Learn by Doing, lead with innovation
FROM THE MOMENT I SET FOOT on campus just one year ago, I knew Cal Poly was special; and this report bears testimony to our outstanding students, award-winning teams, exceptional faculty, unstinting industry partners, and generous alumni.

It’s no wonder that Cal Poly ranks at the top of engineering schools nationwide and that industry recruiters flock to our graduates.

We can’t afford to rest on our laurels, however. To stay competitive and to thrive in an era of fiscal challenge, we need to evolve, hone our trademark Learn by Doing pedagogy to meet the needs of students and industry, and plan for the future.

A few words about the challenges we face: Although our college expenditures remain steady, we face a yearly inflationary factor of about 3 percent and increases in indirect costs, such as benefits. Revenues are declining. We’re discussing how to keep our programs relevant for the 21st century, how to stay current with technology, and how to provide faculty with opportunities to conduct applied research with students. More than anything, we’re addressing how to prevent diminishing returns on Learn by Doing.

An interesting good news/bad news outcome of our situation is reflected in the grade point averages of our incoming freshmen over the last five years.

Impressive, right? Cal Poly’s reputation as an engineering leader attracts students who are truly remarkable. On the other hand, these numbers also show the effects of impaction. Our applicant pool continues to grow, but with fewer spaces to offer because of budget cuts at the California State University (CSU), the entrance measurements continue to elevate. Meanwhile, it’s more important than ever to serve the state and nation with engineers – especially those who can contribute from Day One.

Those would be the Cal Poly graduates!

I’m glad to say that our faculty, staff, and industry partners have put their collective and creative brainpower to the task, and we’ve come up with a strategic planning framework that I believe will carry us into the future.

Above, you can see the outline of our plan for the future – there will be refinements to follow. But, the tag line sums up our vision: Learn by Doing, lead with innovation.

That’s Cal Poly.

I’m excited to be a part of it.

Debra Larson
A construction worker washes off a new brick wall on the Cal Poly Center for Science and Mathematics. The 197,000 square-foot building is expected to open in the fall of 2013.

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COVER / BACK PHOTOS
Cal Poly teams and students (cover from top): supermileage vehicle, steel bridge team, mechanical engineer Britta Berg Johansen; (back from top) the concrete canoe team, civil engineer Martin Ocampo and the human powered vehicle.
The Cal Poly Supermileage Club finished third at the Shell Eco-Marathon Americas competition, achieving nearly 1,400 miles per gallon.

For the third consecutive year, Cal Poly won the National Concrete Canoe Competition, considered the America's Cup of Civil Engineering.

Cal Poly Society of Women Engineers (SWE) received the Gold Award as the nation's top Outstanding Collegiate Section and repeated history with two teams that tied for first in the Team Tech competition. Since 2002, Cal Poly SWE has been named the nation's topmost collegiate section (Gold Award) eight times. Cal Poly has also won Team Tech competition eight times, including two first-place ties in 2009 and 2011.

The Cal Poly Supermileage Vehicle Team placed third out of about 50 entries in the event’s prototype class and achieved almost 1,400 miles per gallon at the annual Shell Eco-Marathon Americas competition in Houston, Texas.

Engineers Without Borders-Cal Poly was named the National Premier Student Chapter. EWB-Cal Poly projects include water filtration systems in Thailand, a health clinic in Nicaragua, and latrines in India.

Cal Poly Engineering won first place in the Heating Ventilation and Air Conditioning (HVAC) System Selection category of the 2011 student design competition held by the American Society of Heating Refrigeration and Air Conditioning Engineers (ASHRAE).

Cal Poly Engineering’s “Earth-2Block” video entry won the Greatest Social Impact Potential award at the Open Minds 2012 video competition.

Cal Poly collected every award at the concrete canoe and steel bridge events at the American Society of Civil Engineers (ASCE) Pacific South West Regional Conference.

Cal Poly Engineering won three first-place awards at the Chainless Challenge with a hydraulic-enhanced bike and placed third overall in the national competition.

Cal Poly swept first, second and third place in both the Undergraduate and Graduate Team Aircraft Design Competition at the American Institute of Aeronautics and Astronautics (AIAA) student design contest.

PolyHouse was successful in building partnerships for the long-term success of Sunny Acres, a unique residential treatment program for the homeless. In bringing structures on the property up to code, the engineering project management class helped make the facility a point of pride for the community.

