To imagine, innovate and inspire

A message from Shiley-Marcos School of Engineering Founding Dean Chell Roberts

I am thrilled to present the new issue of the official magazine from USD’s Shiley-Marcos School of Engineering, I³, which stands for “imagine, innovate and inspire.” With all of the exciting things taking place, I hope you will agree that these words capture our vision of engineering. Our growth has been exponential! This past May, we celebrated the graduation of 64 newly minted USD engineers — our biggest group yet. And we have over 480 students currently enrolled in our school!

This issue describes some of the ways we are changing to accommodate this growth: new faculty, new studio and learning spaces and new curriculum options. But one thing will remain the same: Our students will continue to receive a values-based education and personalized attention from our dedicated faculty. Truly, that is what inspired me to become the school’s inaugural dean. And our collective dedication to that goal continues to inspire me every day.

The first feature story in this issue provides an introduction to our five new exceptional faculty members. Two are mechanical, two are industrial and the fifth is a software engineer. I am very pleased that two of them are women, further increasing our strong representation of women engineering faculty members.

The next story presents a vision for the future and outlines the motivation for renovating Loma Hall and enhancing our school, including an ideation space, an expanded curriculum and much more. This dedication to compassionate service is a defining feature of a USD education.

Of course, all of this is made possible by the extraordinary generosity of Mrs. Darlene Shiley. Her gift is a true inspiration to all of us who have the privilege of working here.

As we grow, we want to stay in contact with our alumni and friends. Please “friend” us on Facebook at USDEngineering, visit our website for upcoming events and make sure we have your updated contact information. We invite you to join us as we imagine, innovate and inspire our engineering future.

Chell Roberts, PhD
Founding Dean, Shiley-Marcos School of Engineering

The third feature highlights the many ways that our engineering students and faculty are using their knowledge and skills to help communities around the globe. I was delighted when the engineering student-led Rice Pollution Solution project won the grand prize in USD’s Social Innovation Challenge. Assistant Professor of Industrial and Systems Engineering Truc Ngo, PhD, and two engineering students also traveled to the Dominican Republic to design a sustainable water filtration system for a local community in that region. And Associate Professor of Industrial and Systems Engineering Bradley Chase, PhD, brought the Engineers Without Borders student chapter to Tijuana to assess a collaborative project with Amor Ministries. This dedication to compassion service is a defining feature of a USD education.

The next story presents a vision for the future and outlines the motivation for renovating Loma Hall and enhancing our school, including an ideation space, an expanded curriculum and much more. This dedication to compassionate service is a defining feature of a USD education.

Of course, all of this is made possible by the extraordinary generosity of Mrs. Darlene Shiley. Her gift is a true inspiration to all of us who have the privilege of working here.

As we grow, we want to stay in contact with our alumni and friends. Please “friend” us on Facebook at USDEngineering, visit our website for upcoming events and make sure we have your updated contact information. We invite you to join us as we imagine, innovate and inspire our engineering future.

Chell Roberts, PhD
Founding Dean, Shiley-Marcos School of Engineering

The next story presents a vision for the future and outlines the motivation for renovating Loma Hall and enhancing our curriculum. If you visit campus, you’ll see that the bookstore and mailroom have moved to make room for new engineering “garages” and learning spaces, designed to inspire student teams to imagine and innovate everything from new ideas to functional prototypes. New curricular options available in Fall 2015 will allow more flexibility for students and will include specializations in software engineering, bioengineering and sustainability.

The next story presents a vision for the future and outlines the motivation for renovating Loma Hall and enhancing our curriculum. If you visit campus, you’ll see that the bookstore and mailroom have moved to make room for new engineering “garages” and learning spaces, designed to inspire student teams to imagine and innovate everything from new ideas to functional prototypes. New curricular options available in Fall 2015 will allow more flexibility for students and will include specializations in software engineering, bioengineering and sustainability.

