DEPARTMENT OF MECHANICAL & ENERGY ENGINEERING
College of Engineering
UNT
2ND EDITION
JUNE 2014

NEWSLETTER

Letter from the Chair

Welcome to the 2014 Mechanical and Energy Engineering Newsletter. I am very pleased to share with you all the recent news and activities outlined in this newsletter.

Since we were established in 2007, our student enrollment has grown from an initial 75 to nearly 600 undergraduates, 34 Master students and 16 Ph.D.* students. The Bachelor of Science in Mechanical and Energy Engineering degree has successfully received official accreditation from the Engineering Accreditation Commission of ABET. With a selection of more senior elective courses, our students have opportunities to focus their interests and to apply their core knowledge to energy and related technical fields.

In the past academic year, we have had a record enrollment in the graduating senior class who continued to enjoy the support from many industries for their capstone design projects such as Frito-Lay's biodiesel reactor project, VersaFlex project from Halliburton, and several energy and sustainability themed projects supported by Verizon.

All students benefit from their participation in student chapters of professional societies such as ASME, SAE, ASHRAE, AEE, SWE, NSBE, SHPE and others.

In addition, the Beta Eta chapter of Pi Tau Sigma, an International Mechanical Engineering Honor Society, was recently established.

Our faculty continued to excel in producing quality journal publications, placing them among the top peer departments in the nation. Our annual awards and research expenditures per faculty continue to be among the best departments in the College of Engineering.

We focus on solution-oriented research themes and build multi-disciplinary team and funding support from both industry and government in such areas as sustainable building and energy, microelectronic reliability, petroleum, vehicle and transportation, and biomedical solutions.

The NSF awarded Dr. Yong Tao, as a PI, with a five-year project, titled "Predictive Modeling Network for Sustainable Human-Building Ecosystems," under the National Science Foundation's Research Coordination Networks – Science, Engineering and Education for Sustainability program.

Recently, the renovation of the high bay area of Discovery Park was completed, and the new, state-of-the-art research laboratories include a Renewable Bioproduct Manufacturing Lab, Composite Analytical Lab, Computational Lab, Biofuel Lab and Energy Storage Lab as additions to the PACCAR Technology Institute Laboratories.

Thank you for reading this newsletter and stay tuned for more news from us. As always, please contact us with any inquiries you might have.

Yong X. Tao, Ph.D., PE, FASME

PACCAR Professor of Engineering

Chair, Mechanical and Energy Engineering

UNT Distinguished Research Professor

MEEN Quick Facts:

- MEEN is the Nation's first Mechanical and Energy Engineering Department.
- MEEN started in 2007 with 75 students. It now has 560 Undergraduate students, 34 Master students and 16 Ph.D.* students.
- The Bachelor of Science in Mechanical and Energy Engineering program is accredited by the Engineering Accreditation Commission of ABET.

*Ph.D. in Materials Science and Engineering with concentration in Mechanical and Energy Engineering