Cal Poly won first place in design and placed second overall at the 2012 American Society of Mechanical Engineers (ASME) Human Powered Vehicle International Challenge.
The Cal Poly Supermileage Club finished third at the Shell Eco-Marathon Americas competition, achieving nearly 1,400 miles per gallon.

Clockwise from top: The Cal Poly Concrete Canoe team finished first in the nation for the third straight year. Cal Poly’s Steel Bridge team finished first at the American Society of Civil Engineers (ASCE) Pacific South West Regional Conference. Cal Poly engineering management students pitched in on cleanup and worked to bring buildings up to code at Sunny Acres, a residential treatment program for the homeless in San Luis Obispo. Cal Poly engineers pedaled to first place in design and second place overall at the ASME Human Powered Vehicle International Challenge.
THE GOAL OF THE DEAN’S Advisory Council (DAC) is simple: do everything possible to support the college in its mission to provide an excellent Learn by Doing education that produces in-demand, Day One-ready professionals.

The passion of the DAC members for Cal Poly Engineering stems from our belief that the college serves the state and the nation – indeed, the world – by providing engineers whose hands-on education allows them to contribute to industry, adapt to changes in technology and address critical global challenges.

But the charts and graphs opposite make it clear that Cal Poly can no longer rely primarily on the state support. We must increase private philanthropy to keep our engineering programs relevant, especially in light of rapidly evolving technology. Private support will give Cal Poly the opportunity to expand, not reduce, the number of engineering students. Enhanced fundraising especially will help us meet the higher costs of labs, equipment and student projects – it will keep the “doing” in Learn by Doing.

The DAC is actively pursuing ways to expand partnerships to benefit Cal Poly. We are also discussing how to develop revenue-generating alternatives, such as summer school and continuing education.

But, above all, we want to broadcast the fundraising message to Cal Poly’s most important asset: its alumni. The College of Engineering has approximately 32,250 alumni – I am proud to be one of them! But numbers from the last several years show that less than 8 percent of alumni give back.

The new funding paradigm for public higher education in California and across the nation rests on three sources: the state, students and the private sector, including companies and individuals.

It’s highly unlikely that the state will ever again fund the university at the level I enjoyed as a student in the late 70s. Meanwhile, students and their families have been shouldering a greater and greater burden – how amazing that the students have voted three times to raise their own fees!

Like many of you reading this report, I credit Cal Poly with giving me the skills I needed for a successful career. I propose that we give back as we can for the stellar engineering education we received.

Together, we can help provide for the education of future engineers. And that’s something to be proud of.
Over the last two decades, support of the 23-campus state university system by the State of California has eroded significantly. In 1987, the state contributed more than 80 percent of the cost of attending; today, that portion is 40 percent and dropping.

While tuition goes up, Cal Poly is doing everything it can to hold costs down, realize efficiencies and diversify revenue sources. This chart shows how state and tuition dollars have been supplemented with lottery funds, the Cal Poly Plan fees and College Based Fees. State support to Cal Poly via the CSU does not distinguish between tuition revenue and funds allocated from the state budget.

The College Based Fee was instituted in 2002 after a vote of approval by the student body. Students voted again in 2012 to raise their fees to maintain educational excellence. Despite the additional revenue provided by the students, the revenue base for the university is shrinking.

College expenditures are dominated by fixed salary and benefits costs.
College of Engineering News

- U.S. News & World again named Cal Poly number two in the nation for public, largely undergraduate engineering programs.

- The computer, electrical and mechanical engineering programs were each ranked as the top program at a public university. Cal Poly Civil & Environmental Engineering was ranked No. 2 at a public university.

- Cal Poly holds an unprecedented record in the U.S. News rankings: 19 years as the best public-master's university in the West.

- Debra Larson joined the college as dean. Following a career in industry as a professional engineer, Larson served as a civil engineering professor and Academic Affairs administrator with Northern Arizona University.

- Debra Larson attended a White House reception that celebrated the efforts of deans at leading engineering schools for their commitment to retain and graduate more students in the field of engineering.

- The college welcomed 1,292 new freshmen, who presented an average high school GPA of 3.94 and average SAT’s of 683 (math) and 616 (reading).

- Mechanical engineering graduate John Nielsen (1964) and his wife Connie gave an endowment to permanently fund the position of the Mustang ‘60 shop technician. Three years ago, they made a gift to develop the facility located in the Bonderson Projects Center.

- A $372,000 grant from the National Science Foundation will expand the research capability of Cal Poly’s Global Waste Research Institute.