The next story presents a vision for the future and outlines the motivation for renovating Loma Hall and enhancing our curriculum. If you visit campus, you’ll see that the bookstore and mailroom have moved to make room for new engineering “garages” and learning spaces, designed to inspire student teams to imagine and innovate everything from new ideas to functional prototypes. New curricular options available in Fall 2015 will allow more flexibility for students and will include specializations in software engineering, bioengineering and sustainability.

The next story presents a vision for the future and outlines the motivation for renovating Loma Hall and enhancing our curriculum. If you visit campus, you’ll see that the bookstore and mailroom have moved to make room for new engineering “garages” and learning spaces, designed to inspire student teams to imagine and innovate everything from new ideas to functional prototypes. New curricular options available in Fall 2015 will allow more flexibility for students and will include specializations in software engineering, bioengineering and sustainability.

The next story presents a vision for the future and outlines the motivation for renovating Loma Hall and enhancing our curriculum. If you visit campus, you’ll see that the bookstore and mailroom have moved to make room for new engineering “garages” and learning spaces, designed to inspire student teams to imagine and innovate everything from new ideas to functional prototypes. New curricular options available in Fall 2015 will allow more flexibility for students and will include specializations in software engineering, bioengineering and sustainability.
by Tim McKernan

Qualcomm VP first Alumni Honors engineering recipient

Hodoyán ’93 (BS/BA), ’95 (MBA) became the school’s first recipient of the Hughes Career Achievement Award during the university’s annual Alumni Honors event.

If you have a smart phone, or tote a tablet, you have a connection with López-Hodoyán, Qualcomm’s vice president of strategy and analysis. The electronic nerve center of that device was almost certainly made by Qualcomm.

The challenge of the team López-Hodoyán heads up is to continually assess the rapidly shifting wireless landscape to ensure those gadgets do what consumers expect them to do — work that is a key driver of the strategy of a multi-billion dollar company. Especially now, gauging the practical applications of the emerging technology of so-called “wearables,” López-Hodoyán and his team quite literally help map the road that transforms science fiction to commodity.

The son of Mexican immigrants who sacrificed much to give their children the best — including sending five of six to USD — López-Hodoyán followed in his father’s footsteps to become an engineer. But unlike his dad, he sought something more than a steady job.

López-Hodoyán first took his dual degree in business and engineering to the Department of Defense. Wanting more responsibility and more intensity, he got both when he joined Qualcomm just as it was emerging as an industry leader.

Forecasting the future of the volatile wireless technology business may seem a daunting responsibility, but it conforms perfectly to his own professional philosophy. Unlike some industries where “busy” is a measure of effectiveness, López-Hodoyán sounds very much the engineer when outlining the expectations for his team.

“Never,” he says, “confuse effort with results.”

Indeed. López-Hodoyán may even be busier at home than at the office. He and his wife, Gabriela, are the parents of two young children, Mauricio and Valeria. In what passes for spare time, López-Hodoyán is an avid indoor soccer player. Whether the day is filled with work or play or both, when he looks in the mirror, he sees the reflection of his own parents looking back at him, a hard worker whose ultimate goal is to make life better for his own family.

To see videos celebrating all of the 2014 Alumni Honors recipients, including Mauricio López-Hodoyán, go to www.sandiego.edu/alumni/honors/honorees.html.

Hodoyán

Employment Numbers

USC Career Services compiles data on students completing their undergraduate degrees. The following data, gathered from multiple sources, reflects the initial career destination for 75 percent of engineering majors who graduated between August 2012 and May 2013.

Current Status

05%

Number of 2012-13 respondents are employed or in graduate school.

Sample Employers of Graduates

Brokerage

General Atomics

Jet Propulsion Laboratory

Leidos

Lockheed Martin

PepsiCo

Shell Oil Company

Qualcomm Inc.

US Navy

Western Digital Technologies, Inc.