FACULTY

Yong Tao,
Professor and Chair

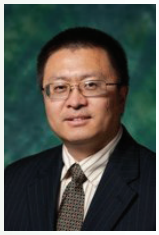
Nandika D'Souza,
Professor

Kuruvilla John,
Professor

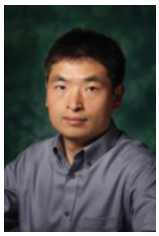
Vish Prasad,
Professor

Wonbong Choi,
Professor

Jiangtao Cheng,
Associate Professor



Sheldon Shi,
Associate Professor

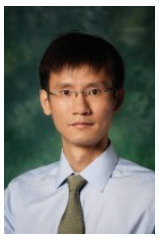


Xun Yu,
Associate Professor

Tae-Youl Choi,
Associate Professor

Aleksandra Fortier,
Assistant Professor

Jaehyung Ju,
Assistant Professor

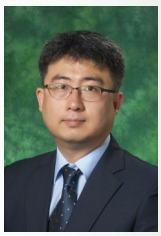


Xu Nie,
Assistant Professor

Kyle Horne,
Assistant Professor

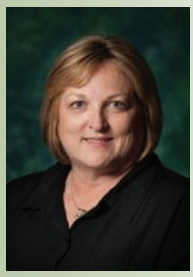
Xiaohua Li,
Lecturer

Cherish Qualls,
Lecturer

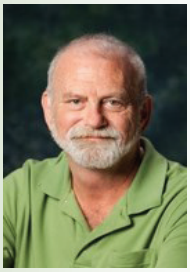


Junghyon Mun,
Lecturer

STAFF



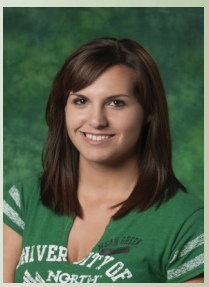
Kathy Bomar,
Administrative
Coordinator



Douglas Burns,
Lab Technician

Heather Burrow,
Academic
Administrator

Tedra Kelley,
Research/Outreach
Administrative Specialist



Kelli Gollmitzer,
Student Worker

FUNDAMENTAL AREAS IN MEE

Professors	Materials	Mechanics	Thermal	Fluids	Vibrations/Control	Energy
Jiangtao Cheng	Materials		Thermal	Fluids		Energy
Tae-Youl Choi	Materials		Thermal			
Nandika D'Souza	Materials	Mechanics				Energy
Aleksandra Fortier	Materials	Mechanics				Energy
Kyle Horne			Thermal	Fluids		Energy
Kuruvilla John			Thermal			Energy
Jaehyung Ju	Materials	Mechanics				Energy
Xiaohua Li		Mechanics			Vibrations/Control	
Xu Nie	Materials	Mechanics				
Vish Prasad	Materials		Thermal	Fluids		
Cherish Qualls					Vibrations/Control	
Sheldon Shi	Materials					Energy
Yong Tao			Thermal	Fluids		Energy
Xun Yu	Materials				Vibrations/Control	Energy

NEW LABORATORY INAUGURATION

The College of Engineering held a ribbon cutting ceremony for the PACCAR Technology Institute Labs on March 25, 2014. The 30,000 square foot laboratory features a number of laboratories and "equipment to help in technology, materials and bio-mass engineering." The new lab will benefit research in biomedical engineering, mechanical and energy engineering and other departments. The state-of-the-art research laboratories include the Renewable Bioproduct Manufacturing Lab, Composite Analytical Lab, Computational Lab, Biofuel Lab and Energy Storage Lab.

https://paccar.unt.edu/

FOCUSED RESEARCH PARTNERSHIPS

Individual, cross-college, University and global partnerships are organized along research themes. Federal grants, Industry contracts, and senior design projects with undergraduate student themes are all underway. Topical forums in the research themes bring engagement and win-win partnerships as industry and academics pose and answer the critical questions: "What are the needs?" "What are the limits to the current solutions?" and "How we can do better?" The department has hosted the following research forums: Building and Energy Forum, International Estonia forum, Microelectronics Reliability forum, Biomaterials Interest Group (BIG-DFW) and Energy Rubber Group.

For more information about research forums, contact Dr. Nandika D'Souza at Nandika.DSouza@unt.edu

Professors	Sustainability & Buildings	Renewable Energy	Biomedical	Vehicle & Transportation	Oil and Gas	Electronic Device Reliability
Jiangtao Cheng		x				
Tae-Youl Choi			x			x
Nandika D'Souza	x	x	x	x	x	x
Aleksandra Fortier		x				x
Kyle Horne	x	x			x	
Kuruvilla John	x			x	x	
Jaehyung Ju			x	x		
Xu Nie						x
Sheldon Shi	x					
Yong Tao	x	x				
Xun Yu		x	x	x		

RCN-SEES: Predictive Modeling Network for Sustainable Human-Building Ecosystems (SHBE)

