



# The Blueprint *Newsletter*

## Message from the Chair

Dear Friends, Colleagues, and Alumni:

We are pleased to share some of the exciting news from the Department of Mechanical Engineering at Texas Tech over the past year.

The department is home to more than 950 undergraduates, 52 master's and 57 doctoral students. This fall, the department welcomes two new faculty members, Drs. Luciano Castillo and Gordon Christopher. Dr. Jordan Berg has been named an ASME Fellow, Dr. Jingzhou "James" Yang received the 2011 Texas Tech Alumni Association New Faculty Award and the 2011 Whitacre Research Excellence Award, and Dr. Yanzhang Ma was named one of the college's Whitacre Faculty Fellows. Jack Rentz, a 1974 mechanical engineering alum, was named one of the college's Distinguished Engineer Award winners.

Our undergraduate and graduate students are receiving national awards and recognition. The graduate program has been ranked among the top one hundred mechanical engineering programs by U.S. News and World Report for two years in a row.

The department has a strong connection with the Academy and Industry Advisory Board (IAB) members. We are able to provide a number of scholarships to our undergraduate students through donations from industry, the Mechanical Engineering Academy, the IAB, and other alumni and friends. The accomplishments that we achieve in our educational and research programs are only possible because of our excellent and dedicated faculty and staff members. If you are in the Lubbock area, please stop by to learn about the exciting things happening in the department. I would like to thank Summer Aduddell for producing such a wonderful newsletter.

Jharna Chaudhuri  
Professor and Department Chair of Mechanical Engineering



Chaudhuri



The Texas Tech Formula Society of Automotive Engineers (FSAE) team competed in the FSAE competition that was held in Brooklyn, Michigan in May 2011.

## Dr. Luciano Castillo Named Don-Kay-Clay Cash Distinguished Engineering Chair in Wind Energy

Dr. Luciano Castillo is joining Texas Tech University as the Don-Kay-Clay Cash Distinguished Engineering Chair in Wind Energy, NWRC Executive Director/President, and professor of mechanical engineering.



Castillo

Before joining Texas Tech, Castillo was a professor in the Department of Mechanical, Aerospace & Nuclear Engineering at Rensselaer Polytechnic Institute, an adjunct Professor at Johns Hopkins, and at the Universidad del Turabo in Puerto Rico.

Castillo will work closely with wind engineering professors and researchers at Texas Tech. He believes that West Texas can become the "Silicon Valley of Wind" through Texas Tech's strong expertise in wind engineering, wind science, and wind energy.

His research in turbulence using experimental techniques, direct numerical simulations and multiscale asymptotic analysis has injected new ideas in turbulent boundary layers and our understanding of initial conditions on large scale turbulence, particularly on wind energy.

Some of his awards include: the NASA Faculty Fellowship, the Martin Luther King Faculty Award, the Robert T. Knapp Award on complex flows from the ASME among others.

He has published more than 100 articles, including a seminal paper on turbulent boundary layers and scaling laws. He is currently leading various initiatives on wind energy in the U.S. and Europe.

## Student News

### Formula Society of Automotive Engineers Competes in Michigan

The Texas Tech Formula Society of Automotive Engineers (FSAE) team competed in the FSAE competition that was held in Brooklyn, Michigan in May 2011.

The team, consisting of 14 students, competed with a full steel chassis, a Honda F4i 599cc engine, and a custom air intake system.

At the competition, the team faced setbacks with the braking system and an internal engine problem. After the team successfully modified the braking system and swapped the engine with a spare, the car successfully completed the final endurance race.

Video of the endurance race can be found at: <http://youtu.be/uK6IQPXdPUk>



Texas Tech Formula Society of Automotive Engineers team

### Allen Receives Internship at NASA Ames Research Center

Jason Allen, a senior mechanical engineering major, received a fellowship from the NASA Aeronautics Scholarship Program, funded by NASA headquarters and administered by the American Society for Engineering Education (ASEE).

Allen is currently at an internship at the NASA Ames Research Center in Mountainview, Calif.

Allen was asked by NASA headquarters to come to Washington, D.C. and give a briefing about his internship to the Director of Aeronautics, along with other students in the program.

The briefing was featured in an agency-wide news forum called "This Week@NASA". The video can be viewed at [www.nasa.gov](http://www.nasa.gov) under "NASA Multimedia."



Allen

### ASME Stays Involved in Student Activities, Community Outreach

The Texas Tech ASME Student Chapter has been involved in many activities over the last year.

The chapter has participated in the Student Leadership Seminar, attended the ASME IPTI pistol shoot, hosted its annual trebuchet competition during Engineers Week, and attended and competed in the ASME Student Professional Development Conference.

ASME was also fortunate enough to have tours at Lockheed Martin in Dallas and Schlumberger in Odessa, Texas.

The chapter also helped in community outreach projects through Habitat for Humanity and the Lubbock Food Bank.



ASME Officers

### Solar Racing Team Prepares for First Competition

The Texas Tech Solar Racing Team has been working to construct a solar-powered vehicle for competition in the 2012 American Solar Challenge that will be held July 6-21.

The team will compete against several universities in a cross-country race from Rochester, New York to St. Paul, Minn.

During the spring 2011 semester, the team prepared the mold for the carbon fiber body. The body was then taken to Bell Helicopter's Dallas facility in March for autoclaving.