Asian

Arts, Media and Entertainment

Public Services

Finance and Business

Median Salary

$63,990

$61,500

$24,000–$120,000

Full-Time Employment by Industry

65% Engineering and Design

19% Finance and Business

7% Public Services

3% Arts, Media and Entertainment

3% Information Technology

3% Law

Internship

Engineering students who participated in an internship while at USD, 80%
The Places They’ll Go

Evening with Industry provides atmosphere infused with possibility

by Ryan T. Blystone

At the climax of her powerfully poignant speech on the value of self-belief, “An Evening with Industry” keynote speaker Delores Dos Santos scanned the audience for a volunteer to help her define the word “passion,” and what it means to them. She didn’t know the majority of the USD Shiley-Marcos School of Engineering students, faculty and staff in attendance at the March 2014 event, but a familiar face smiled from the audience. Chell Roberts then stood up and likened it to what he’s experiencing in his new role as the school’s founding dean. "Our students think about passion, they dream about it, they wake up in the night with it on their mind. They’re excited about it, they’re building a school of engineering,” he said.

The event, held in the Joan B. Kroc Institute for Peace and Justice, was organized by USD student Society of Women Engineers (SWE) student leaders, including President Harmonie Edelson, and Truc Ngo, PhD, faculty advisor and assistant professor of industrial and systems engineering. It consisted of a career fair with nine top companies — Illumina, NuVasive, Pratt & Whitney AeroPower, SPAWAR, Trane, General Atomics, L-3 Communications, ThermoFisher Scientific and Zimmer Dental — as well as extended networking opportunities at dinner and a career-focused pep-talk presentation by Dos Santos, senior director of engineering for Edwards Lifesciences.

Rachel Michel, a junior industrial and systems engineering major, said the career fair was a chance to job search while simultaneously working on her networking skills. She felt that a pair of conferences she’d attended previously via the SWE helped to lay the groundwork for the evening: "Those networking opportunities were good practice for me,” she said, before returning to conversations with company representatives regarding industrial engineering opportunities.

One way for the USD student engineers to ease any lingering nervousness was to be sure to meet with those who are well acquainted with all things USD. Three engineering alumni — Ashlee Enriquez ’09 (L-3), Chad Loftus ’05 (NuVasive) and Colleen Sevier ’13 (General Atomics) — were on hand to represent their companies at the fair. They stayed for dinner to continue the conversation and provide advice to current engineering students.

After dinner, Dos Santos, who has more than 30 years of experience in the textile, medical device and pharmaceutical industries, delivered a three-point plan for accelerating one’s career: Have passion for what you do, continuously practice leadership and believe in yourself.

The night was really about matching student skill sets with company needs. Dos Santos’ talk spoke to the importance of developing and mastering soft skills to complement technical expertise.

Meaningful as the evening with industry was, the potential for even greater synchronicity is definitely there, particularly as USD engineering students continue their academic path to graduation, into the workforce and the future.

At this spring’s “Evening with Industry” event, students, faculty and alumni came together with representatives from a variety of top companies to network and choose career opportunities.
Bradley Chase, PhD, associate professor of industrial and systems engineering, completed a study and paper on EMG and electrogoniometer measures of upper extremity forces during prolonged tablet computer use. He was selected by graduate students in the Supply Chain Management Program as a “professor of impact.” As the advisor of USD’s new Engineers Without Borders (EWB) student chapter, he took a group of EWB students to Tanzania to introduce them to the humanitarian work of Amor Ministries. He is also the faculty advisor for the student chapter, he took a group of students working on several undergraduate engineering projects at Thermo Fisher Scientific, with one of her co-authored articles in the Innovative “flipped classroom” strategy to teach Engineering Probability and Statistics and presented the experience at the annual American Society for Engineering Education conference in June 2014. For a list of all engineering faculty, go to: www.sdsu.edu/engineering.
To the fifth power
Five new faculty members join the School of Engineering

by Juliene Snyder

F

ew faculty members joining USD's Shirley-Mar-

cos School of Engineering this fall will help to shape a new

curricular specializations in bioengineering, sustainability

and software. These positions are
curriculum for students a more

flexible curriculum that includes

authentic, real-world engineering

projects. These positions are

part of the school's overarching

strategy to offer students a more

flexible curriculum that includes

authentic, real-world engineering

projects.

