The School of Engineering at SFSU has begun an alliance with the UCSF Hospital and Medical School providing mutual benefit to the two institutions. Engineering students from SFSU have been participating in a project that was recently featured in an article in the November 13th, 2007 issue of the San Francisco Chronicle.

The project is to assist in the development of a new treatment for the musculoskeletal defect called Pectus Excavatum. Pectus appears during adolescence. The breast bone is constrained by the surrounding cartridge as the body matures, causing the center of the chest to be sunken in. The deformity typically doesn’t pose an increased health risk, but it can cause heart and lung problems due to added pressure on them and the restricted volume of the chest cavity.

Engineering students from SFSU are working to improve the revolutionary new treatment system of attaching a rare earth magnet to the patient’s sternum in a relatively minor surgery. The magnet is inserted under the skin and it is held in place by a small hole is drilled in the sternum (see photo). A stud which is attached to a titanium containing the hockey-puck sized magnet is held in place by a backing plate and nut. This magnet is attracted to a second magnet external to the body that is held in the proper location by a custom fit chest plate. By using these ultra powerful magnets, a force is continually applied to the affected tissues, causing them to realign into position, “It works much like braces on teeth by providing a continuous force until the parts are back into the desired position”, says the leader of the treatment team, Dr. Michael Harrison.

Dr. Harrison, a world renowned surgeon, devised the method to greatly improve the treatment of Pectus. “Previous treatments were barbaric in nature, involving major surgery, extended hospital (Continued on Page 2)

SFSU - UCSF’s Magnetic Attraction Helps Pectus Sufferers

Skeletal structure with hole in sternum showing mounting location of magnet for pectus sufferers

New Wildfire (ProE and ProMechanical) Software License

Recently Professor Sinha has successfully negotiated an agreement with Parametric Technology Corporation (PTC) whereby the School of Engineering is allowed to install Wildfire 3.0 on up to 500 computers. Important components of Wildfire3.0 are Pro/Engineer and Pro/Mechanical. A complete list of all components is shown in the quotation from PTC. The regular fee for this software is $9,375 per annum. As a result of negotiations with Professor Sinha PTC has waived the fee for the next 5 years. The current agreement will expire in December 2012. During the winter break Mr. Amir Tabrizi had installed Wildfire3.0 with the new licenses on approximately 50 computers in S143 and S146 and on computers in a few other mechanical labs. An introductory course on Pro/Engineer will be offered as a module of Engr290. All students and alumni are encouraged to take this course if this will enhance their career opportunity.

In addition, PTC is planning to provide Wildfire 4.0 to the School of Engineering with free licensing.
Robotics Instructor David Calkins (Engineering 120 class) was recently asked by KPIX to provide commentary on their popular news segment called, “Good Question”, hosted by the evening anchor, Ken Bastida. Calkins, who is also the president of the Robotics Society of America as well as the founder of the world’s largest robotic competition, RoboGames, was asked to respond to a viewer’s question, “What is Artificial Intelligence?”

The series which is an element of KPIX’s evening flagship newscast takes questions from viewers and seeks answers from experts in the respective fields. The combination of a wide variety of questions, a bit of humor and educational content has proved a winning combination. Dr. Sung Hu has also been a contributor to the series by discussing the energy usage of electrical devices when powered off and if it is dangerous putting metal in a microwave. Discussing the current limitations of technology, Calkins pointed out that we are far from the scenario of world domination by our electro-mechanical brothers. “Current robotic intelligence is very small as compared to even single celled organisms. Complex situations that are very easy for humans to navigate can prove to be essentially impossible for a robot to respond to”. He points out that while it is not difficult to determine what is not a robot, it is difficult to determine what is a robot. Calkins’ segment will air in February.

