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U.S. News Ranks SJSU Engineering Programs

According to *U.S. News & World Report America's Best Colleges 2004*, San José State's engineering program ranked 14th in the nation among non-Ph.D.-granting universities. Three individual departments were also recognized in the rankings: Computer Engineering, 5th; Electrical Engineering, 11th; and Industrial and Systems Engineering, 5th.

For the complete report, see http://www.usnews.com/usnews/edu/college/rankings/rankengineering_brief.php

Remodeled Microelectronics Process Engineering Lab Opens

Originally the brainchild of former College of Engineering Dean Jay Pinson as part of the 1989 engineering building renovation, the Microelectronics Process Engineering Facility offered students of the day a laboratory for real-world wafer processing. According to Dr. Emily Allen, professor and chair of the Chemical and Materials Engineering Department, the newly remodeled lab that opened last fall now provides upgraded infrastructure, more equipment, and more space for an undergraduate hands-on experience that few other engineering programs in the country can provide.



The remodeling of the MPE lab and accompanying fab-based courses were made possible with \$1.5 million and in-kind donations from corporate sponsors including Intel, Applied Materials, Novellus Systems, AMD, and Cypress Semiconductor, as well as grants from the National Science Foundation and the Society of Manufacturing Engineers.

"Having a teaching facility like this on the West Coast is important for Silicon Valley's competitive edge," says Jai Hahku, vice president of Intel. "Our industry benefits when we have quality students coming out of this program right here in our backyard; new engineers skilled in semiconductor technology are capable of creating the innovative products that power the future."

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Students Heading West on Asia Study Tour

Twenty-five of the College's top students have been selected to participate in an all-expenses paid, two-week study tour to Taiwan and China. The inaugural tour, departing at the end of May, is part of the College's new Global Technology Initiative. Funded by a \$1 million endowment made possible by Silicon Valley executives and venture capitalists, the College is focused on incorporating global initiatives across all departments and programs.

"We know that Silicon Valley's high-tech industry is closely coupled with operations in Asia-Pacific," says College of Engineering Dean Belle Wei. "If our students are going to compete successfully in the global economy, they are going to need exposure to the culture and business practices of other countries. There is no better way to learn that than first-hand."

According to Jacob Tsao, associate professor of Industrial and Systems Engineering and tour leader, all students who travel to Asia as part of the tour will also be required to participate in a six-part seminar series.

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A Message from Dean Belle Wei



Greetings from the
College of Engineering

It has been nearly one year since I formally assumed my post as dean of the College. To say that it has been an extraordinary year would be an understatement. In particular, the College has celebrated some significant achievements that I wanted to share with you—our

alumni and friends. Without the help of so many of you, we would not have been able to accomplish them.

- Charles W. Davidson ('57 CE) established a CE professorship (p. 6).
- The Microelectronics Process Engineering Laboratory underwent a \$1.5 million remodeling (p. 1).
- 25 students will spend 2 weeks in Asia as part of the College's Global Technology Initiative (p.1).

In the past year, we have also dedicated a great deal of time evaluating and enhancing our programs. That process has allowed us to create a strategic blueprint for the College with three overarching themes: Building Connections with Our

Community, Building Connections with Industry, and Building Connections with the Rest of the World. With these themes as our bedrock, I have increased confidence that the College will be able to continue strengthening its critical role in preparing our students to succeed in a global economy.

Perhaps what I have enjoyed most in the past year are the opportunities I have had to meet so many of you—our dedicated alumni and friends. I have learned that the San José State "connection" is a powerful bond. I am grateful to the many accomplished individuals who are making a difference in the lives of our students and our graduates with scholarships, internships, and employment opportunities.

The faculty and I are committed to supporting the needs of our community by developing the capabilities of our young people and by providing the best-qualified work force possible. We are grateful to our alumni and our Bay Area industry partners for contributing so much towards helping us accomplish our goals.

Sincerely,

Belle Wei
Dean, College of Engineering

New Faces

The College has been fortunate to have recruited a number of talented faculty members. Each brings a vital commitment to preparing our students for successful careers in engineering.