For Odioma Dalrymple, PhD, there's nothing more important

than making a positive impact on real lives. "Not just for profit,
or for financial gain," she says. "Finding the place where engi-

neering intersects with global

development really resonates

for me." Dalrymple, a native of the

Republic of Trinidad and Tobago,
is an engineer-education scholar by training. She earned a

PhD in engineering education

from Purdue University as well as

a master's degree in industrial

engineering and a BS in electrical

engineering, both from Morgan

State University.

"I switched to industrial

engineering for my master's

because I wanted something

with a more human side," she

explains. Her work on a research

project studying cardiovascular

disease in Baltimore's public

housing projects further sparked

her interest in staying engaged

with community. While for a

time, she considered going into

public health, in the end, the

engineering education proved

a perfect fit. "This field allows me to do

what I always had a passion for,

and not abandon what I've

been doing for so long," her

research focuses on tools and techniques that can be readily

applied in real engineering

learning environments to

improve student learning and

teaching. "It's all about engaging

in the more humanistic side

of engineering."

Dalrymple is excited to be

joining the faculty of USD's Shirley-Marcos School of Engi-

neering as assistant professor of

industrial and systems

engineering. "The university has a strong interest in global
development, and it is a study

abroad leader, and that resonates

for me. I have an appre-

ciation and respect for global

interaction, and I plan to share

that global perspective with

my students. While of course my teaching will be hands-on —

they'll be doing, making, building

— we'll stay focused on the

human aspect of engineering."

Hands-on

It's safe to say that Daniel "Danny"

Codd, PhD, has no problem get-
ting his hands dirty. This is noth-

ing new, as a teenager, local

skate shops would ask him to

build their skateboard ramps.

Although on day one he didn't

know what he'd major in as an

undergraduate student at the

University of California, San

Diego, he did know what was most

important to him. "I wanted some-
ting I could see and put my hands

around," he says. After earning his BS summa

cum laude in mechanical engineering, he went away from

home for the first time when he chose Stanford for graduate

school. It was a perfect fit. "While

UCSD was theoretical and rigorous, Stanford was very

hands-on, it was the engineer-

ning science behind design

approach,"Clearly, he'd found

his people. "One guy used WDDW

as an air freshener," he laughs.

A trusted advisor urged Codd to
get some real-world experi-

ence before pursuing farther

studies; it was advice he took
to heart, working with a number of consumer product, industrial

and medical device development

firms throughout Southern

California for the next several

years. Perhaps the one closest
to his heart is KVA Stainless. "It
grew out of my garage," he

says. "That was my first start-up

eperience." After the company

—which produces ultra-high

strength welded stainless

structures — got a great licensing

deal," Codd was accepted to MIT's

doctoral program and ultimately

earned his PhD in 2011. He

then returned to San Diego,

continuing to consult with a

number of Southern Valley

companies and serving as an

adjunct professor at USD. He's

excited to be a part of the

nascent School of Engineering as

an assistant professor of me-

chanical engineering. "My students

should expect a hands-on, problem-based learning environ-

ment," he explains. "I like to keep

them engaged, keep it challeng-

ing, yet enjoyable." And they probably shouldn't worry too much about getting
their hands dirty.

Practical applications

Imane Khalil, PhD, has displayed

an aptitude for math dating back
to her early childhood. In fact, her

parents had a habit of presenting her to a roomful of people who

would call out long strings of

numbers, which she would add together on the spot. "Like show-

and-tell," laughs Khalil, who says

she grew up knowing she wanted

to be an engineer. I was always fascinated by how things work.

