

# Christian Brothers University

## SCHOOL OF ENGINEERING



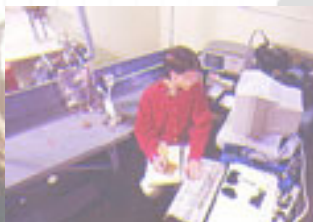
Chemical



Civil



Electrical



Mechanical



Graduate Engineering

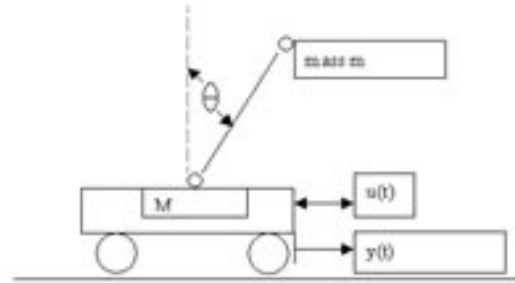
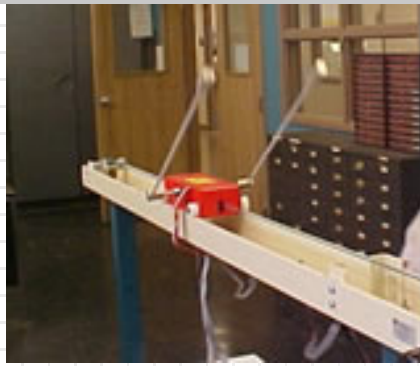
### Engineering Newsletters

May 2005

#### **ELECTRONICS LAB OPEN HOUSE**

The School of Engineering hosted an open house of the Electronics Lab in honor of the generous gift from the Bodine Company on April 26th. The open house consisted of a wine/cheese reception, presentation of an appreciation plaque, and demonstration of some equipment in the lab as well as several student projects.

One of the demonstrations was the inverted pendulum experimental apparatus. The problem of balancing a broomstick on the end of one's finger is not unlike the problem of controlling the altitude of a missile during the early stages of launch. This general classic problem is referred to as the inverted pendulum problem. The system is obviously unstable in that the pendulum will fall unless control is exerted by moving the cart. The goal of the control is to move the cart in such a way that the pendulum is maintained in an upright position. Using modern control theory, it can be shown that the system can be stabilized and controlled by linear state variable feedback. The present controller implemented in the lab equipment successfully uses the industry standard PID controller. For more information about the apparatus, please contact Dr. Bob Drake at [rdrake@cbu.edu](mailto:rdrake@cbu.edu).



## MAESC 2005 CONFERENCE

CBU hosted the 7th Annual MAESC 2005 Conference on Wednesday, May 11th. It was well attended and received by area engineers, scientists, students, and educators. The conference featured 19 technical sessions in five tracks with a total of 51 presentations, a keynote address at the luncheon, and 17 poster presentations.

The following are the presentations made by CBU alumni, students, and faculty:

- *Analysis of Company Procedures using a Task Force* by Christine Scifert
- *The Benefits & Challenges of Enterprise Portfolio Management* by Michael Belk
- *Primer Survey on Project Management* by Danny Barulli
- *Failure Case Study of Construction at a Solid Waste Site* by K. Madhavan
- *Recent Developments in Multilayer Perceptron Neural Networks* by Walter Delashmit
- *Automation of Engineering Design Aids using Neural Networks* by Siripong Malasri, Jittapong Malasri, and Kriangsiri Malasri
- *The National Economy as a Example of Control Under Conflict/ Cooperation – A Simulation Approach* by Robert Drake
- *An Undergraduate Laboratory Fermentation Experiment for the Production of Ethanol* by Benjamin Reves, Ali Pourhashemi, and Asit Ray
- *Design of a UST Management System* by Joshua Holtgrewe
- *Using 6-Sigma Experimental Design Tools in Product Improvement Testing* by Paul Babin
- *Practitioner Involvement in an Undergraduate Engineering Program* by K. Madhavan and Eugene McGinnis
- *Teaching Packaging Engineering at Christian Brothers University* by Asit Ray, Siripong Malasri, and Y. Zhou
- *Review of Guidelines for Shipping Container Design* by Travis Huggin, Juan Gutierrez, Siripong Malasri, and Yongquan Zhou
- *Incident Energy: A Case Study* by Jermichael Beaver, Bruce