- The Gene Haas Foundation made a gift of $50,000 to help transform manufacturing education at Cal Poly. The foundation is the philanthropic arm of California-based Haas Automation Corp.

- The college dedicated the Human Computer Interaction Laboratory—a facility that will expand student learning and student research activities in the areas of human-computer interaction, user-centered design, as well as software engineering and interactive entertainment.

- Cal Poly’s Fire Protection Engineering program was awarded a $940,600 federal grant to evaluate methods for fighting wildland fires that have spread to urban areas.

- The first-ever, all-college Cal Poly Engineering Senior Project Exhibition featured more than 200 individual and team projects.

- Cal Poly Engineering partnered with the California Energy Commission to launch a demonstration plant that uses algae to treat wastewater and produce biofuel.

- Thanks to a $15,000 gift from the Goodrich Foundation, EPIC (Engineering Possibilities in College) summer camp included middle school students for the first time.

- Cal Poly played host to engineering educators from universities, community colleges and K-12 schools, as well as industry partners and graduate students at the 2012 American Society for Engineering Education (ASEE) Pacific Southwest (PSW) Conference

Student Success

- Aerospace engineering seniors Jonathan Lichtwardt and Eric Paciano received the NASA Aeronautics Re-
search Mission Directorate High Potentials Award for their work testing a future aircraft concept model inside the world’s second-largest wind tunnel at the National Full-Scale Aerodynamics Complex at Moffett Field, Calif.

- Biomedical engineering graduate student Marcus Foley won first place in the Health, Nutrition, & Clinical Sciences – Graduate Category at the CSU Student Research Competition for his work using sandblasting to optimize cell and tissue interactions with implanted medical devices.

- Kevin Yamauchi (Mechanical Engineering) was named Cal Poly's 2011-2012 Outstanding Graduate Student.

- Joshua Rutheiser, a fourth-year electrical engineering major, led a team of six Cal Poly Engineering students in a zero-gravity experiment for NASA in June.

Faculty Achievements

- Bridget Benson and Foaad Khosmood joined the faculty as Forbes Professors in Electrical Engineering and Computer Science.

- Mohammad Noori (Mechanical Engineering) received the 2012 Isadore T. Davis Award from the American Society for Engineering Education (ASEE).

- Industrial and Manufacturing Engineering Professor John Pan received the 2011 IMAPS (International Microelectronics and Packaging Society) Outstanding Educator Award.

- Taufik (Electrical Engineering) received the American Society for Engineering Education (ASEE) Pacific Southwest Section's 2012 Outstanding Teaching Award.

- Andrew Davol (Mechanical Engineering) received Cal Poly’s Outstanding Faculty Advisor Award.

- Chris Clark (Computer Science) was awarded the William R. Kenan, Jr. visiting Professorship for Distinguished Teaching by Princeton University.

- Gregg Fiegel (Civil and Environmental Engineering) was named the 2012 American Society of Civil Engineers Region 9 Outstanding Faculty Advisor.

- Kristen Cardinal (Biomedical Engineering) received the 2011-2012 Raytheon Excellence in Teaching and Applied Research Award.

- Samuel Vigil (Civil and Environmental Engineering) was elected a fellow of the Air & Waste Management Association.

Alumni Success

- Richard Bergquist (B.S., Computer Science, 1977) was named Honored Alum for the College of Engineering. Known as a visionary in his position as chief technology officer of the former PeopleSoft, Inc., he now serves as the chief software evangelist and board member at Locus Technologies.

- Google acquired Punchd, a smartphone application developed by 2010 computer engineering graduates Reed Morse and Grantland Chew in their Cal Poly Android class.

Creative thinking is the norm for Cal Poly computer science graduate Nate Lawson, center above and right, and the team at SourceDNA.

CSC GRAD SUPPORTS CAL POLY'S CREATIVE ATMOSPHERE

NATE LAWSON (B.S., COMPUTER SCIENCE, 1999) IS AN entrepreneur, computing innovator and, in many ways, an autodidact. All of which is why he found that Cal Poly was a great fit for him.

“I really liked that projects were well-integrated into the curriculum,” he noted. “I was generally self-taught, and I found a lot of other students were as well. I made friends quickly and thrived in the creative atmosphere of the dorms.

“My favorite professors were especially challenging, like Elmo Keller and Clint Staley, who gave us a ton of professional-level work. All his projects built on each other; our final class project was to put all these individual components together into one big system.”