Born and raised in Lebanon
during that country's violent

civil war, Khalil moved to San

Diego in 1989 and earned a BS,

MS and PhD in mechanical

engineering from UCSD. She

says that being one of very few

women in her classes never bothered her. "Instead, it

prepared me for the working

world," she says. "I'm very used

to being one of the only women

in a room."

Her career, much of which

has focused on industrial and

government research, has been

impressive. After a stint at

Hampton Sundstrand, she worked

at Sandia National Laboratories, where she was a developer on

nuclear power plant modeling

software and Sandia's primary

physics simulation codes. In her

last 10 years at Sandia, she

managed teams of engineers

working on multi-million dollar

projects like the Mars Curiosity

Rover and the Strategic Petroleum Reserve. She's also worked as an

adjunct professor teaching

thermo-mechanical dynamics and the senior engineering design class at

the University of New Mexico.

"Students like to do a lot of practical application, and that's great.

And as much as I love digging into equations, I want to make sure that
everything makes sense," Khalil. "The most important thing a professor
can do is to keep students motivated and excited!" Which isn't to say that her
students shouldn't expect to work hard.

"Expect a lot from people. I'm a hard worker and I think that those

who want to get some-

where in life have to learn how to work hard in college. And I'm the

first to lead by example."
I first attended UC Berkeley as an undergraduate student and majored in civil engineering as an undergrad. I enjoyed courses I took. It’s the defining moment, even in the non-engineering climate change that struck me the most. I recall getting more serious about school, earning a dual BS in 2007.

During a stint as professor of practice at Arizona State University, Mayhew continued his long association with School of Engineering Dean Chad Roberts. “We’ve talked at length about the future of higher education. I believe what he’s doing at USD is the right thing. We are aware that the modern world, engineers don’t build stuff with their hands so much as they build stuff with computers. Our major goal is to figure out how to integrate computers and software into what they’re learning across the school as a whole.”

Clearly, Mayhew is on board with his new position as professor of practice at USD. In fact, his son will be starting school here as a freshman this fall and plans to major in engineering. “If you need any further proof that I believe Dean Roberts is doing the right thing, well, there you go,” he says.

Our dedicated faculty and staff are committed to the success of the Shiley-Marcos School of Engineering. We are proud to be part of the only school in the United States where all engineering graduates automatically earn a BS/BA degree. We want to hear from you!

University of San Diego Shiley-Marcos School of Engineering Loma Hall 5998 Alcala Park San Diego, CA 92110 (619) 260-4627 edeng@sandiego.edu

I get paid to play!”

When did you join USD? April 2004
Favorite part of my job: “Working with all sorts of great people — such as administration, faculty, industry, parents and students — always keeps my job exciting.”

Name: Jocelyn Kuykendall
Title: Executive assistant to the dean
When did you join USD? September 2012
Favorite part of my job: “Always busy in the department never a dull moment! Also, the faculty is nice to work with.”

Name: Sam Burt
Title: Laboratory technician
When did you join engineering? September 2012
Favorite part of my job: “Working with students and watching them grow with their machining type work.”

Name: Lorena Silvas
Title: Executive assistant
When did you join USD? January 2009
Favorite part of my job: “Working with a dean who has great improvement and working with great coworkers.”

Name: Choa Kang
Title: Budget manager
When did you join engineering? September 2013
Favorite part of my job: “Bringing continuous process improvement and working with great coworkers.”

Name: Jeff Hoit
Title: Laboratory technician
When did you join engineering? September 2011
Favorite part of my job: “I get paid to play!”

Name: Garry Frocklage
Title: Engineering manager
When did you join engineering? July 1989
Favorite part of my job: “So many jobs, so little time! It’s exciting to work with the different types of students and the excellent faculty/staff janitors we have.”

Name: Mark Roberts
Title: Laboratory technician
When did you join engineering? September 2012
Favorite part of my job: “Always busy in the department never a dull moment! Also, the faculty is nice to work with.”

Name: Elisa Lurkis
Title: Director of development and alumni relations
When did you join USD? January 2005
Favorite part of my job: “Working with a dean who has an exciting vision and knows how to make things happen.”