Sigurd Meldal,
Professor and Chair, Computer Engineering Department
Contact: smeldal@sjsu.edu

Professor Meldal came to San José State from Cal Poly San Luis Obispo where he served as chair of the Computer Science Department. He previously held appointments at Stanford



Sigurd Meldal

University as a visiting professor and various academic positions at the University of Bergen in Norway. In 2000, his work in software engineering was recognized by the U.S. House of Representatives and the California State Assembly. Meldal was a 1986 recipient of a Fulbright-Hayes Fellowship at Stanford

University. He received his doctorate from the University of Oslo also in 1986. Meldal serves as an editor of the Nordic Journal of Computing and has published one book and more than 60 technical papers. Meldal enjoys facilitating the students' development into mature, responsible and capable professionals. To that end, he has focused on the development of the Department's degree programs in computer and (new this year) software engineering, and in particular on the development of the students' understanding of the roles and responsibilities of technical management.

Xiao Su,
Assistant Professor, Computer Engineering Department
Contact: xsu@email.sjsu.edu

Professor Su received her B.E. in Computer Science and Engineering from Zhejiang University in China, and her M.S. and Ph.D. in Computer Science from the University of Illinois at Urbana-Champaign. Her research interests include multimedia computing and networking, media coding, and content

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Scholarship Luncheon Honors COE Supporters

Last fall, College of Engineering students and faculty expressed their appreciation to more than a dozen companies and individuals for their establishment of scholarships for 36 of the College's most promising students.



Student scholarship recipients assembled on the terrace outside the College.

"Being able to provide scholarships to students who have been high achievers in high school and college enhances our recruitment process," says Associate Dean for Undergraduate Studies Ping Hsu. "Those who have helped the college in this way have made a significant difference in the lives of many students."



Jim Axline presents the Axline Family Scholarship to Robert D. Boykin.

"The scholarship I received from Intel has helped me tremendously with the financial burden of college so that I was able to focus on my studies," says

Loananh Nguyen, a senior in Electrical Engineering. "As for real-world experience, as an intern at Intel, I learned how to be an effective team member and also improved my non-technical skills".

"I feel so honored to be recognized for my hard work and dedication throughout high school. I want to do everything that I

can to say thank you for this wonderful opportunity," says Stephanie Case, freshman in Industrial and Systems Engineering and recipient of the Solectron scholarship.

Scholarship Sponsors

- Applied Materials*
- Atmel*
- Axline Family*
- Benzing Family*
- David Brown ('68 BSME)*
- Cadence Design Systems*
- Cisco Systems*
- Charles W. Davidson ('57 BSCE)*
- Dana and Elaine Ditmore*
- Hewlett-Packard*
- Intel*
- Lam Research*
- Lockheed Martin*
- National Semiconductor*
- Solectron*

College Awards Instructional and Research Development Grants

The College of Engineering awarded external funds to 18 faculty members across the College for a wide range of innovative instructional and research development projects during 2003. The grants, ranging from \$5,000-\$15,000, were part of the College's commitment to faculty excellence in teaching and research.

"The rate at which technology changes makes it imperative for our courses to stay relevant and our faculty members to remain committed to research," says Dean Belle Wei. "Being able to recognize our professors for their achievements, as well as provide incentives for research activities and course improvements are an important part of advancing the College's programs."

The instructional and research development grants to date have resulted in nearly \$3 million in grant proposals submitted to the National Science Foundation.

The following faculty members were grant recipients:

Instructional Development Grants

- | | |
|------------------------|------------------------|
| <i>Emily Allen</i> | <i>John Lee</i> |
| <i>Pat Backer</i> | <i>Melanie McNeil</i> |
| <i>Yasser Dessouky</i> | <i>Nader Mir</i> |
| <i>Burford Furman</i> | <i>David Parent</i> |
| <i>Stacy Gleixner</i> | <i>Niranjani Patel</i> |
| <i>Lili He</i> | <i>Gregory Young</i> |

Research Development Grants

- | | |
|-----------------------|-----------------------|
| <i>Jan Botha</i> | <i>Ahmed Hambaba</i> |
| <i>Richard Chung</i> | <i>Kurt McMullin</i> |
| <i>Winncy Du</i> | <i>Melanie McNeil</i> |
| <i>Peter Fuhr</i> | <i>Nader Mir</i> |
| <i>Burford Furman</i> | |

EE Professor Counts Down to Saturn Orbits

Professor of Electrical Engineering Essam Marouf has standing meetings at 11:00 every Monday, Wednesday, and Thursday mornings. That's when he joins colleagues from around the world on a conference call to plan experiments for the long-awaited Cassini-Huygens 74-orbit tour of Saturn and its largest moon Titan. Marouf was selected to participate in NASA's \$3.5 billion Cassini project in 1990. After the seven-year "cruise" from Earth to Saturn, the Cassini spacecraft will go into orbit around the planet on July 1 of this year.



