

School of Engineering

CHRISTIAN BROTHERS UNIVERSITY

News - April 2001

GMAQ QUALITY AWARDS



At the Greater Memphis Association for Quality (GMAQ) Press Conference on April 3rd at the Memphis Area Chamber of Commerce, the School of Engineering was named recipient of the Level II Quality Progress Award. The Department of Civil & Environmental Engineering was also named recipient of the Level I Quality Commitment Award. **Mr. Gene McGinnis** attended the press conference on behalf of the Department of Civil & Environmental Engineering and the School of Engineering. An award luncheon will be arranged by GMAQ in early May.

Awards were given based on Malcolm Baldrige Quality Criteria in Education, which cover seven major categories: Leadership, Strategic Planning, Student and Stakeholder Focus, Information and Analysis, Faculty and Staff Focus, Educational and Support Process Management, and Organizational Performance Results. Applications were submitted addressing how these organizations meet the seven criteria above. A GMAQ evaluation team is assigned to each application. They evaluate the application, identify strengths and opportunities for improvement, and produce a written report with their recommendations. This is a peer-reviewed process. We review these comments and use them to improve our quality.

BIOCHEMICAL ENGINEERING

As a result of two-year study in trends in the chemical engineering market place, next academic year the Department of Chemical Engineering will become Department of Chemical & Biochemical. According to the American Institute of Chemical Engineers, "Chemical engineers in the biotechnology industry develop and design the processes to grow, handle, and harvest living organisms and their by-products."

On February 24, 2001, in the Money & Business Section of the Memphis newspaper, *The Commercial Appeal*, the headline read "Bluff City envisioned as biotech boomtown." The article further mentioned, "Memphis has almost all it needs to develop into a 'biosciences valley' similarly to how San Francisco/San Jose area became Silicon Valley." In a recent book, *The Coming Biotech Age: The Business of Bio-Materials*, by Richard W. Oliver, the author said that we are embarking on a new economic and technological era. This new century will be known as the biotech century. The biotech economy will be more powerful, more global, and more pervasive than any past economy. The biotech industry will most likely dwarf all previous technology shifts in scope, scale, and speed.



At the recent AIChE Annual Meeting in November 2000, there was a session on "Life Sciences in Chemical Engineering Education." The concept was recently endorsed by the American Society for Engineering Education as "Engineering Education for a Changing World." Discussions at this session indicated that the trend is away from traditional areas of petroleum and chemical commodity business toward specialty chemicals in fields such as food processing, general personal care products, pharmaceuticals, etc. Employment in these latter categories has risen from less than 5% to nearly 40% over the past 20 years. Biology, microbiology, genetic engineering and biochemistry now fall within the accepted curricula of traditional chemical engineering. Life sciences are less and less an option for the chemical engineer.

The Department of Chemical Engineering has been working with the Biology and Chemistry Departments in the School of Sciences in offering the new biochemical engineering track for chemical engineering majors to produce graduates for the changing world. The new track requires the following biology, chemistry, and new chemical engineering courses:

- BIOL 111 Prin Biology I & Lab - 4 crs.
- BIOL 112 Prin Biology II & Lab - 4 crs.
- BIOL 321 Microbiology & Lab - 4 crs.

- CHE 311 Genetic Engineering & Lab - 4 crs.
- CHEM 312 Biochemistry & Lab - 4 crs.

This new biochemical track would serve to provide graduate students for the many biochemical engineering graduate programs in the state and country and provide employees to the growing demand for biochemical engineers in industry. For more information, please contact one of our chemical engineering professors.

ENGINEERING PSYCHOLOGY

The School of Arts and the School of Engineering have been working together in developing a new track in Applied Psychology entitled "Engineering Psychology" for psychology majors. A new minor in "Engineering Psychology" has also been developed. Engineering majors might be interested in having this minor since it adds value to our engineering degree. A minor in Engineering Psychology requires 30 credit hours including PSYC 105, 225, 301, 352, 440 and 15 hours of Engineering courses. For engineering majors, the 15 hours of engineering courses are already completed in an engineering curricula. Two of the required PSYC courses in the minor are also counted toward the social studies requirement in all four engineering undergraduate programs. Thus, the bottom line in obtaining this new minor for engineering majors would only be three additional PSYC courses. With good planning, students can get an engineering degree and a minor in Engineering Psychology within four years. Below are descriptions of the five required PSYC courses for the minor.