Lawson, meanwhile, was putting his own systems and companies together, even as an undergraduate. The summer after his sophomore year, frustrated by not having an Internet provider available in his hometown of Merced, Lawson started his own provider, Elite Networking. Within a few years, 3,000 subscribers signed up.

He also took time off from school to start a new product line for Internet Security Systems, and when he returned to San Luis Obispo, he became one of the initial analysts for InfoGard, which ensures cryptographic security for government projects.

Now president of SourceDNA (a company that provides a software similarity search engine for binary code and employs several Cal Poly students), Lawson remains passionate about the hands-on education he experienced at Cal Poly. This year, he made a $25,000 gift to the John Bellardo Professional Development Fund to support the kind of teaching that allowed him to thrive.

“I came across John Bellardo’s research on security flaws and started corresponding with him when I saw that Cal Poly’s Computer Science Department had hired him,” explained Lawson. “His teaching models the tradition I learned from: high standards and sophisticated projects.

“John promotes individual creativity and adapts to what works for his students. I don’t know what he’ll do with my gift, but I want to give him the latitude to incorporate research and development into the curriculum, so that students benefit, like I did, from high-intensity classes that provide a taste of what they’ll experience in industry.”
BEYOND BORDERS: CENG GRADS MAKE A DIFFERENCE

NEAL ADLER AND ADAM EBERWEIN HAVE SHARED some powerful experiences at Cal Poly as innovative engineers, rookie entrepreneurs, members of Engineers Without Borders (EWB), and first-time donors.

Both Adler and Eberwein are passionate about EWB. “The best decision I ever made was to go to a club meeting in 2007,” noted Adler. Eberwein first discovered EWB during freshman WOW week. Subsequently, he and Adler joined the EWB team in Thailand, where Cal Poly students installed a drinking water filtration system.

As a result of their mutual desire to use engineering know-how to improve lives, Adler and Eberwein developed a product that earned them a $100 award as finalists in Innovation Quest (IQ), a program to foster innovation and entrepreneurship. And they donated their winnings to EWB.

Their product, an anaerobic biodigester, is a low-cost, clean technology system that reduces air and water pollution by breaking down waste and converting it into methane gas which can be used for energy. Adler, an environmental engineering graduate student, and Eberwein, a senior in mechanical engineering, had worked at Cal Poly's Swine Unit with Professor Tryg Lundquist and research engineer Ian Woertz on the campus digester project. After traveling together to Thailand with EWB, they saw an opportunity to prototype a digester to use as a possible project to aid the village of Huai Nam Khun.

Meanwhile, Eberwein's roommate, Chris Petersilge, a business major, pointed out that they had nothing to lose by submitting their prototype to the IQ contest. “He gave us a different perspective on our project,” said Eberwein. “Neither of us had thought of it as a possible business.”

“When we actually won a cash prize for the digester, we felt that the money belonged to EWB because the group opened our eyes to developing low-cost, appropriate technology,” added Adler. “Plus, we both feel that we got so much out of working with EWB, which helps students grow into engineers, exposes them to other cultures, teaches them to work in groups, and aids folks in the developing world. I know I’ll draw from my EWB experiences for the rest of my life.”

“On my last trip to Thailand, I met with six or seven headmen to talk about EWB’s next project – possibly, the anaerobic biodigester,” recalled Eberwein. “One of the headman gave a speech about how there’s always more that can be done to improve lives, but that the people of Huai Nam Khun simply appreciate everything we have already done for them. It was incredibly touching and humbling.”

“We both feel that we got so much out of working with EWB, which helps students grow into engineers, exposes them to other cultures, teaches them to work in groups, and aids folks in the developing world.”

The Cal Poly Algae Field Station at the San Luis Obispo Water Reclamation Facility has nine 2,600 gallon ponds for growing algae. Above, the Cal Poly team involved in the project includes, from left, lecturer Ian Woertz and environmental engineering students Louis Lefebvre, Matt Rodrigues, Bryce Swetek and Brant Haflich.

Donor Honor Roll

CORPORATION & FOUNDATION DONORS

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SOLAR TURBINES SHINES LIGHT ON BEST AND BRIGHTEST

WHEN DAVE ESBECK BECAME THE VICE PRESIDENT of Engineering for Solar Turbines in 1994, he realized that the company needed to expand the depth of its expertise through more strategic recruitment practices. A leading manufacturer of industrial gas turbines, Solar Turbines already employed a cadre of Cal Poly engineers who impressed Esbeck with their ability to get things done.