In the summer of 2011, the team acquired batteries and solar cells. Work continues this fall on the batteries and solar cells, along with the instrumentation hardware, the motor, and the motor controller.



Solar car team members work on body

The team will continue to make preparations for their first solar car competition next summer.



Solar Racing Team and vehicle body



## Patil Awarded EcoCAR GRA Fellowship

Kunal Patil, a graduate student under Dr. Maxwell, was awarded an EcoCAR Graduate Research Assistant (GRA) fellowship from the U.S. Department of Energy (DOE) for the fall 2010 and spring 2011 semesters.

Patil was awarded third place for the best poster presentation at the EcoCAR spring 2011 workshop held at the Environmental Protection Agency (EPA) in Ann Arbor, Mich. in March 2011.

He also received the dSPACE Embedded Success Award during the EcoCAR year three final competition award ceremony held at the Library of Congress in Washington, D.C. on June 16.



Patil

## Eddins Participates in Bell Helicopter Boot Camps

For the fourth consecutive year Bell Helicopter, a Textron Inc. company, hosted college students from universities around the United States.

This year, 20 engineering students from 11 universities from across the country attended the boot camps.

Texas Tech was one of the 11 universities that participated in the program and Derek Eddins, a senior mechanical engineering major, was featured in a promotional photograph.

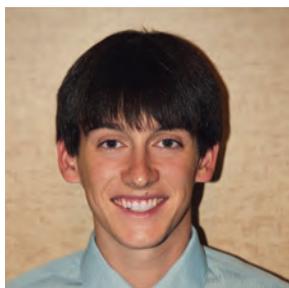


Bell Helicopter Boot Camp

## Tatum Receives Houston Material Handling Society Scholarship

Lee Tatum, a senior mechanical engineering major, is a recipient of the Houston Material Handling Society (HMHS) scholarship.

HMHS is the South Texas Material Handling Technical Chapter of the ASME. It is an organization that focuses on professionals that are involved in solids processing.



Tatum

The scholarship award was established to promote education at the undergraduate level and is given to students who have shown success and are enrolled in a mechanical engineering program.

## Faculty News

### New Faculty Member: Dr. Gordon Christopher

Dr. Gordon Christopher, a new assistant professor of mechanical engineering, received a Ph.D. in mechanical engineering from Carnegie Mellon University (CMU). While at CMU, he researched droplet-based microfluidics and received a DOWD ICES Fellowship to fund his research.



Christopher

After finishing at CMU, Christopher was a NRC Post-Doctoral Fellow at the National Institute of Standards and Technology. He developed novel microrheology techniques and studied soft matter characterization.

His research lab at Texas Tech focuses on the development of novel microrheology techniques to examine the effects of confinement on soft matter/complex fluids and methods to study the interfacial rheology of complex interfaces. Using developed techniques, his lab characterizes and engineers novel materials and interfaces.

### Anderson Receives Premier Award for Engineering Courseware

Dr. Edward E. Anderson, professor of mechanical engineering, has been named a recipient of the 2011 Premier Award for Excellence in Engineering Education Courseware.



Anderson

The Premier Award competition is open to a wide range of submissions of high-quality, engaging, non-commercial learning innovations designed to enhance engineering education.

### Hanson Receives ASME IPTI PD Outstanding Faculty Advisor Award

Dr. Jeff Hanson, instructor of mechanical engineering, is the recipient of the American Society of Mechanical Engineers International Petroleum Technology Institute Petroleum Division 2011 Outstanding Faculty Advisor award.



Hanson



TEXAS TECH UNIVERSITY

Department of Mechanical Engineering™

## The Blueprint

Box 41021 | Lubbock, Texas 79409-1021

### Pi Tau Sigma Represents Mechanical Engineering Department

In the past school year, the Texas Tech chapter of Pi Tau Sigma has been working to help out the Lubbock community, Texas Tech University, and the Department of Mechanical Engineering.

The organization has participated in a variety of community service events, including clean-up of the Lubbock Arboretum, volunteering at the South Plains Food Bank, building homes for Habitat for Humanity, and several others.

In addition, Pi Tau Sigma hosts an event called “Meet ME” each semester. This presents an opportunity for local middle school students to get a first-hand view of what mechanical engineering is all about. The students participate in an engineering project, take tours of the ME labs, and have lunch with the society’s members.



Pi Tau Sigma Outreach

In February, three of the organization officers represented Texas Tech at the Pi Tau Sigma National Convention in Chicago, Illinois. The Texas Tech chapter was selected as one of the top chapters in the nation and currently holds the record for the most awards in the past 10 years.

The Texas Tech Pi Tau Sigma chapter will continue to represent Texas Tech and the department every year at the convention. The success of the organization is due to the continued support from alumni, companies, the department, and all other donors.



Pi Tau Sigma volunteered at the South Plains Food Bank

### Keeping in Touch

The Texas Tech Department of Mechanical Engineering would like to know what is happening in your professional life. Visit the following website to update your information or let us know about your accomplishments: [www.coe.ttu.edu/info](http://www.coe.ttu.edu/info)

If you are interested in being a member of the ME Academy, please contact our chair, Dr. Jharna Chaudhuri at [jharna.chaudhuri@ttu.edu](mailto:jharna.chaudhuri@ttu.edu)