PSYC 105. GENERAL PSYCHOLOGY

An introduction to the discipline of psychology as a science of behavior. Areas of study include biological aspects of psychology, learning, sensation, perception, personality, abnormal behavior, psychological testing and research, social and developmental psychology. One semester; three credits

PSYC 225. BIOLOGICAL PSYCHOLOGY

Views the study of human and animal behavior within the context of biological principles. Areas covered include brain-behavior relationships, sensory processes, and biological bases for emotional behavior, sexual behavior, and psychological disorders. Prerequisite: PSYC 105. One semester; three credits

PSYC 301. ENGINEERING PSYCHOLOGY

Engineering psychology, also called human factors, ergonomics or usability engineering, deals with the importance of designing for human use. Equipment that is not ergonomically sound will be operated a little more slowly and be a little more prone to error. There are certain basic limitations

to human performance. Our goal in this class is to provide a solid foundation in the principles of human performance and a broad overview of the field of human factors. This class provides the student with an understanding of the variables that influence human performance and the ways in which the human factors expert draws on this knowledge. The organization of the class is based on viewing the human as an information-processing system. The information-processing approach provides a common reference for studying both humans and machines. Human factors research and design decisions must be based on a thorough understanding of basic principles of human performance. The theoretical analysis of human performance requires frequent contact with real-world situations in which people actually perform. This course provides an integrated approach to the study of human factors, embedding the principles of human factors within a foundation based on contemporary views of human performance. Topics include the following: Perception, cognition, movement, and environment. Prerequisite: Psych 105 General Psychology. One semester; three credits

PSYC 352. INDUSTRIAL AND ORGANIZATIONAL PSYCHOLOGY

This course examines the contributions of psychology to effective human resources development and management. The course content is designed for Psychology and Business majors and focuses on the practical applications of psychology in the business world. Topics include the psychology of organizations, motivations and supervision, employee selection and development, legal considerations, evaluation, and organizational development. Prerequisite: PSYC 105 and Junior standing. (Same as MGMT 352.) One semester; three credits

PSYC 440. COGNITIVE PSYCHOLOGY

This course is designed to investigate the nature of the thinking mind. Cognitive psychology involves understanding how we gain information of the world, how it is transformed into knowledge, stored in memory, and accessed when needed. Prerequisite: PSYC 105. One semester; three credits

There are many other minors that are excellent additions to engineering degrees. Next issue, we will look at minors in mathematics and in computer science. For those who are interested in pursuing a minor, please consult your faculty advisor.

STUDENT NEWS

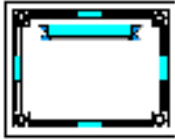
Congratulations to the ASME Student Section for winning so many awards at the recent ASME Region XI Student Competition in West Palm Beach, Florida:

- **Lawrence Martin** -- 1st Place, ASME Old Guard Poster Competition
- **Greg Doyle** -- 2nd Place, ASME Old Guard Poster Competition
- **Brian O'Reilly** -- 1st Place, ASME Old Guard Oral Presentations
- **Jack Griffith** -- 3rd Place, ASME Old Guard Oral Presentations
- **Brian O'Reilly** -- Best Technical Presentation, Section A of Oral Presentations
- **Jack Griffith** -- Best Technical Presentation, Section B of Oral Presentations

In addition, the CBU ASME Student Section won the following awards: Most Number of Students Attending Award, Kilometer Award (#students x km traveled), and Highest Percentage of Student Section Attending. Altogether this year's team grossed \$1000 in prizes! They have set a standard that will be hard to surpass. Congratulations to all who attended the competition: Faculty Advisor (**Dr. Bernard Beard**), ASME Students (**Lawrence Martin, Greg Doyle, Brian O'Reilly, Jack Griffith, Will Webb, Don Brown, Ed Hurt, Mike Brunjes, Jim Fuss, Jeff Lau, Daniel Valentine, Theresa Humphrey, Ariel Wessel, and Katie Logerot**), and alumni (**Kim Howell, Amanda Stanford, Alisa Harvey, and Katie Baxter**).

The student chapter of the American Society of Civil Engineers at Christian Brothers University recently returned from the 2001 Southeast Regional Conference at Auburn University with two fourth-place trophies. **Andy King, Richard Palumbo, Josh Giannini, and Becky Bailey** received a trophy in the balsa wood bridge competition. **Chris Owen, Josh Graves, Dennis Moultrie, Wes Goodnight, Kevin Lee, Jason Deweber, Kerry Moskal, Juanita Ford, and Becky Bailey** all helped to win a fourth-place trophy in the mystery event. **Mr. Fred Sock** accompanied the students to the competition.

CBU Tau Beta Pi hosted District 6 Conference on March 16-17, 2001. District 6 encompasses universities in Alabama, Mississippi, Kentucky, and Tennessee. There were 47 students at the conference representing 13 universities, as well as members from the Executive Council. Thanks to **Maria Teresa Blanco** for organizing the event. Also thanks to the following Tau Beta Pi



members for helping out: **Jarred Drewry, Jeffrey Lau, Johan Reimann, Ling Fang Huang, Michael McClung, Teresa Fuller, Oliver Lam, Julian Ait-Maksene, Shane DeLima,** and **Titu Mukherjee**. Also thanks to the chapter advisor, **Mr. Gene McGinnis**.

Congratulations to **Matt Osborne** (ECE) for the new member of his family. His daughter, Alana Osborne was born on March 8th at 12:10 p.m. and weighed 7 lbs. 8 oz.

