ismail Fidan, Professor  
Ahmed Kamal, Associate

Professor

Larry Smith, Adjunct Faculty

Pauline Reyna, Administrative Associate 3

Barry Allison, Academic Support Associate 7

## **Enrollment & Degrees**

- Each summer about 3-4 new freshmen attend the SOAR program and register as Manufacturing Engineering Technology Students. Around ten transfer students also joined Manufacturing and Engineering Technology.
- Over 175 Undergraduate students
- Undergraduate Degrees awarded were slightly lower, with 37 this year.
- The Department received fall accreditation from the Association of Technology, Management and Applied Engineering till November 1<sup>st</sup> 2016.

## **Student/Student Organization Awards & Achievements**

- Under the guidance of Dr. Fidan, TTU's SME chapter was one of the five chapters selected nationwide to participate in the DOE Energy Conservation program. It looks the Chapter will receive some monetary support from the DOE grant to SME. The Industrial Assessment Center at TTU under the direction of Drs. Currie and Cunningham will train and give field experience to the students. It will not only provide a great educational experience for the students but will also benefit the industries to save energy.
- MIT student, Steve Ngwira (also Honors Student) was able to receive three prestigious scholarships recently from the Society of Manufacturing Engineers (Dr. Fidan is the advisor). All these scholarships are extremely competitive, and all applications are peer-reviewed: 1) Myrtle & Earl Walker Scholarship - SME Education Foundation, 2) Future Leaders of Manufacturing - SME Education Foundation and 3) Lee Severy Scholarship - SME Nashville chapter.
- The MIT senior students William Hafner-Burton and Peter Nelson under the supervision of Dr. Ahmed ElSawy authored and published an undergraduate research paper entitled: "Solar and wind generation to power medical facilities in Haiti" at International Conference on Renewable Energies and Power Quality (ICREPQ'12), Santiago de Compostela (Spain), 28th to 30th March, 2012. <http://www.icrepq.com/icrepq'12/719-hafner.pdf>.

## **Alumni Accomplishments**

- Sam Elliott is employed by VW group of America (Chattanooga Operations, LLC), Amy Elliott's Husband (2009 Moonbuggy Team captain) was selected recently to work in the CEO office for the new Director of Manufacturing as his 'Coordinator' ... which means he coordinates all the projects the Director of Manufacturing wants to implement ( which is a lot ). It's a development role that Sam can use as a stepping stone in his career toward management position. It is worth to mention that when Amy was the team captain and Sam the project manager, TTU's Moonbuggy Team was able to win the 2009 first class in design, innovation and safety in the NASA Great Moonbuggy Race which took place in Marshall Space Flight, Huntsville, Alabama.



**Amy McDow (Elliott) on the left and Sam Elliott is the fourth person in the back row**

#### **Faculty, Staff & Student STEM Outreach & Community Service**

- Dr. Ismail Fidan was the recipient of TTU's Outstanding Professional Service Award.
- Dr. Ismail Fidan in collaboration with college of Business faculty have developed and offered an International Service Learning (ISL) course in spring 2012. Twenty students from the College of Engineering and College of Business have taken the course offered by two marketing, one management and one engineering faculty members. Twenty business and engineering students, including one ROTC, two Honors and three MBA students, registered for the ISL course. The course was cross listed to satisfy the academic needs of the students. Different sections included six different special topics courses listed as BMGT 4900/6900, MKT 4900/6900, and ENGR 3953/HON ENGR 3953. ISL course provided hands-on education environment in which cross-disciplinary students engage in real-world activities that address human and community needs together with structured opportunities intentionally designed to promote student learning. This cross-disciplinary course contributed to TTU campus' internationalization by infusing the classroom with international culture to prepare students to be more receptive to global trends and perspectives. As part of TTU's Quality Enhancement Plan (QEP), this course also focused on a multi-disciplinary learning environment to enhance critical thinking and real world problem solving capabilities of TTU students in a global market specifically involving U.S.A. and Turkey. TTU students and their counterparts at Celal Bayar University (CBU), Manisa, Turkey have innovatively approached a defined business need at the local level and then engaged in a grassroots civic intervention in the African American community of Free Hill, Tennessee, U.S.A.



Dr. Fidan and students visiting the Ephesus, Turkey May 2012

Dr. Fidan with the students at Istanbul Airport in Turkey



- Dr. Ahmed Kamal received an NSF fellowship awarded by Nanotechnology Center at Penn State University to present poster and presentation at International conference of Nanotechnology Applications held On May 2012 at State college, Penn State University.
- Dr. Ahmed Elsayy provided consultations and work force development workshops through the CMR for the [www.cis.utk.edu](http://www.cis.utk.edu): Storm Copper, Athens TN (April 17-18, 2012); Westinghouse, Chattanooga TN (June 27-28, 2012); Westinghouse, Chattanooga TN (July 30-31, 2012).

### Professional Activity Summary

The Faculty of Manufacturing and Engineering Technology had an active year including:

- 1 Book Chapter
- 2 Journal Publications
- 6 Conference Publications Reviews
- 5 Conference Presentations and Periodicals Publications
- 2 Invited Presentations
- Associate Editor of IEEE Transactions on Components, Packaging and Manufacturing Technology.
- Associate Editor of American Journal of Engineering Education.

### University Involvement & External Partnership

- Dr. Fidan was able to partner with Celal Bayar University (CBU), Manisa, Turkey
- Dr. Elsayy partnered with Dr. Reichert of the College of Engineering at FH Aachen University of Science and Technology in Germany. The MIT Student Pierce Morrison was able to study abroad for one year at FH Aachen. Pierce is currently an intern at VW in Chattanooga.
- Dr. Elsayy prepared the 2007 FSAE Formula car to be TTU's contribution to VW-Chattanooga when hosted the Global group top management conference in September 2012. This is the top 300 executives from the entire VW group (i.e. Bugatti, Lamborghini, Audi, Bentley, etc.) and their spouses. Part of this event was a tour of the Academy and FSAE featured the newly introduced TTU-VW-ChSCC degree program recently introduced.
- Dr. Elsayy is the Association of Technology, Management, and Applied Engineers (ATMAE) Board of Certification – Vice Chair for Research & Development (2010-13).

- Dr. ElSawy is a member of the Association of Technology, Management, and Applied Engineers - Board of Accreditation – Non-US Accreditation Committee.

**Major Research Grants Totaling ~\$0.25M**

Continuing work was completed in utilization of major research grants including:

- Dr. I. Fidan, “Designing the Future: Curriculum Development Through Project-Based Inquiry Using Cutting-Edge Design and Modeling Tools”, Tennessee Higher Education Commission, \$189,578.00.
- Dr. I. Fidan and Dr. Elsawy received \$10,000 faculty research grant toward developing “TTU’s Online Renewable Energy Education Initiative”.
- Dr. Elsawy (PI), Expanding the Range of Applications for the MRMS: A Mobile Robotic Manufacturing System for Mechanizing Manufacturing Processes, Advanced Technology International, \$24,011.