The objective of this Research Collaboration Network (RCN) is to develop a collaborative research platform centered on overcoming bottlenecks in engineering, software and social/economic sciences that impede wider application of sustainable building technology. The network activities will focus on defining an innovative, new interdisciplinary area, "Sustainable Human-Building Ecosystem (SHBE)," that integrates human behavioral science, social and economic sciences in tandem with sciences of building design, engineering, and metrology for data validation of building energy consumption and occupant comforts. The developed collaboration strategies and standardized data platform will lead to significant reductions of the uncertainty in predicting human adaptation to energy efficiency and sustainability of building ecosystems, which will also address fundamental questions such as "what are the benefits of sustainable building investment to people at a personal, business, or urban planning level?" The activities of the new SHBE-RCN include: Collectively develop a consensus-based mechanism for a cyber-enabled, data-networked research platform that allows sharing the connectivity methods from different models of building ecosystem elements; create the networking mechanism to recruit additional participants or update the working groups; develop the new research directions for identified subareas; evaluate the success of the SHBE network; and develop an innovative learning program for graduate students of diverse backgrounds.

The NSF RCN-SEES-SHBE announced two workshops based on two of its five themes involving Physical Systems & Environment and Human Behaviors:

I. Understanding Human Behaviors for Sustainable Building Ecosystems. University of North Texas, Denton, March 18-19, 2014.
II. Predictive modeling Network for Sustainable Human Building Ecosystems. University of North Carolina at Charlotte, May 27-28, 2014.

For more information, visit: http://www.shbe.org/

GRANTS AND CONTRACTS

Sustainability/ Buildings

- PFI: Farmer-Academic-Industry Partnership for the Development of Sustainable, Energy Efficient, Multifunctional Bioproducts for the Built Environment. National Science Foundation (NSF), Nandika D'Souza, Yong Tao, Vish Prasad and Michael Allen. $600,000. 2011-2015
- RCN-SEES: Predictive Modeling Network for Sustainable Human-Building Ecosystems (SHBE). National Science Foundation (NSF) Yong Tao. $652,846. 2013-2018.
- Impregnated inorganic nanoparticle at the natural fiber-thermoplastic polymer interface. NSF CMMI. Sheldon Shi. $116,881, 2011-2015
- Evaluation of Petrozene as a Wax Removal Agent. Freestone Resources, Inc. Sheldon Shi. $5,000. 2013
- Corpus Christi Ozone Near Non-Attainment Area Air Quality Monitoring Activities. City of Corpus Christi. Kuruvilla John. 2014-2015

Oil and Gas

- Bioinspired Nanocomposite Coatings for Corrosion Protection. Qatar University. Nandika D'Souza and Teresa Golden. $275000. 201215

Renewable Energy

- Evaluation of the Application Options of CCTS Carbon Powders. Carbon Component Tech Services, Sheldon Shi. $62,500. 2012-2014

Mechanics

- Dynamic Behavior and Failure of Advanced High-Performance Structural Materials. U.S. Army Engineer Research and Development Center (ERDC), Xu Nie, $585,784, 2014-2018
- Novel Experimental Techniques, Size Effect, and Damage Evolution for Heterogeneous Materials. Air Force Research Laboratory (AFRL). Xu Nie. $225,000. 2014-2016
- Dynamic Interfacial Friction Under Various Pressures. Air Force Research Laboratory (AFRL), Xu Nie, $100,000, 2013-2015
- Highly Stretchable Miniature Strain Sensors for Kolsky Bar Applications - Phase I: Feasibility Investigation. Sandia National Laboratories. Xu Nie & Xun Yu. $33,192. 2014
- A High Resolution Laser Measurement Technique for Kolsky Bars. Sandia National Laboratory, Xu Nie, $52,133, 2013-2014

Education

- Gaming Graduate Ethics Education in Science & Engineering. National Science Foundation (NSF). Kuruvilla John, A. Wilson, A. Briggle, J. Oppong. $299,558. 2013-2016