Essam Marouf

"At the beginning of this project, 2004 seemed so far away," says Marouf. "At this point, I am exhilarated when I realize it's finally becoming a reality. When you plan and work on a project for 14 years of your life you'd like it to be successful. But in the end, we have to keep our fingers crossed that the ship will actually enter its orbit around Saturn safely."

Marouf is part of the mission's radio science team that will conduct experiments that use radio links between the spacecraft and giant antennas on the Earth (the so-called Deep Space Network, or DSN). The data transmitted to these giant dishes will tell scientists more about the rings, atmosphere, and interior of Saturn; the atmosphere, surface, and interior of Titan, and of some of the other large satellites of Saturn. The radio links designed by Marouf's team have also been used during the journey to Saturn to conduct experiments related to predictions made by Einstein's theory of relativity.

A joint project of 16 European countries and the United States, Cassini is the largest, most expensive and most capable spacecraft ever built, according to Marouf, who also worked on the previous NASA Voyager mission from 1970 to 1989.

What drives Marouf and his fellow scientists to commit so much of their lives to missions like the Cassini?

"Pure scientific exploration," says Marouf. "The Earth shares our solar system with eight other planets. Why are they each so different from one another? Why, for example, is Venus so hot and the atmosphere so thick when it is about the same size as the Earth and nearly as close to the sun? What can we learn about these other planets that may be predictors for the future of our own?"

The Saturn orbit countdown and more information about the Cassini mission to Saturn and Titan can be found at <http://saturn.jpl.nasa.gov/>. Professor Marouf can be reached via email at emarouf@email.sjsu.edu.

MAE Students Take Prizes in National Competition



Ian Dixon, senior, MAE, crosses the finish line at the 2003 SAE Mini Baja Competition.

SJSU Mechanical and Aerospace Engineering students Todd Belt and Ian Dixon were among those recognized in the James F. Lincoln Arc Welding Foundation competition last fall. The competition, which recognizes and rewards innovation and achievement by engineering and technology students, has been held annually since 1938. Belt, who graduated with an M.S. degree last

December, won a Gold Award for his report on the design of a piezoelectrically actuated MEMS deformable mirror for use in optical systems such as fiber optic communications, laser-based weapon systems, and astronomy.

Dixon, an MAE senior planning to graduate this spring, won a Silver Award for his report on the transmission that he designed and built for the Mini Baja off-road vehicle competition in 2003. Dixon's off-road racing vehicle placed 18th among 90 competitors in that race, organized by the Society of Automotive Engineers.

Remodeled Microelectronics Lab

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Using CMOS technology, students work on actual process tools for photolithography, reactive ion etch, diffusion, oxidation, metal deposition, testing and metrology. Processes such as building masks, that are not available in the facility, are outsourced to local suppliers.

"In terms of engineering education, one of the most unique features of the lab and the courses it offers is that it is truly interdisciplinary from the top down," says Allen. "An interdisciplinary faculty and staff team runs the lab, uses the lab and teaches in the lab. What that means is that whether a student is studying electrical, computer, chemical and materials, mechanical and aerospace engineering, or industrial and systems engineering, there are opportunities throughout the fabrication process for hands-on work. With the increased size and capabilities of the new lab, few students will leave our programs without industry-relevant lab experience."



"We must continue to attract the finest minds to technology and our industry, and we see our diverse workforce mirrored in the students attracted to SJSU's program from around the world," says Applied Materials Executive Vice President David

Wang. "We have already been the beneficiaries of past programs, hiring interns and employees with the hands-on skills we need."

Transitions

Paul Fratessa (BSCE, '61; MSCE, '68) died September 26, 2003, after a long illness. A successful structural engineer, Paul owned his own structural engineering firm in Oakland for 20 years. He served as chair of the California Seismic Safety Commission and in 1995 he was appointed Chair of the Architectural Engineering Department at Cal Poly San Luis Obispo. Paul was a member of CELSOC and served on structural engineering panels for the Board of Registration for Professional Engineers and Land Surveyors.

• • •

Riyad S. "Ray" AbuZayyad (M.A., '62) passed away on March 23, 2004. Born in Palestine in 1937, Ray emigrated to the U.S. in 1957 and in 1960 received a B.S. in Mechanical Engineering from U.C. Berkeley. In 1961 he obtained an M.A. in Applied Mechanics and Civil Engineering from SJSU, and in 1962 joined the General Products Division of IBM in San Jose, CA. He later earned an MSEE degree from Santa Clara University.