“We made the decision to focus our recruitment efforts on key universities, where we felt we could engage with the best and brightest students,” said Esbeck. “Cal Poly was one of the few selected for the top of our list.”

One of the first steps Esbeck took to develop a relationship with Cal Poly was to become a member of the Mechanical Engineering Department’s Industry Advisory Board. The company also began making significant contributions to support Learn by Doing projects and activities, including founding the Solar Turbines/Bently Nevada Vibrations & Rotor Dynamics Laboratory in 1998.

This year, Solar Turbines provided a gift of $100,000 to create the Solar Turbines Student Technician Fund – an investment, as the company sees it, which will reap long-term benefits.

“When Dave Esbeck asked for my opinion about the value of this proposed gift, I thought of Scott Lindner, a Cal Poly grad and former student lab technician, who I hired in 2008,” said Tim Bridgman, Solar Turbine’s director of Engineering for Turbomachinery Products. “Scott epitomizes the kind of engineers we’re looking for: practical, hands-on and knowledgeable about fabrication – skills that have been particularly enhanced by his experience as a lab tech.”

“We think our gift will help us hire more engineers like Scott,” said Bridgman. “Basically, Solar Turbines is hitting every angle possible to get our name out to Cal Poly engineering students and to interact with them by sponsoring projects and teams. We’re very excited about partnering with Cal Poly to cultivate tomorrow’s engineering leaders.”

Donor Solar Turbines

Solar Turbines Director of Engineering for Turbomachinery Products Tim Bridgman, above, and Dave Esbeck, vice president of Engineering (retired).
AS AN AVID SOCCER PLAYER, BRITTA BERG-JOHANSEN has seen her share of on-field sports injuries. Someday, however, her work in tissue engineering or cartilage biomechanics could lead to breakthroughs that will aid in the recovery of traumatic injuries.

Since 2010, Berg-Johansen, a graduating senior in mechanical engineering, has worked as an undergraduate researcher in Cal Poly Cartilage Biomechanics Group. She has also spent two summers at UC San Diego as a research intern testing the mechanical properties, geometry and biochemical contents of cartilage in order to achieve targeted properties for grafts to repair damaged tissue. Berg-Johansen's research was funded by Cal Poly and by the National Science Foundation's (NSF) Research Experience for Undergraduates (REU) program.

"My dad is an electrical engineer – growing up, he showed me how things work, which intrigued and challenged me," said Berg-Johansen. "At Cal Poly, I've really enjoyed working with Dr. Klisch on cartilage biomechanics. It's been my hope to use engineering in a way that has a direct impact on people and Cal Poly has given me that opportunity."

Berg-Johansen's research has already had an impact on her career. Not only has she published a journal article, but she also gave presentations at international conferences for orthopaedic research and biomedical engineering. Most impressively, she received a competitive and highly prestigious NSF Graduate Research Fellowship worth $90,000 over three years, which will help fund her Ph.D. studies in bioengineering at UC Berkeley.

Reflecting on her undergraduate experience at Cal Poly, Berg-Johansen said, "Cal Poly was perfect for me. I think that everything that's said about Learn by Doing is true and it's given me a background that will be particularly helpful in a research career.

"Getting the NSF scholarship and other scholarships enabled me to make a major financial contribution towards my education – and it feels good, like all my hard work paid off! Seeing first-hand how rewarding it is to get a scholarship inspires me to pass that experience on to others as well."

Britta Berg-Johansen
Mechanical Engineering senior

Cal Poly Outreach Scholarship
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The turbine blades for the Cal Poly Wind Power project.

Mechanical engineering student Derek Simon carefully measures the turbine blades for the Cal Poly Wind Power project.
### MATCHING COMPANIES

The following companies have generously matched gifts from their employees to Cal Poly Engineering.

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**GIVE YOUR GIFT A BOOST**

Maximize the impact of your investment in Cal Poly through your employer’s matching gift program.

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Many companies also match gifts from retirees and spouses, and some will automatically match gifts made through payroll deductions.

For more information, see www.giving.calpoly.edu/matching or contact Linda Stark at (805)756-2713 or lstark@calpoly.edu.
“I CAN’T THINK OF ANOTHER PLACE THAT GIVES YOU so many opportunities on a daily basis,” said Tyler Scott Smith of his student career at Cal Poly.

From getting into research as a freshman to being named Outstanding Senior for Service to the Community, Smith has found Cal Poly to be “a place to live, learn and become who I am.”