Microelectronic Reliability

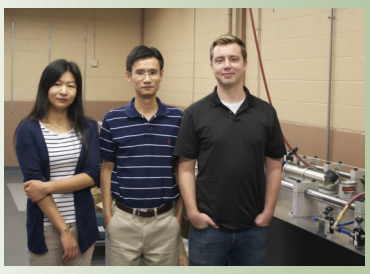
- Boron Nitride Thermally Conductive High Temperature High Dielectric Strength Interface Materials Semiconductor Research Corporation. Nandika D'Souza and Tae-Youl Choi. $240000. 2013-2015
- Vacuum-driven Reconfigurable Liquid Metal Film for Low-resistance Thermal Connector. Jiangtao Cheng. $3,500. 2014
- A New Route Toward Systematic Control of Electronic Structures of Graphene and Fabrication of Graphene. Florida International University. Wongbong Choi. $104,655. 2012-2015

Vehicle & Transportation

- Smart Tires with Inflated Bellow Systems. Peterbilt Motor Company. Jaehyung Ju. $2,692. 2014
- Evaluation of Coating Powder from Coating by PCD Inc. for Concrete Forming Application. Coatings by PCD, Inc. Sheldon Shi. $8,000 2014-2016.
- Airport Pavement Condition Monitoring Using Self-Powered Wireless Active Sensing System Federal Aviation Administration. Xun Yu. $235,024. 2013-2014.
- Planning Grant: I/UCRC for Center for Tire Research - UNT Site Initiative, NSF-I/UCRC, Award No. IIP-1338931, J. Ju, N. D'Souza. $13,780, 08/2013-07/2014

SPOTLIGHT ON RESEARCH

For the past decade, Dr. Xu Nie's main research focus has been dedicated to study the dynamic behavior and failure of advanced engineering and protective materials and the development of Kolsky bar-based novel experimental techniques for various high-rate characterization applications. The dynamic (or impact) response of materials has been one of the most important research areas for the Department of Defense (DoD). The applications cover a broad spectrum of scenarios ranging from a light-weight, bullet-proof vest which protects personnel from small arm and shrapnel injury to blast barriers made of ultra-high strength concrete for the protection of strategic/tactical infrastructures. Dr. Nie develops and applies the most cutting-edge experimental methods to investigate how the elements of various armor systems respond and fail under impact loadings. The fundamental knowledge established through his research could eventually assist scientists and engineers in the DoD to assess, improve, and optimize the current armor systems as well as to facilitate better design of the next generation armor materials.



Since Dr. Nie joined the MEE department of UNT in September 2012, he has received multiple research grants and contracts from Sandia National Laboratory (SNL), Air Force Research Laboratory (AFRL), and Army Engineer Research & Development Center (ERDC) with a total of $1 million as sole PI. These research projects specifically target on developing innovative experimental techniques to study how high-strength concrete and other structural materials behave/fail under well-controlled impact loading conditions. The successful acquisition of these grants are testimony of Dr. Nie's vision and skill set in advancing the state-of-the-art knowledge base for dynamic behavior of engineering materials.

INDUSTRIAL ADVISORY BOARD

The members of the Industrial Advisory Board played a vital role in providing students and faculty one of the most valuable and engaged experiences. They are actively involved in the evaluation of curriculum and capstone design, as well as advising and conducting student feedback. Additionally, they help students through their mentorship and connectivity to internships and job opportunities.

MEEN IAB Board Members:

Tom Babb – Advanced Technology Complex
Russ Blum – Lockheed Martin
Matt Breaux – Schneider Electric
John Conroy - Peerless Manufacturing
Siva Gopalnarayanan – Peerless Manufacturing
Lee Green – Goodson Engineering
Vikas Gupta – Texas Instruments
Syed Hamid – Halliburton
Jung Han – PepsiCo
Jim Hockett – Sylvania
Rakibul Islam – Weber Aircraft
Majeed Kawar – Peerless Manufacturing
Billy King – Exide Technologies
Doug Kirkley – Pepco Energy Services
Donald Lampe – Freese and Nichols
Finley Ledbetter – Group CBS
Scott Lee – BAE Systems
William Lee – Aguirre Roden
Bob Luczkowiak – Siemens
Jeff Marcel – Denbury Resources
Mike Marvin – Bell Helicopter
Randy Masey – General Dynamics
Rohn Olson – Bell Helicopter
Michael Page – Luminant Power
Carla Ruge – Advanced Technology Complex
Don Schapker – Lockheed Martin
*Landon Sproull – Peterbilt *IAB Chair
Jeff Starcher – MP2 Energy
Jay Stell – Peerless Manufacturing
Billy Wicker – TXU Energy
Andrew Wong – ARAMARK
Mithat Yuce – Bell Helicopter
Allan Zhong – Halliburton

RECENT DONATIONS FROM INDUSTRIES FOR SUPPORTING RESEARCH AND EDUCATION

TIDA: $7,500
Lennox International: $2,090

GIFTS AND ENDOWMENTS

5A held a We Care We Count matching program where MEE faculty donated $2590.00 and received a 100% match towards the creation of an awards program.

The Department of Mechanical and Energy Engineering received from Bill Diecks, the renamed South Texas Section Society of Plastics Engineering $25000 scholarship. The scholarship will henceforth be named in memory of Don Whitenhafer.
Don Whitenhafer was instrumental in educating a large population of professionals on vinyl plastics. Undergrads Erica Doty, MEE'16 and Hugo Diaz, MEE'14 received the first $500 scholarships from the endowment. Sunli Zhao, M.D. 2014 and Bill Yang, M.S. 2014 also received scholarships.

MEE ALUMNI NETWORK

The MEE Alumni Network was launched on January 1, 2014. This effort is aimed at meeting the department goals that create a continued sense of community for MEE alumni. At UNT's Department of Mechanical and Energy Engineering, we love our alumni and we want to stay connected with our growing community. Our alumni and friends make a big impact. From giving time as volunteers to supporting scholarships and programs with monetary donations, our community network provides a dynamic energy that propels our students and university to do bigger and better things. Faculty have started a fund, donating $2590.00 over the course of 2013-2014 to support events and awards.

In May 2014, the first MEE Alumni Network President Jeff McKee welcomed graduating seniors and their families.

Visit us at: http://engineering.unt.edu/mechanicalandenergy/alumni-friends

The MEE Alumni Network founding student President is Jeffrey McKee'2013. We interviewed him for the newsletter:

Q. Jeffrey, what drives your continued engagement with the MEE department at UNT? *I love being a MEE alumni because of the dedication from our department leaders and university leaders to ensure the department achieves its goals of ABET accreditation, enrollment and graduation rates, as well as project, lab, and classroom funding and improvements. I started my career at UNT in 2008 and, after a career development class, I learned about the cutting edge program in MEE. After many nights in the Willis Library and days at Discovery Park, I graduated in May of 2013.*

Q. Could you tell us something about your job and share pearls of wisdom you have gained from your work experience? *In June 2013, I started my career at Schneider-Electric as a remote systems support engineer for building automation control system helping* reduce *cost and carbon emissions around the nation. Everyday work revolves around critical thinking and problem solving, using skills from classes to pick out important and useful information and having the ability to make appropriate assumptions to get the correct results. I also think back to basic refrigeration cycle when investigating different Hvac configurations for building comfort. I recommend learning how to ask or think about open and closed questions to narrow down the issue you are trying to improve or troubleshoot.*

Q. What are you excited about?

I am excited to see what the future of our department and university will hold and I hope to see you at the MEE Homecoming tailgate. Go MEE and go Mean Green! **Jeffrey McKee**

Want to know more about getting involved?
Visit Giving to UNT or contact the Division of Advancement at (940) 565-2900 or giving@unt.edu