Name: Lorem Lurkis
Title: Director of development and alumni relations
When did you join USD? January 2005
Favorite part of my job: “Working with a dean who has an exciting vision and knows how to make things happen.”

Name: Jocelyn Kuykendall
Title: Executive assistant to the dean
When did you join USD? September 2012
Favorite part of my job: “Always busy in the department never a dull moment! Also, the faculty is nice to work with.”

Name: Garry Frocklage
Title: Engineering manager
When did you join engineering? July 1989
Favorite part of my job: “So many jobs, so little time! It’s exciting to work with the different types of students and the excellent faculty/staff janitors we have.”

Name: Sam Burt
Title: Laboratory technician
When did you join engineering? September 2012
Favorite part of my job: “Working with students and watching them grow with their machining type work.”

Name: Lorena Silvas
Title: Executive assistant
When did you join USD? January 2009
Favorite part of my job: “Working with a dean who has great improvement and working with great coworkers.”

Name: Choa Kang
Title: Budget manager
When did you join engineering? September 2013
Favorite part of my job: “Bringing continuous process improvement and working with great coworkers.”

Name: Jeff Hoit
Title: Laboratory technician
When did you join engineering? September 2011
Favorite part of my job: “I get paid to play!”

Name: Garry Frocklage
Title: Engineering manager
When did you join engineering? July 1989
Favorite part of my job: “So many jobs, so little time! It’s exciting to work with the different types of students and the excellent faculty/staff janitors we have.”

Name: Mark Roberts
Title: Laboratory technician
When did you join engineering? September 2012
Favorite part of my job: “Always busy in the department never a dull moment! Also, the faculty is nice to work with.”

Name: Elisa Lurkis
Title: Director of development and alumni relations
When did you join USD? January 2005
Favorite part of my job: “Working with a dean who has an exciting vision and knows how to make things happen.”

Name: Lorem Lurkis
Title: Director of development and alumni relations
When did you join USD? January 2005
Favorite part of my job: “Working with a dean who has an exciting vision and knows how to make things happen.”

Name: Jocelyn Kuykendall
Title: Executive assistant to the dean
When did you join USD? September 2012
Favorite part of my job: “Always busy in the department never a dull moment! Also, the faculty is nice to work with.”

Name: Sam Burt
Title: Laboratory technician
When did you join engineering? September 2012
Favorite part of my job: “Working with students and watching them grow with their machining type work.”

Name: Lorena Silvas
Title: Executive assistant
When did you join USD? January 2009
Favorite part of my job: “Working with a dean who has great improvement and working with great coworkers.”

Name: Choa Kang
Title: Budget manager
When did you join engineering? September 2013
Favorite part of my job: “Bringing continuous process improvement and working with great coworkers.”

Name: Jeff Hoit
Title: Laboratory technician
When did you join engineering? September 2011
Favorite part of my job: “I get paid to play!”

Name: Garry Frocklage
Title: Engineering manager
When did you join engineering? July 1989
Favorite part of my job: “So many jobs, so little time! It’s exciting to work with the different types of students and the excellent faculty/staff janitors we have.”

Name: Mark Roberts
Title: Laboratory technician
When did you join engineering? September 2012
Favorite part of my job: “Always busy in the department never a dull moment! Also, the faculty is nice to work with.”

Name: Elisa Lurkis
Title: Director of development and alumni relations
When did you join USD? January 2005
Favorite part of my job: “Working with a dean who has an exciting vision and knows how to make things happen.”

Name: Lorem Lurkis
Title: Director of development and alumni relations
When did you join USD? January 2005
Favorite part of my job: “Working with a dean who has an exciting vision and knows how to make things happen.”

Name: Jocelyn Kuykendall
Title: Executive assistant to the dean
When did you join USD? September 2012
Favorite part of my job: “Always busy in the department never a dull moment! Also, the faculty is nice to work with.”