Said Smith: “Because of my early exposure to research, I immediately saw the value of research applied to community service. I realized that research results can impact far more people than the work of a single doctor.”

In addition, Smith found a high-impact outlet for his service-based approach as a member, treasurer and president of Alpha Phi Omega, a national co-educational service fraternity that actively contributes to the local community, especially in the areas of youth, senior citizens and the environment. He has also represented the student community through the Student Quality Advisory Connection and Engineering Student Council. In addition, through his participation in the International Computer Engineering Experience last year, Smith benefited the international community with his role in the mapping of ancient Roman cisterns in Malta.

“The choice of Cal Poly was easy for me. As I tell prospective students when I lead campus tours, “The laws of physics are the same whether you study them at UC Berkeley, MIT or Cal Poly. What can make a real difference in your education is the environment, the people you’re around and the dedication of your professors. Cal Poly gives its students its full attention.”

Receiving the college’s Adele and Aldo Alessio Scholarship, among others, allowed Smith to maximize his opportunities here.

“It’s academics combined with the clubs, projects, internships, friends and mentors that shape you,” he said. “Cal Poly changed how I see my future, and how I see the world. If I hadn’t been exposed to so many experiences, I wouldn’t have found my passion for research.”

The caliber of Smith’s research attracted the attention of Abbott Vascular, which sponsored his senior project. He also participated in three internships over his four years here.

“The scope of my research and internships took me to a different level and were a big factor in my getting into the graduate program I wanted.”

Smith has been accepted by UCLA to pursue a graduate degree in biomedical engineering.

Tyler Scott Smith
Biomedical Engineering senior

Adele and Aldo Alessio Scholarship

“Cal Poly changed how I see my future, and how I see the world. If I hadn’t been exposed to so many experiences, I wouldn’t have found my passion for research.”
STAYING-OFF-THE-STREETS SMARTS

THE STREETS OF MARTIN OCAMPO’S HOMETOWN OF RICHMOND, Calif. are tough: “Pretty much everyone believes that no one will go to college,” he says.

But by dint of his parents’ dedication, and his involvement in a local sports and service program, Ocampo became the first in his family to attend college.

The civil engineering major received the Hearst CSU Trustees Award, which recognizes students in financial need who have demonstrated exceptional academic performance, community service and personal achievements.

“My parents worked 10 or more hours a day in construction and housecleaning. Their hard work and encouragement inspired me to keep on moving forward,” notes Ocampo. “They always encouraged my studies and got me involved in sports. That’s how I connected with the College is Real program. At Richmond High, fewer than 15 percent go to college, but 90 percent of College is Real participants go on.

“I became so motivated, I took community college courses in high school, and I graduated in three years with an Associate of Arts degree in liberal studies.”

Cal Poly was the right fit at first sight.

“Every summer, I put on a hard hat and grabbed a hammer to help my dad. With all that hands-on experience, I felt Cal Poly was for me. I knew a lot about building, but not how to read a plan. Now I know how to put real life projects together,” explains Ocampo. “For my senior project, my team converted a one-story garage into a multi-story house. We had to comply with codes and work from architectural drawings. We did all the engineering that made it possible for the client to submit his plans and build the project.”

At Cal Poly, Ocampo became involved with the Society of Hispanic Professional Engineers (SHPE), the Multicultural Engineering Program, the Society of Civil Engineers, and Chi Epsilon, the civil engineering honor society. Through SHPE, he volunteered as a tutor and mentor to Hispanic middle school students.

“One of my long-term career goals is to start a program in which young people have the privilege to be led by a mentor,” he says. “This would allow me to show young students that even though none of their family members have gone to college, I am there to help them and provide an easier path. I’ve been through the same struggles they face now, and I see the difference I can make in their lives.”

Ocampo’s participation in student groups also helped open the doors to his professional career. “Those involvements help in so many ways, including making connections,” he says. “For instance, I met a Chevron representative at a conference, who put in a good word for me and helped me land a job at Chevron in project management.

“The Hearst scholarship and club scholarships not only gave me financial support, they expanded my ability to learn, grow and give back.”
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FLYING HIGH WITH SUPPORT

RENE FARFAN’S PARENTS BROUGHT THEIR CHILDREN TO THE U.S. from Mexico in 1994 to give them a better education. Now a fourth-year Cal Poly student, Farfan has taken full advantage of opportunities to advance his studies in aerospace engineering.