FACULTY AND STUDENT AWARDS

* Xun Yu, Best Paper Award, Biomedical and Biotechnology Engineering Track, (with co-authors: Drs. W. Hu and J. Holy) 2013 IMECE, San Diego, CA.
* Nima Sadeghpour, Sara Nahang Toudeshki, Best Paper Award, Contact Line Friction Analysis of Water Droplets on Micro\Nanoscale Rough Structures (with co-author: Dr. Jiangtao Cheng) July 2014 HEFAT, Orlando, FL.
* A. Challapalli, *SAMPE Student Additive Manufacturing Contest*, 05/2014, 2nd Prize ($500).
* K. Kim, *NSF CMMI/CBET Graduate Paper Competition Award* at 2013 ASME IMECE, San Diego, CA, 11/2013, 21 Final list ($1,000)
* F. Lima, *A Low Cost 3D Printer, Showcase of Undergraduate Research in Engineering (SURE)*, College of Engineering, UNT, 09/2013, Winner of the Materials and Manufacturing Division ($500).
* Erica Doty and Hugo Diaz, *Don Whitenhafer South Texas Society of Plastics Engineers Scholarship*, 2013-2014
* *Outstanding MEE Graduate Student* - Aref Vandadi
* *Outstanding MEE Undergraduate Student* - Megan Brown & Tray Jared Kidwell
* *Outstanding Teaching Assistant* - Gus Thomas Checketts
* *TIDA Scholarship Award*—Karen Lindsey Smith

SENIOR DESIGN 2014

- SAE Formula Student Powertrain Team, Mean Green Racing 2014
  Team Members James Bailiff, Zach Denney, Mark Goolsbay, Reed Greenwood, Sean Surratt

- First Response Housing
  Team Members Curran Salrin, Garrett McGee, Mathew Scott

- Wind Tunnel Test Bed for Multiple Types of AC Unit Testing, *Sponsored by Lennox*
  Team Members Alejandro Bartolini, Alex Igwenagu, Chidi Okparaojiako, Rahul Kaila, Rasheed Bishi

- Automated Bag Fill Tester, *Sponsored by Frito Lay*
  Team Members Megan Brown, Nick Poulides, Jake Hagood, Tim Kim, Brad Quick

- Porous Elastomer for Low Rolling Resistance, *Sponsored by University of North Texas*
  Team Members Alan Sanoja, Brett Gatlin, Oluwatele Folorunso

- Sci-Tech Green Energy, *Sponsored by Sci-Tech Discovery Center in Frisco, TX*
  Team Members Mitchell Mulholland, Curtis Knaitt, Sung Song

- Thermal Energy Storage Device for Controlled Charging and Discharging Using a Concentrated Solar Source, *Sponsored by Dr. Yong Tao*
  Team Members Thomas Ales, David Heydrick, Matthew Gonzalez, Daniel Koza

- Perpetual HVAC Retro-commissioning Process
  Team Members Brad Moore, Donald Juarez

- Kiosky (Split-Hopkinson) Tension Bar, *Sponsored by Dr. Xu Nie*
  Team Members Colin Loeffler, Tray Kidwell, Chuck Mathes

- Hydrogen Turbine Project
  Team Members Daniel Drake, Brandon Smith, Michael O'Brien, Lee Claunch, Christopher Sisneros

- Polymer Foaming Group, *Sponsored by UNT College of Engineering and NSF Grant*
  Team Members Mitchell Tardif, Nathan Warner, Erin Wood

- Lighter Than Air UAV, *Sponsored by American Society of Mechanical Engineers*
  Team Members Stephen Angliss, Edgar Coronado, Beau Kobel, Andrew Morren, Benjamin Ely

- Propero—Human Powered Vehicle
  Team Members Eric Ryan, Craig Seykora, Samir Essiyad, Jordan Grazden, Aboubakre Benhaddou

- Solid-State Heat Recovery Chiller, *Sponsored by Titus and ASHRAE*
  Team Members Michael Shackelford, Jordan Jackson, Joseph Caldwell, Colin Patrick

SENIOR DESIGN 2014

- Elastomeric Seal Friction at Elevated High Pressure, *Sponsored by Halliburton*
  Team Members Nathan Posey, Richard Leverton, Hassan Azam, Ali Alsabti, Muhammad Hayat