Name: Sam Burt
Title: Laboratory technician
When did you join engineering? September 2012
Favorite part of my job: “Working with students and watching them grow with their machining type work.”

Name: Lorena Silvas
Title: Executive assistant
When did you join USD? January 2009
Favorite part of my job: “Working with a dean who has great improvement and working with great coworkers.”

Name: Choa Kang
Title: Budget manager
When did you join engineering? September 2013
Favorite part of my job: “Bringing continuous process improvement and working with great coworkers.”

Name: Jeff Hoit
Title: Laboratory technician
When did you join engineering? September 2011
Favorite part of my job: “I get paid to play!”

Name: Garry Frocklage
Title: Engineering manager
When did you join engineering? July 1989
Favorite part of my job: “So many jobs, so little time! It’s exciting to work with the different types of students and the excellent faculty/staff janitors we have.”

Name: Mark Roberts
Title: Laboratory technician
When did you join engineering? September 2012
Favorite part of my job: “Always busy in the department never a dull moment! Also, the faculty is nice to work with.”

Name: Elisa Lurkis
Title: Director of development and alumni relations
When did you join USD? January 2005
Favorite part of my job: “Working with a dean who has an exciting vision and knows how to make things happen.”

Name: Lorem Lurkis
Title: Director of development and alumni relations
When did you join USD? January 2005
Favorite part of my job: “Working with a dean who has an exciting vision and knows how to make things happen.”
Dreams into Reality
Entering an exciting new era of engineering at USD

by Trisha J. Ratledge

The public often defines engineering by its tools: the math and science formulas and precise labor that frame the day-to-day work. But look around Chief Roberts’ office and you see instead the ideas that have sprung to life through those tools — the patents, discoveries and inventions that elevate our lives. These ideas represent the essence of engineering and its process of discovery, says the founding dean of USD’s Shiley-Marcos School of Engineering. It’s how some of our brightest minds let it up to the night, transmitted voices across continents, and catapulted astronauts from the Earth to the moon.

Engineers ask, “What if?” And then they find the answer. While their tools are precise, the practice of engineering is messy and fuzzy and open-ended, Roberts says. It’s where ideas are tested and genius is realized. It’s where the inconceivable becomes tangible. It’s where darkness turns to light. And it’s about to enter a new era at USD.

How We Got Here

USD’s engineering program was founded in 1987 with a handful of students and two faculty mentors. Industry leaders have long emphasized a rich discovery process and expanded design process, coupled with technical expertise and multidisciplinary collaboration from day one. 

Entering an exciting new era of engineering at USD

the name honoring the philanthropist, entrepreneur, bringing their own enterprise to fruition, or fulfilling a humanitarian mission through engineering. Rather than a departure, these developments are the logical extension of an engineer- ing discipline that has grown in stature year after year, Roberts points out. With technical expertise as well as a strong liberal arts core, USD engineers are different by design.

A Broader Context

“Our students graduate not only with the technical engineering depth but with breadth of understanding, cultural awareness, global awareness, communication skills, ethics and more,” Roberts says. “They will lead the more examined life, and will think and care about what they do in a broader context and about how their engineering work impacts society. These are characteristics that are natural to this program.”

Even at full capacity, the Shiley-Marcos School of Engineering will remain a place where students are individually mentored to develop superior skills and to express their engineering capabilities in ways that are personally gratifying. With a maximum enrollment of approximately 700 students, Roberts anticipates having 40 to 50 full-time faculty and 10 to 20 industry partners. Importantly, USD’s engineering enrollment is 33 percent female, compared to a national average of 19 percent. Roberts hopes to continue increasing that percentage.