AbuZayyad held various engineering and management positions at IBM before becoming vice president and general manager of IBM's Storage Products Division in 1992. He had previously served as president of IBM's General Products Division, and from 1987 through 1990 as the top executive of Rolm Systems after its acquisition by IBM.

Ray was the recipient of the 1987 Engineering Award of Distinction from the College of Engineering. He was a member of the California Business Roundtable and served on the board of the Tech Museum of Innovation. After retiring from IBM in 1996, Ray served as General Partner of the IGNITE Group, a venture capital firm, and principal of Technology Investment Partners.

New Appointments

Three College faculty members have been appointed to positions in the Dean's office. Ping Hsu, professor of Electrical Engineering, was named Associate Dean for Undergraduate Studies. Ahmed Hambaba, professor of Computer Engineering, was named Associate Dean for Graduate and Extended Studies. And Kevin Corker, professor of Industrial and Systems Engineering and director of the graduate program in Human Factors/ Ergonomics, was named Associate Dean for Research. These appointments were made to further focus and support the College's commitment to pursuing excellence in undergraduate education, the development of more rigorous graduate and extended studies programs, and applied research partnerships with corporate and government sponsors.

"Professors Hsu, Hambaba and Corker have established outstanding records of academic accomplishment and dedicated service to the College," says Dean Belle Wei. "I look forward to working with them through the implementation of all facets of our strategic plan."

COE Alumnus Charles W. Davidson ('57) to Receive 2004 Tower Award: Establishes Civil Engineering Professorship



Charles W. Davidson

Charles W. Davidson ('57 Civil Engineering) will be honored on April 24 as the 35th recipient of San José State University's Tower Award. The award, the University's highest honor for service, recognizes SJSU alumni for their personal achievements and commitment to the university.

For the College of Engineering, Davidson's commitment is special. Last fall, Davidson established a

\$500,000 professorship in construction management, a first step towards a \$2 million endowed chair. The Charles W. Davidson Professorship is the third endowed professorship in the College and the second major gift Davidson has made to the College. Some years ago, he established a scholarship endowment that supports two civil engineering students each year.

"Over the next 50 years," said Davidson, "there will be a high demand for civil engineers because so much of our basic infrastructure will need to be replaced. I am delighted to help San José State more effectively prepare the next generation of civil engineers for this important work."

Davidson, one of the Bay Area's most successful home builders, originally opened a consulting engineering company in 1960, and then in 1961 got into homebuilding as a sideline. Altogether he founded five companies: DKB Homes LLP, the Charles W. Davidson Co., Davidson Homes, DKD Property Mgt., and L&D Construction. By the 1980s, he had become the biggest independent builder of affordable housing in Northern California.

Davidson is also known as a generous philanthropist to SJSU and to others. In 1992, he created a foundation to support the arts, higher education and human services organizations. Through that foundation he helped raise \$3.5 million for a new SJSU athletic training facility.

"Mr. Davidson's gift is the largest from an individual alumnus the College has ever received," says Dean Belle Wei. "With the funds generated from this endowment we will be able to support more instruction in the Department of Civil Engineering. Support of this kind will be critical to sustaining quality in the College's programs as state budgets continue to shrink."

Asian Study Tour

from page 1

The series is designed to provide the students with a better understanding of the overall global business landscape, and the globalization of the engineering industry in particular.

"The lectures are designed to help the students focus on the issues surrounding globalization," says Tsao. "Given the parameters of the global economy, how do U.S. companies thrive and play a leadership role?"

The study tour includes official visits to Asian headquarters of such U.S. companies as HP Taiwan and HP China, Intel, Cadence and Solectron, as well as a number of Asia-based companies including TSMC, the largest chip foundry in the world, and Acer. The tour will also include visits to several of Asia's cultural landmarks including The Great Wall and The Forbidden City.

"There are few things more important than preparing our students for the global economy," says Wei. "We are extraordinarily grateful to those who have supported this program."

Global Technology Initiative Grant

The College of Engineering Global Technology Grant is made possible by the generous contributions of alumni and friends. Each donor committed \$100,000. Our thanks to:

Sandy and Ruth Chau, Trident Investments

Her-Daw and Jean Che, CTO of Symphoniq Corp.

Wu-Fu and Ellen Chen, General Partner of Acorn Campus

Chun and Jane Chiu, President, Taiwan Industrial Technology Assoc.

Hsun K. Chou, EICO, Inc.