- Diabetic Test Strip Dispenser Design Team, *Sponsored by Tony Mendes, Director of the Murphy Center for Entrepreneurship at UNT*
  Team Members Nevada Litterell, Robyn Boling, William Ray

- Concentrated Solar Power System
  Team Members Luke Miller, Chris Jordan, Athan Himmelstein

- VARTM Skateboard
  Team Members Casey Liebel, Perry Pickett, David Shawl, Lee Smith

- Thermal Storage Unit for Trane Residential AC, *Sponsored by Trane*
  Team Members Hayley Dawkins, Daniel Raherimanjato, Cristian Ugarte, Pratheesh Varghese, LaGronie Wyatt

- 2014 Paccar & Cummins Lifting Eye Bracket, *Sponsored by Peterbilt Motors Co.*
  Team Members Bryon Kelling, Allison Sharrock, Darren Hamel

- Halliburton VersaFlex™, *Sponsored by Halliburton*
  Team Members Michael McClain, Eric Lessmann, Ian Murphy, Brian Haselden, Brent Daugherty

- Design of Deployable/Transformable Structure with Actuator
  Team Members Robert Heine, Juan A. Orona, Corey Chenoweth, Matthew Flores

- Power Wheelchair with Tremor/Error Cancellation
  Team Members Rupesh Budhathoki, Saman Dhaubadel, Jose Moreno, Zhe Shen, Michael Smith

"Students like the UNT MEE program because it pays attention to students with small lecture and lab classes."-Student Survey Response

"I love coming to Discovery Park. The focused environment and areas to work in teams keeps me very engaged with what I'm learning."-Student Survey Response

MEE Internships and Co-ops

There were 128 opportunities for MEE students to apply for internships and co-ops over the 2013-2014 academic year. Students who inserted their vita through their eaglenet account were sent emails based on their department and keywords and could apply seamlessly. Jodi Foster of the Career Center actively engaged students in their classrooms, in the professional engineering student societies to work on resume writing and interview skills.

Ariel Jackson, MEE '15 student and CENG Engineering Ambassador, co-oped at Toyota Motor Engineering & Manufacturing, North America (TEMA) based out of Erlanger, KY. She was stationed at the plant located in Georgetown, KY. Her job title was TEMA Production Engineer, co-op. She worked beside engineering specialists on the Lexus ES 350 American production project. This opportunity was enabled by her attending the Society of Women Engineers National Conference Job Fair. We interviewed her on her experience:

Q. What skills did you gain from the co-op experience?

From my co-op experience I gained insight into Toyota's backbone for success, the lean manufacturing process. This process that Toyota has mastered has its positive and negative effects on the company, but overall the company is one of the most stable in the automotive industry. I gained sketching skills from my mentor as he guided me through how to hand draw equipment components. My soft skills also strengthened as I learned how to speak to groups of people and effectively deliver my message in the proper context and "Toyota" language.

Q. What are you keen to learn after doing the co-op?

I am anxious to learn more hands-on trades in the automotive industry. My Toyota co-op experience was in the planning process of the project; therefore, the majority of my work was writing things on paper and submitting proposals to superiors.

Q. Why do you recommend internships/co-ops?

I strongly recommend that all students participate in an internship/co-op experience during their collegiate career. These experiences allow students to relate the things they have learned during school directly to the field they aspire to work in. From that students can formulate career decisions whether they want to apply their degree

For more information on Internships contact Corey Davidson at 940.565.2864 or corey.davidson@unt.edu
Students access internship opportunities at: http://studentaffairs.unt.edu/eagle-network

Pi Tau Sigma Society

The UNT chapter of the Pi Tau Sigma Mechanical Engineering Society, Beta Eta, was founded during the spring semester of 2014 at the annual Pi Tau Sigma Convention held at College Station, Texas; this founding year was comprised of ten total initiates. These members met the requirement of being within the top twenty five percent of their class for Juniors and top thirty five percent of their class as seniors along with taking the appropriate amount of mechanical engineering classes to ensure upper level division. The Department of Mechanical & Energy Engineering erected a monument for the Pi Tau Sigma society in the Dr. Rollie Schafer honor garden as a symbol to represent the high academic standards and achievements our department upholds.