ALUMNI NEWS

Congratulations to **Juan Kindelan** (MEM'92) and **Barton M. Walls** (CE'91) for being recognized last February as Featured Engineer from the local chapters of American Institute of Chemical Engineers (AIChE) and the Tennessee Society of Professional Engineers (TSPE), respectively.

Brian Thompson (CEE'97) recently changed employers from Lurgi PSI to H+M Industrial Services in Jackson, TN. He works as a Scheduler/Cost Engineer with the firm. H+M Industrial Services is a division of H+M Company, a design/build firm ranked # 33 on the ENR list of Top 100 Design-Build Firms. The division where Brian works for is a contractor specializing in industrial mechanical and electrical construction, equipment relocations, fabrication, and facility maintenance. Most of its current projects are in the power generation market. Some of his comments regarding the education he received at CBU: "Working in the construction industry, I typically do not directly utilize all of the theories and methods I learned during my education at CBU, but having an engineering background allows me to better understand and manage the projects in which I am involved. The knowledge I gained as a civil/structural engineering student at CBU helps me understand the processes and iterations through which a design goes before it reaches the construction phase. This further aids me in the planning, sequencing, and tracking of construction work. I also value the contacts and relationships I formed as a student at CBU. It is through these contacts that I obtained my first full-time position out of school and subsequently my most recent move to a position with better pay and more responsibility. I believe that the career advancements that have become available to me over the 3+ years since I graduated are a direct result of my experiences at CBU."

Andrew Rike (CE'95) is currently in Little Rock, AR, working for Engineering, Compliance, & Construction, Inc. (ECCI). His work includes industrial engineering, project management, structural engineering. He recently received his P.E. license. He is married and has an eight-month old son, Max.



FACULTY NEWS



Dr. Paul Shiue

Congratulations to **Dr. Paul Shiue** of the Mechanical Engineering Department for receiving a research fellowship in the program entitled NASA-ASEE Summer Faculty Fellowship in Aeronautics and Space Research. Since 1964, the National Aeronautics and Space Administration (NASA) has supported a program of summer faculty fellowships for full-time engineering and science educators at U.S colleges and universities. In a series of collaborations between NASA research and development centers and nearby universities, engineering and science faculty members spend ten weeks working with professional peers on research. The program for 2001 is from May 29, 2001 to August 3, 2001. Dr. Shiue will participate in research activities at Marshall Space Flight Center/University of Alabama in Huntsville, AL.

Dr. Neal Jackson (MEM Director) and **Dr. Siripong Malasri** (Dean) hosted a luncheon for a group of CBU alumni and those who are interested in our Engineering Management Graduate Program recently at the Jackson State Community College. **Dr. Joe Kastner** (MEM Coordinator - Jackson/West Tennessee Region), **Barbara Meyer** (MEM Administrative Coordinator), and **Shawna Engle** (Alumni Director) also attended the luncheon meeting.

Congratulations to the following engineering faculty members on their promotions in rank: **Dr. L. Yu Lin** (Civil & Environmental Engineering) has been promoted to the rank of Professor and **Dr. Bernard Beard** (Mechanical Engineering) has been promoted to the rank of Associate Professor. Their profiles will appear in the next issue of Updates.

Dr. Neal Jackson (MEM Director) presented a paper entitled, "Development of a Bachelor of Science Degree in Engineering Management with a Concentration in Construction Management at Christian Brothers University" at the 2001 Annual Meeting of the Southeastern Section of the American Society for Engineering Education. The meeting was held at the Citadel in Charleston, SC, on April 1-3, 2001. The paper was coauthored by **Mr. Gene McGinnis** (Chair of Civil & Environmental Engineering Department) and **Dr. Siripong Malasri** (Dean). The paper will be published in the post conference proceedings in May.

Congratulations to **Denise Roberts** (ME) for the adoption of her new baby boy, Noah Jet. Jet was born at 7:04 a.m. on March 13, 2001, and weighed 7 lbs. 4 ozs.

MAESC 2001 FINAL PROGRAM



The 3rd Annual MAESC 2001 Conference preparation is in full swing. Final Program brochures were mailed recently. There will be 12 technical sessions, 1 poster session, 1 plenary session, and 1 panel discussion session. Dr. Arthur Ellis of the NSF funded Materials Research Center on Nanostructured Materials and Interfaces at the University of Wisconsin-Madison will be the plenary session speaker. His talk is entitled "Solids Are Like People: It's the Defects That Make Them Interesting."

The Final Program with registration form in PDF format can be found at the MAESC web site at: <http://www.cbu.edu/engineering/maesc>

If registered by April 27, 2001, the fee is only \$180 per person. For more information about the MAESC Conference, please contact Dr. Siripong Malasri at pong@cbu.edu or 901.321-3419. By the way, if you are a P.E. and need PDHs for your license renewal, the MAESC 2001 Conference will give you up to 5.5 PDHs.

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