

School of Engineering

CHRISTIAN BROTHERS UNIVERSITY

News - May 2002

PROFILE

Department of Mechanical Engineering

The Mechanical Engineering Department at CBU is made up of a diverse faculty with the expertise necessary to expose our students to beyond state-of-the-art principles. Within the two traditional concentrations, energy systems and solid mechanics, lie a great number of sub-specialties of interest to our faculty. Students receive the benefit of instruction based in areas from forensics, to the next generation of atmospheric and space propulsion systems, to the latest in composite materials.

Our students are continuing a winning tradition with their historically superior performances at the America Society of Mechanical Engineers (ASME) Region Student Conferences (RSC), as well as the past three years at the Great American Moonbuggy Race held at the NASA Marshall Space Flight Center. Through participation in these events, students hone their skills in areas such as oral presentations, written communication, fabrication, and real-time problem solving.

Maintaining a link with industry is important to both student learning and departmental growth. All ME seniors complete a capstone design project, performed over two consecutive semesters, sponsored by a variety of industrial partners. Many students also take advantage of our internship program, whereby they receive credit toward graduation by completing a one-semester internship under the supervision of an engineer in a relative industry.

For more information, please contact **Dr. Mark Driver**, Chairman of the Mechanical Engineering Department, at (901) 321-3422 or mdriver@cbu.edu.

MAESC 2002 CONFERENCE

The MAESC 2002 Conference is just around the corner (May 10th).
Registration deadline is May 7, 2002.

Here are a few highlights:



- There will be 23 technical sessions with eight devoted to biotechnology. This is the biggest MAESC conference ever.
- Listen to **Robert Morris**, Chairman of the Tennessee Governor's Task Force on Biotechnology, at the Plenary Session in the morning. He will talk about "*Business Fundamentals - Taking Technology from the Lab to the Marketplace.*"
- **Dr. Robert Webster**, member of U.S. National Academy of Sciences and faculty at St. Jude Children's Research Hospital, will deliver a keynote address at lunch on "*Influenza Bioengineering: A Natural Terrorism Agent.*"
- **Dr. Terry Payne** of Oak Ridge National Laboratory will give a 60-min talk on "*Research Funding Available to Technology-Focused Small Businesses.*" He will focus on the Small Business Innovation Development Act and the SBIR program.

If you are a professional engineer and are looking for more professional development hours (PDHs), this conference will give you up to six PDHs.

Don't miss this opportunity to participate in this unique conference. We hope to see you on May 10th.

FOR MORE INFORMATION:

School of Engineering at Christian Brothers University
650 East Parkway South, Memphis, TN 38104
901.321.3405 or maesc@cbu.edu
<http://www.cbu.edu/engineering/maesc>

FUN IN KINEMATICS CLASS



Dr. Paul Shiue

Dr. Yeu-Sheng Shiue was looking for a way to make his class in Kinematics more interesting to his students. *"Traditionally, we demonstrate theory and analysis with simple mechanisms such as the slider-crank, four-bar, and quick return mechanisms,"* he explains. Students might construct class projects based on these basic mechanisms, usually from wood or aluminum. Shiue admits, *"The projects just weren't very exciting."* Knowing that students learn the subject matter better when they're involved in its practical application, Dr. Shiue decided to approach kinematics as part of a community- or industry-related class project. *"The project is assigned at the beginning of the semester,"* he explains. *"Students design, analyze, and then simulate it using software tools before they begin constructing the project. After it's built and tested, it is delivered to the sponsor for them to use."*

The Shrine School, a joint venture of Memphis City Schools and Al Chymia Temple, stepped forward with the first project for Shiue's students. A special day school that currently serves 140 students with severe physical disabilities or health impairments, the Shrine School provides high-quality education plus a variety of therapeutic services, medical services, and nursing needs—all adapted to meet individual student needs. The school needed a mechanism to aid in the feeding of students who, due to muscular or neurological disabilities, are unable to feed themselves. Such a device would grant the student a level of independence and also provide some relief and assistance to the student's caregivers. The school had a couple of primitive, homemade prototypes, but they were undependable and difficult to repair. To meet the school's needs, the device needed to be portable, easy to operate, and hygienically safe.