The monument construction was guided by retired UNT faculty member Dr. Mitty Plummer and funded by Dean Costas Tsatsoulis.

EVENTS

The Energy Rubber Group visited UNT for the second year. Members from Baker Hughes, Cameron and other industries presented to the students. Students then took a trip to Houston and visited Cameron Elastomers in Houston. They observed the complete cycle of the production of blow off preventers and systems required to test them.

Seminars

Patrick Phelan, DOE

The department hosted many noteworthy speakers encouraging the MEEN Discovery Course freshman participation as well as all levels of undergraduate and graduate students. MEE continued to build bridges between departments at UNT and across the campus to encourage cross disciplinary participation in the seminars. Brian Chacka, Denbury Resources and active student mentor in the Society of Petroleum Engineers started the academic year with a rousing presentation to an overflow crowd. Students shared their concerns and interests in petroleum engineering. Areas where mechanical and energy engineers could excel were discussed. A week after his seminar, the UNT chapter was formed. Many seminars attracted significant attendance from the UNT campus at large, Denton citizens and industrial representatives. Adam Cohen from SMU gave a broad overview of 3d printing. He traced the technological transformations occurring from the late 80's to date. He showed how the additive manufacturing concepts have been building and the positive and negatives of different approaches to doing 3d printing. Pat Handren, Denbury Resources spoke on the need to be careful in fracking. The distance between the Ground water and the extraction point was critical to making sure no contamination occurred. He showed examples of news media using incorrect images to affect the reader. James Klausner, ARPA-E Program Manager presented during an ice-storm in December 2013 the transformative steps being taken in the field of energy storage through thermochemical means. He reviewed ARPA-E programs and fielded questions on how ARPA-E functions and anticipates success. Later in Spring 2014, DOE Program Manager for Emerging Building Technologies, Patrick Phelan, gave energy choices for the building envelope. He deconstructed and showed the quantitative ways to drive innovation that is both technological and financially beneficial.

James Klausner ARPA-E

MEE Student Professional Development Organizations and Networking

ASME: The UNT Chapter of ASME is a project-based organization competing in ASME sponsored events. UNT ASME is the largest engineering organization at the University of North Texas composed of undergraduate and graduate student members.

SWE: The Society of Women Engineers UNT chapter has been led by an outstanding board, MEE students and faculty led the first Design Your World: Stem Conference for Girls, March 29, 2014 in Discovery Park with 120 girls participating from 6th through 12th grade. Jessica Hampton coordinated the solar car activity.

SHPE: Society of Hispanic Engineers, UNT chapter has engaged MEE students. They have received recognition as an "Outstanding small chapter of the year".

SPE: The Society of Plastics Engineering grew by 300%. They were involved with polyolefins, and received valuable mentoring from the South Texas SPE chapter. The endowment named for Don Whitenhafer of $25,000 raised revenue and 4 scholarships were awarded this fiscal year.

AEE: The Association of Energy Engineers is a community which will benefit engineering students by developing professional skills in networking with energy professionals and developing an entrepreneurial spirit. AEE at UNT has hosted high impact events featuring presentations and career networking opportunities.

SPE: The Society of Petroleum Engineers, UNT chapter was enabled through active support fro the MEE Industrial advisory board members from Denbury Resources. Students have experienced extraordinary support from the Dallas SPE chapter and maintain a very active chapter.

SAMPE: The UNT SAMPE chapter initiated this year with complete sponsorship from the DFW SAMPE board. A networking event at the Irving Convention Center was held in April 2014 which enabled students to network with other students across the state. A group was sponsored to go to Seattle to compete in the bridge competition.

Professional Student Societies have their individual websites and contact information at:
http://engineering.unt.edu/ceo/

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