Calkins also organizes the SFSU Robotics Soccer Team. The team is always looking for students to help compete on the team and improve the soccer robots performance. The only prerequisite is a desire to learn about robotics. If you’d like to be a soccer team member contact David Calkins at dcalkins@sfsu.edu.
Prof. Ying Chen visited University of Electronic Science and Technology of China (UESTC) in Chengdu, China in December 2007. She had a successful meeting with the Computer Science Department Chair Prof. Shu Xu and Engineering College Chair Prof. Jianpin Li. They discussed international collaborations on education and technical conferences. Prof. Xu and Prof. Li proposed a ‘1+1’ program, which is a master student exchange program between UESTC and SFSU. Both parties believe it will be beneficial for both UESTC and SFSU and Prof. Chen will coordinate with the program’s launch. Later Prof. Chen visited their Student Startup Center and IBM Center and was very impressed by students’ creative works.

Sun Microsystems Inc., a leading microprocessor company that headquarters in Santa Clara, California launched the fastest commodity processor UltraSPARC T2 in August 2007. Prof. Ying Chen and her four master students, Abhishek Shetty, Akili Anderson, Chi Hai, and Rohit Nayak, were part of this historical event. UltraSPARC T2 is the industry’s first ‘system on a chip,’ packing the most cores and threads of any general purpose processor available, and integrating all the key functions of a server on a single chip. Following the launch, I took a group of San Francisco State University on a tour of our campus. These are all very bright Masters of Engineering students who will soon be graduating and joining the workforce. They are the driving force of our future. I wish them all the very best.’ (Rebecca Liu, Senior PR Manager, Sun Microsystems Inc.

Later, Dr. David Yen, Sun Microsystems Executive Vice President, had a picture with Prof. Chen and the students, and wished them the very much best in their research.

The 2007-2008 student chapter of ASME is a motivated and determined group of individuals. ASME stands for American Society of Mechanical Engineer and represents a network of student and professional engineers. The society also supports student chapters, one of which is at SFSU. ASME officers help the club to run, and provide the link between the national ASME resources and student needs. Student leadership seminars, competitions, joint professional and student meetings, and scholarships provide experiences to develop the engineer within, and the contacts made through the organization are invaluable all throughout one’s engineering career.

The general meetings are held to inform members of ASME sponsored events and are held every other week. Announcement signs are posted in engineering science building hallways. ASME information is also available on the website http://userswww.sfsu.edu/~asme/index.html. ASME at SFSU is available to help students with career advice, engineering questions and project suggestions. To join ASME or participate in any of these projects go to the website where you’ll find the officers’ contact information.

One of ASME’s goals is to provide an environment where students can develop and openly discuss ideas and become involved in school projects.

Several projects are underway such as the Human Powered Vehicle challenge with a competition scheduled for Spring 2009. A final design has been chosen and it should be an exciting ride.

The electric motorcycle conversion project helps students to fulfill class-work requirements and apply their engineering experience. A 1975 Honda CB200T is being changed to battery-electric propulsion and plans are to include a near-full-body fairing and complete the project by the end of April. The project is still in its research phase, and some parts have been acquired.

A group of engineering students, working with the Engineering Design Center, have undertaken the design of a solar "rain tree" for the SFSU Grounds Division. Using only captured rainwater and solar power, the 18 foot tall installation will demonstrate the sun's power by generating a small shower from the treetop on sunny days. If the design is successful, SFSU Grounds intends to install several units in locations across the campus.

ASME is a very interesting organization which provides many opportunities to develop the engineer within an aspiring engineering student. We hope to see you at our meetings!

Article by: David Shirling
Secretary/ASME
Engineering Symposium

February 28, 2008
Jack Adams Hall
Cesar Chavez Student Center
✦ Meet the Employers
✦ Hear tips on job search and how to succeed

Meet the Employers Event  5 – 6:30 p.m.

Alumni Panel  6:30 p.m.

Co-sponsored by
the School of Engineering and the Career Center

Dress business casual for this event and bring your resume

✦ Symposium Resume Critiques
Drop-in Thursday February 21st
11 - 3:30 p.m.
@ the Career Center, SSB 206

Or Wednesdays @ SCI 247 from 12 - 2 p.m.