Dr. Shiue divided his ten students - **Jim Fuss, Danielle Guerre, Theresa Humphrey, Justin Ivancic, Paul Leister, Tim Petteys, Dan Valentine, Sergio Vergara, Al Waineo,** and **Ariel Wessel** - into two design teams. They quickly identified several major modifications and set about improving on the Shrine School's original design.

Since the disabled student might lack coordinated motor skills, the control switch was devised from a length of flexible plastic that operates with a simple touch. The plate holder was adapted to rotate with each movement of the spoon, assuring that each movement of the device is productive. To avoid rusting and to facilitate cleaning, the spoon holder was fashioned from plastic instead of steel. Likewise, the simple (and easily repairable) electric motor was securely shielded inside a metal housing.

One finished automatic feeding device (below) was delivered to the Shrine School, engraved with the names of the student designers,

and is being used. The second team's device, which works but needs a few minor modifications, will be delivered soon.



Automatic Feeder Device

STUDENT NEWS

The ASCE student chapter returned from the 2002 ASCE Southeast Regional Conference hosted by Florida State University/FAMU (April 4-6) with a fourth place trophy in the geotechnical competition. Congratulations to **Wes Goodnight, Josh Giannini, Jason Deweber, Heather Smith, Kristin Teague** and **Dr. K. Madhavan**. The concrete canoe survived the entire trip and all the races with very little structural cracks. Our canoe took first place in heats for both the female (**Becky Bailey** and **Melissa Johnson**) and men short races (**Josh Giannini** and **Paolo Fonda**). We also finished 3rd in four-man co-ed short race. Special thanks to **Mr. Fred Sock** for accompanying the ASCE students to the conference.



ASCE Students @ the 2002 SE Regional Conference

Congratulations to the following ME students who won awards at the recent ASME Region XI Student Conference:

- **Marco Capote** -- Best Technical, Old Guard Oral Competition
- **Chad Stevens** -- 2nd Place, Old Guard Poster Competition
- **Theresa Humphrey** -- 2nd Place, Web Poster Competition
- **Ariel Wessel** -- 3rd Place, Web Poster Competition
- **Sergio Vergara** -- 4th Place, Mystery Design

CBU ASME Chapter also got the award for highest percentage of student section in attendance. **Dr. Bernard Beard** went along with the students to the competition, which was held on April 4-6 in Jackson, MS.

Congratulations to the Moonbuggy Team: **Garrett Martin, Kris Westbrook, Marco Capote, Josh Giannini** (rider), and **Brandi Adams** (rider) for being placed 12th out of 39 registered college/ university teams (31 teams competed). The assembly time was only 1.6 seconds, run time was 3 minutes and 34 seconds. One of the rear wheels collapsed at the last obstacle, which was about 5 meters away from the finish line. If we didn't have the penalty due to the failure of the wheel, we would have placed 5th based on the official score records. A new team is being formed for next year. Better and more expensive wheels would be used for the next year's buggy if funding is available. Donations for next year's buggy may be sent to: 2003 CBU Moonbuggy Project, School of Engineering, Christian Brothers University, 650 East Parkway South, Memphis, TN 38104. By the way, video clips of this year's competition can be viewed at: http://www.cbu.edu/Clubs/mbsquad/MB2002/Pictures_VideoClips.htm



CBU Moonbuggy at the Race

Jaykumar Kanubhai Shastri, father of **Khyati Shastri** (ECE '05),

passed away recently in Mumbai, India. Please keep the Shastri family in your prayers. Condolences can be sent to Khyati at Christian Brothers University, Campus Mail Box 243, 650 East Parkway South, Memphis, TN 38104.

Thanks to **Tanya Henderson** from CBU AIChE Student Chapter for attending Collierville High School College & Job Fair in early April. **Dr. Ali Pourhashemi** (ChE Chairman) and **Dr. Asit Ray** (ChE Professor) also attended the event. They provided information about chemical and biochemical engineering to college-bound students.

Thanks to **Josh Giannini** and **Heather Smith** from CBU ASCE Student Chapter for visiting Germantown High School recently. They set up a table in the lobby during lunchtime passing out literature about engineering at CBU and pictures of various engineering activities including concrete canoe, balsa wood bridge, Sterling engine, and Moonbuggy. They also talked to students about their CBU experience.