“Both my parents work in agriculture, but they wanted more for us and they pushed us,” said Farfan. “I participated in Upward Bound in high school, a Saturday program to prepare kids like me for college. I really liked math and airplanes. I worked during the summers in 2010 and 2011 as a camp counselor at the Experimental Aircraft Association (EAA) Air Academy in Oshkosh, Wis.

“It’s been fun and challenging and a great environment on campus. I’ve learned how to be better-rounded and I’ve been exposed to more cultures,” said Farfan, who took a quarter to study in San Sebastian, Spain in Cal Poly’s International Education program. “It was an awesome experience and gave me a new global perspective,” he exclaimed.

Farfan received help in high school with scholarships from Dell and the Strawberry Commission. At Cal Poly, he also received a Bechtel Engineering Scholarship. “When I look at the financial aid package I get from Cal Poly and the scholarship support, it feels nice to know that people believe in me – it motivates me,” he noted.

This summer, Farfan also received an internship through the Leadership Alliances, Early Identification Summer Research Program. “I conducted research in phononic crystals and metamaterials at the University of Colorado-Boulder.

“After Cal Poly, I hope to go on to graduate school in aerospace engineering or applied mathematics,” he said. “Eventually, I want to earn my Ph.D. and become a professor – I’ve received a lot of help for my education and as a professor I can give back and also help other students become more culturally aware.”

Rene Farfan
Fourth-year Aerospace Engineering major

Bechtel Engineering Scholarship

“After Cal Poly, I hope to go on to graduate school in aerospace engineering or applied mathematics. Eventually, I want to earn my Ph.D. and become a professor.”
ENVIRONMENTAL ENGINEERING GRAD HELPS SENIOR PROJECTS FLOURISH

“WHEN I ATTENDED CAL POLY IN THE 1970S AS A STUDENT in the fledgling environmental engineering program, I had professors like Hal Cota and Dragoslav Masic, who spent a lot of time working with students on club activities. That personal attention from faculty really set Cal Poly apart,” commented alumnus Bradford Boyes (B.S., Environmental Engineering, 1979).

Boyes has come to view his Cal Poly education as an “incredible gift.”

“I did a double concentration in air and water pollution, which required more class hours but all the hands-on stuff was fun and tangible; instead of sitting in rows of desks, we worked in teams on a gaggle of activities and projects, which proved directly applicable to my first job after graduation in the high-tech area of instrumental measurements and testing.”

Today, Boyes is a senior air quality engineer with Cardno ENTRIX, an environmental consulting firm with more than 60 offices in the U.S. His daughter, Brooke, is starting her third year at Cal Poly as a business student. And Boyes will mark this year as his 25th as a donor to the Cal Poly Fund.

“Nine years or so after I graduated, it became clear that the budget realities for the university had changed and fundraising began in earnest,” he stated. “I started giving because I felt it was time to reverse the flow and give a little back.

“I’ve been back to campus for Open House several times. I’m very impressed with the new facilities and I’m especially interested in the current student projects. You know, I was constrained by costs in my own senior project years ago … it’s just clear that these extra things need support.

“I’d like to see more alumni give back to Cal Poly at modest rates,” said Boyes. “Even a little bit helps and over the years, you’d be surprised at how it adds up.”

“Nine years or so after I graduated, it became clear that the budget realities for the university had changed and fundraising began in earnest. I started giving because I felt it was time to reverse the flow and give a little back.”
Mechanical engineering senior Gordon Cline from Loomis, Calif., right, was recognized at Spring Commencement by Cal Poly President Jeffrey D. Armstrong as the College of Engineering's topmost graduating senior for academic excellence. Cline earned a 3.965 GPA, including eight quarters in which he had perfect 4.0s. As a fourth year student, he studied abroad at the Hochschule München in Munich, Germany, and then worked at the Munich office of GE Global Research.
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Roger Sharpe
Tyler Sheffield
Waymon Shehane Jr.
Vaughn Sheline &
Arthelle Lovejoy
Donna Sheppel
Clinton & Martha Sherburne
Danny & Sandra Shewey
Punit Shviji
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Louis & Patricia Shrinkle
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ME GRAD HAS PATENTED APPROACH TO RESEARCH

FROM HER FIRST PATENT SUBMITTED ON HER CAL POLY SENIOR project to her most recent encounters with underwater microscopic creatures, Nanette Van Antwerp's life has been about discovery.