- Luong, David Temple, and John Ventura
- *Web-Based Surveys* by Brent Ellis, Francisco Zurita, and John Ventura
- *Power Distribution System for the Porter Frames P.D.* by Marnelli Pascual
- *The Wise and Ethical Leader* by Tony Aretz
- *Global Ethics from Theory to Practice in Six Months* by Malinda Fitzgerald and Janet McCord
- *Engineering Ethics at CBU: The Compleat Engineer* by Bernard Beard and Eric Welch
- *What is Engineering Management* by Neal Jackson



## STUDENT NEWS

ECE seniors presented their senior projects on February 26th. Below is a list of their presentations:

- *Migration to Electronic Surveys* by **Brent Leslie Ellis and Francisco Zurita**
- *Career Center Project* by **Xiao Feng Chen and Teshedra Townsend**
- *Survey Creator* by **Sandeep Gonsalves**
- *Design of a Replacement UST Management System for MLGW* by **Joshua D. Holtgrewe**
- *Provisioning the Power System for the Porter Farm P.D.* by **Marnelli Pascual**
- *Hazardous Energy Studies* by **Jermichael Beaver and Cuong Quoc Luong**
- *IEEE SoutheastCon Hardware Competition: Constructing the Fred Terry* by **Denardo Crawford, James Bradford Keller,**

## Lloyd Smith II, and Roger Smith

ME senior project presentations were on April 2nd:

- *Integration of Launch Vehicle Simulation/Analysis Tools and Lunar Cargo Lander Design* by **George Brian DeJean, Jr. and Jeffrey Daniel King**
- *Cryogenic Propellant Tanks Used for In-Space Storage* by **John Madewell and Hank Matthew Pitts**
- *Kenneth O. Cole Community Office Building, LEED Compliant HVAC Design* by **Chris Azar**
- *Quick-Connect Coupling Research* by **John Garrett House**
- *Monopole Co-Location Platform Modification and Improvement* by **Joshua W. Lewis**
- *Development of Surgical Instrumentation for the Placement of Patella Prosthesis* by **Michael Morris and Rachael Wehner**
- *Development of Knee Force Analysis Instrumentation for the Standardization of Ligament Balancing in Total Knee Replacement Surgery* by **John Hanna Wall and Zachary Christopher Wilkinson**
- *Alpha VI: The Great Moonbuggy Race 2005* by **Lee Reynolds Allen, Jeffrey Guy Bodeen, Ian Gilmore, and Nathan Webb**

ChE seniors presented the following senior projects on April 9th:

- *Recovery of Caustic Soda from Black Liquor* by **Wesley Adam Hoover**
- *Arsenic Acid Filter Cake Disposal* by **Muna Mahdi**
- *Fermentation Experiment for the Production of Ethanol* by **Benjamin Taylor Reves**

CEE seniors presented the following senior projects on April 30th:

- *Redesign of Interchange at Canada Road and Interstate 40* by Traffic and Transportation Team: **Jonnye McElyea, Frank Roberts, Lee Schumann, and Ella Thorsteinsdottir**
- *Redesign of Interchange at Canada Road and Interstate 40* by Structural Engineering Team: **Jeff Higgins, Ben Knoernschild, Nick Marasa, and Chris Popwell**
- *Redesign of Interchange at Canada Road and Interstate 40* by Geotechnical Engineering Team: **Brad Loeffel and Sam Vitale**
- *Design of Wood Transport Crate for Diesel Engine* by **Juan Gutierrez and Travis Huggins**

## ALUMNI NEWS

**Alex Durbak** (CE'99) has been working since graduation at URS (formerly Greiner) in Tampa, Florida doing bridge design. Projects that he has worked on that are currently under construction are the I-95/I-10 Interchange in Jacksonville, FL and the Spruce Interchange in Tampa. Last year he received his P.E. This fall Alex will be going back to school full-time at Northwestern University in Evanston, IL in their Structural Engineering MS/PhD program with a full scholarship. Congratulations!

## FACULTY/STAFF NEWS

**Dr. Ali Pourhashemi** (ChE), **Mr. Fred Sock** (CEE), **Dr. L. Yu Lin** (CEE), and **Dr. Asit Ray** (ChE) were recognized at the Annual Faculty/Staff Reception on April 28th for their services of 5, 5, 15, and 20 years, respectively. Keep up the great work!

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