James H. Hogan ('78, B.S. Mathematics and Computer Science; '80, M.B.A.), General Partner, Telos Venture Partners

David and Cathy Tsang, General Partner of Acorn Campus

Chester and Olivia Wang, General Partner of Acorn Campus

David ('83, M.S. Computer Engineering) and Jessie Weng, V.P., Taiwan Industrial Technology Association

T.C. Wu, Executive Vice President, Atmel and Yuh-Ning Chen, CEO, MartSoft

New Faces

from page 2



Xiao Su

processing, mobile computing and network security. Before her appointment in the College, she held a position in the content networking division of Inktomi Corporation (now part of Yahoo).

Robert H. Morelos-Zaragoza

Associate Professor, Electrical Engineering Department

Contact: rmorelos@email.sjsu.edu

Professor Morelos-Zaragoza received his Ph.D. in Electrical Engineering from the University of Hawaii in 1992, and M.S. and B.S. degrees from the National Autonomous University of Mexico, in 1985 and 1986, respectively. Before joining the SJSU faculty, Morelos-Zaragoza was a researcher at Sony Computer Science Laboratories in Tokyo and a member of the channel coding group of LSI Logic Corp. He is the author of the book *The Art of Error Correcting Coding* (Wiley, 2002), of 19 papers in international peer-reviewed journals (IEEE and IEICE) and of over 50 international conference papers. He holds six U.S. patents with over 15 pending in Europe, Japan and the U.S. His area of research interest is in digital communications with an emphasis on wideband wireless communications, reconfigurable communication devices and system-on-a-chip design for wireless communication systems. Morelos-Zaragoza is currently teaching both undergraduate and graduate courses on



Robert H. Morelos-Zaragoza

digital communication principles and applications. His teaching philosophy is to place himself in the shoes of the students and then ask himself why the material being taught is important.

John Lee

Assistant Professor, Mechanical and Aerospace Engineering Department

Contact: sjlee@sjsu.edu

Professor Lee obtained his M.S. and Ph.D. degrees from the Massachusetts Institute of Technology and his undergraduate degree from Stanford University. His teaching interests include microelectromechanical systems (MEMS), mechanical design, manufacturing processes, and introductory nanotechnology. Lee was employed as a systems engineer at Applied Materials between 1996 and 1999. In 1999, he returned to academia to lead a team in developing micro fuel cells at



John Lee

Stanford's Rapid Prototyping Laboratory. His recent research activities have been in the areas of MEMS, micromechanisms, and microfluidics. In the classroom and in laboratories, Lee is a strong advocate of hands-on, team-based projects that mandate actual hardware prototyping and fabrication of design concepts. He also uses online learning tools extensively.

Tamara A. Papalias

Assistant Professor, Electrical Engineering Department

Contact: drpapalias@yahoo.com

Professor Papalias holds her B.S., M.S., and Ph.D. degrees in Electrical Engineering from Stanford University. During her graduate studies there, she served as a teaching assistant, teaching fellow, and lecturer. Her research interests include high-speed CMOS analog circuitry, focusing on low phase-

noise gigahertz oscillator design. Papalias currently advises the SJSU Chapter of the IEEE and is coordinating a special topics class, "Intuitive Analog Integrated IC Design." She recently had a paper accepted for the IEEE RF Symposium to be held in June of this year.



Tamara A. Papalias

Professorships and Faculty Fellowships

The College recognizes the following donors for their support of Professorships and Faculty Fellowships.

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Charles W. Davidson ('57 BSCE)

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David Lin ('86 MSEE)
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Richard Tarver ('89 BSEE, '92 MSEE)

Major Annual Donors

Donald R. Beall ('60 BS Metallurgical Engineering)
Max Gahrahmat ('69 BSCE, '76 MSCE)
George Quinn

Laboratories and Programs

The College recognizes the following donors for their support of various laboratories and programs.

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HP Electronics Laboratory

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Contributing Partners: AMD, Novellus, Cypress

Microelectronics Process Engineering Laboratory

Xilinx

Xilinx FPGA Laboratory

Important Dates

Friday, May 14

Spring Conference Day – Senior and Master's Project
For presentation schedule call 924-3800.

Saturday, May 29

College of Engineering Graduation 1:00 p.m.
SJSU Events Center

Saturday, May 29

Campuswide Commencement 9:30 a.m.
Spartan Stadium

Sunday, May 30

Asia Study Tour Departs SFO

For more information about programs and instruction in the College of Engineering, please contact the Office of the Dean at (408) 924.3800

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