Van Antwerp (B.S., Mechanical Engineering, 1989) was always interested in the medical side of engineering. “I applied to schools all over the U.S., but fell in love with Cal Poly, especially the camaraderie between students – because we studied together, we developed a team spirit even in lecture classes,” she said.

Cal Poly’s co-op program gave Van Antwerp the opportunity to discover her professional path in medical device design and development in the area of insulin pump and glucose sensor systems. She worked for three quarters at MiniMed, a spin-off of Pacesetter which was later acquired by Medtronic. Not only did the experience give her first-hand industry experience, but the company sponsored her senior project and hired her when she graduated.

During the course of her career, Van Antwerp received 24 patents on products that help diabetics. “I basically worked on steps towards development of an artificial pancreas,” explained Van Antwerp. “I still have the picture of a preemie born without a functioning pancreas hooked up to pumps larger than her head. But with the advances we’ve made, she’s doing great, while I’ve had the privilege of doing good in people’s lives.”

Now retired, Van Antwerp is still doing good and still discovering. An avid scuba diver, she has become an underwater filmmaker, winning awards, most recently, for “Pacific Drifters” and “Crustaceans of Ambon Bay.” “I’ve fallen in love with diving because I’ve discovered that these tiny creatures, like pelagic jellyfish, have personalities – each time I’m out is a treasure hunt,” said Van Antwerp.

While she is sharing the wonder of the underwater world through her films, Van Antwerp has also provided a generous gift that will aid students and College of Engineering. She and her husband Bill have made a $4 million bequest to establish an endowed scholarship as well as a general endowment for the College of Engineering.

“Cal Poly does a great job teaching the skills you need to be successful – plus, I have great friends and memories from my time there. I’d love to see other students have that experience, too.”

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PHOTO: AMY HEWES-CLARK
MARS MISSION AN INSPIRATION FOR CPE STUDENT

WHEN THE ROVER CURIOSITY LANDED AND LEFT TRACKS ON THE surface of Mars, Elsa Reyes marveled, again, at the planetary vehicle she first saw in high school. She visited the Jet Propulsion Laboratory (JPL), where the rover was developed as part of the Migrant Education Program.

“I always loved studying computers, math and science,” said the Cal Poly computer engineering senior, “but seeing Curiosity made me truly realize the power of technology.”

However, as a daughter of Mexican-born parents (her father works as a truck driver in the fields of Santa Maria, Calif.) Reyes had to deviate from the common paths taken by girls in her hometown in order to consider going to college, let alone study computer engineering.

The Migrant Education Program helped open her eyes and pave the way for her to attend Cal Poly.

“When I realized I wanted to study engineering, Cal Poly was my first choice because I wanted the Learn by Doing edge,” said Reyes. “I’ve been able to work on projects like my capstone project, which involves augmented reality and computer vision, and I’ve had internships with Cisco, Quintron Systems and Northrop Grumman.

“My parents are very proud because I’ve gone farther than they ever expected.”

A recipient of numerous scholarships, Reyes also recently received an HENAAC Scholars Program award from Great Minds in STEM, an organization established to promote the contributions of the Hispanic community by awarding grants to student leaders majoring in science, technology, engineering and math.

Her scholarship support has meant that Reyes can concentrate on her education and become involved in student leadership with the Society of Women Engineers (SWE), the Society of Hispanic Professional Engineers (SHPE), and WISH (Women Involved in Software and Hardware).

“WISH is all about encouraging females to stay in computing majors,” noted Reyes. “As a first-year, I felt very intimidated in my classes – I didn’t want to add to gender stereotypes. But now, I’m comfortable standing out.

“In the future, I hope to go back to the high schools in Santa Maria and tell students and especially girls about majors like engineering – I want them to know that the road I’ve taken can exist for them and that they can dream, like I do, about working at JPL on the next Mars rover.”

Elsa Reyes
Computer Engineering senior

Chevron MEP Scholarship • Xerox Scholarship
Cisco Systems Scholarship • Northrop Grumman Scholarship
SHPE-Raytheon Scholarship • Eaton Multicultural Scholarship
Great Minds in STEM-HENAAC Scholarship
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Bequests play a significant role in sustaining Cal Poly and providing resources for its growth. The College of Engineering Legacy Club recognizes those who have included the college in their estate plans. To plan a possible bequest to Cal Poly, obtain sample language, or notify the university of your intended bequest, please contact Director of Development Richard LeRoy at rleroy@calpoly.edu or (805) 756-7108.


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