Congratulations to **Shawna M. Roussel** (ChE) for receiving a \$2,000 scholarship from the Memphis Chemical Association (MCA) on April 8. The award is designated for the best nominee among those selected from area chemical engineering and chemistry departments. Shawna is an intern at Osmose, Inc., while maintaining her excellent academic record at CBU.



Civil and environmental engineering seniors recently had a field trip to the construction site at I 40 & I 240 intersection. Reinforced earth walls, sheet piles, piers and bridge construction were some of the items they were interested in and which they have been studying during the spring semester.



Society of Women Engineers (SWE) has been reestablished on the campus of CBU. Nationally, members consist of current engineering students and engineering graduates. It serves as a networking group as well as professional enrichment. Recently elected officers are **Heather M. Smith** (President), **Kristin L. Teague** (Treasurer), and **Melissa Johnson** (Secretary).

Formal meetings will be held beginning this fall. This is a great opportunity to meet professionals and other engineering students. The chapter is seeking to increase our membership. For more information, please email Heather Smith at hmsmith@cbu.edu.

Dana McFerrin (ChE senior) presented her senior-project at the AIChE Mid- South Section along with students from University of Mississippi and Mississippi State universities, at Oxford Mississippi on April 16. The title of her project was "Product Development of Plasticized Poly(methyl-methacrylate) Used in Enhancing UV Transmission". Thanks to the INEOS Inc. for sponsoring the internship project. **Jyoti Gupta** and **Shawna Roussel** (both are ChE junior), along with ChE department faculty **Drs. Asit Ray** and **Ali Pourhashemi** also attended the presentation. The local section of AIChE provided a \$100 honorarium to Dana.

The Institute of Electrical and Electronics Engineers (IEEE) Region 3 Conference, SoutheastCon 2002, held in Columbia, South Carolina, was attended by **Stephany Ogbonmwan** (Chapter President), **Gieselle Mendonca**, **Sidney D'Mello**, **Eric Morris**, **David Schaeffgen**, **Joshua Herndon**, **Andrew Howard**, and **John Ventura** (student counselor for the CBU IEEE branch). Andrew Howard represented CBU in the Southeastern Regional Student Paper Contest and placed in the top ten with a paper entitled "PLC Compensated, Tachogenerator Feedback for Constant Speed Control of an AC Induction Motor". Sidney D'Mello, David Schaeffgen, and Joshua Herndon represented CBU in the software competition. Eric Morris represented the Student Chapter in the Web Site design competition.



ALUMNI NEWS

Congratulations to **Stephen Shearer** (CE'79) for his third child. Abbie Layne Shearer was born on April 2 at 1:20 p.m. with 7 lbs. 8.5 oz. weight and 19.25 in. long. She joins her twin sisters Molly Louise and Katie Lee.

FACULTY/STAFF NEWS

Congratulations to **Dr. Bernard Beard** (ME) and **Dr. Neal Jackson** (MEM) for being granted tenure as of the 2002-2003 academic year. Also congratulations to **Dr. Juan Carlos Olabe-Basogain** for being granted a full-year sabbatical leave for the upcoming academic year.

Also **Mr. Craig Blackman** will be retiring at the end of May 2002 after 15 years of service to CBU. He is the founder of the Engineering Management Graduate Program at CBU and served as its director until he moved up to serve in his current position as Vice President for Information Technology Services (ITS) in 1998.



Craig Blackman with Engineering Faculty/Staff

After 17 years of service to the School of Engineering, **Dr. Henry Luttrell** (ChE) has decided to take early retirement. Dr. Luttrell served as ChE department chairman for several years. He plans to spend his retirement at his farm in Mississippi.

The Office of Student Affairs recognized **John Ventura** (ECE) as the "Outstanding Campus Advisor" for the 2001/2002 school year for his work as the student branch counselor for the student chapter of the Institute of Electrical and Electronics Engineers (IEEE). **Stephany Ogbonmwan**, president of the student chapter, stated that with the guidance of John the membership increased 440% and that he was instrumental in enticing prominent engineers to speak to the chapter on effective presentations on engineering issues and project management.

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