Rather than a departure, these developments are the logical extension of an engineer-
Compassion. Creativity. Connection. Engineering faculty members committed to building a better world

by Mike Sauer

I n a quiet corner office on the second floor of Loma Hall’s Industrial and Systems Engineering Assistant Professor Truc Ngo pauses to reflect on her position at the forefront of USD’s efforts to build a better world — and her ear-to-ear grin suggests she’s exactly where she wants to be. “You know, I’ve always had an inclination to find solutions to problems, and I’ve been that way ever since my childhood,” she explains. “This idea of using the discipline of engineering to help those less fortunate is not a new one, but that doesn’t make it any less exciting or gratifying to be working with students and faculty who have a heart for helping.”

Ngo’s bubbling enthusiasm stems from the Shiley-Marcos School of Engineering’s commitment to supporting the principles of humanitarian engineering, which, by definition, is research and design meant to directly improve the well-being of marginalized communities around the world. It’s an undertaking near-and-dear to Ngo’s heart, and she’s excited about the creative projects her students are developing in the name of compassion. “I was born in Vietnam, which had and has its own share of problems as a developing country,” she says. “This idea of humanitarian engineering — using our research and skill-sets to help the under-served — is something I’ve always been interested in. In fact, it’s one of the reasons I’m here at USD!”

Charged with creating an elective engineering course that would connect students with the real-world problems facing certain populations, Ngo developed “Sustainability in Engineering,” a class that was first introduced in the spring of 2013. Not sure how students would respond to a course of study where service and conceptual innovation shared equal billing with nuts-and-bolts scientific research, Ngo was floored when the course filled within a week — and had a waiting list that seemed to grow by the hour. “I thought it might be well-received, but I didn’t think it would be that popular!” she enthuses. “It shows what I think we all know, our students are well aware of the problems in the world, and they want to help solve them.”

While the projects she’s reviewed have ranged widely in scope and significance, Ngo has been consistently impressed by her students’ aptitude for providing creative and sustainable solutions to some of the world’s most pressing problems. “We’ve had everything from a backpack-equipped with essential items needed to deal with natural disasters to a wastewater treatment system for rural populations in Vietnam,” she says. “Oh, and then there was the Rice Pollution Solution.”

Conceptualized by students Abdalla Almulla, Chase McQuarrie, Miluska Garcia and Clay Musilino (pictured from left to right in photo at left with Professor Ngo), the Rice Pollution Solution project examined and developed a solution to the rice contamination issue currently prevalent in several of China’s agricultural provinces. The team’s innovative approach was to alter basic rice farm infrastructure in order to take advantage of phytoremediation techniques. They submitted a proposal for inclusion in USD’s Social Innovation Challenge (SIC) last spring, and ultimately received a $20,000 award for their efforts.

All told, six group projects from Ngo’s course were submitted for consideration in the SIC, and their innovative concepts went above and beyond. “I told them up front that they have to submit their projects for the SIC, and that they had to be sustainable solutions that needy populations could implement and operate themselves. They came up with some wonderful ideas, and really exceeded my expectations.” Not one to rest on her laurels, Ngo recently traveled to the township of El Cercado in the Southern Dominican Republic, a rural community plagued for decades by water contamination issues. After meeting with residents to discuss their primary needs, Ngo developed a plan to install chlorinators for water distribution, and to build basic cooking stoves to help protect villagers from the ravages of disease brought on by consuming spoiled and improperly prepared food. She hopes to implement her plan when she and several of her engineering students return to the community in January 2015.

Looking to capitalize on the forward momentum, Chase, who also serves as faculty advisor for the USD chapter of the international nonprofit organization Engineers Without Borders, is developing a plan for a water quality project that would serve rural populations in El Salvador. He’s buoyed by the fact that the work is in lockstep with his and Ngo’s big-picture educational vision for their students. “Ideally, I’d like to see all of my students get involved in service projects before they graduate,” Chase says. “Having them experience these opportunities while they’re still in school — so they can take that knowledge forward and help people — that’s something that benefits us all.”
AN INNOVATION STATION

2014 Engineering Showcase highlights sustainable solutions

Engineers are always looking for ways to do things faster, better and more efficiently. Now they’re looking for ways to make them greener, too. All of these efforts were on display at the Engineering Showcase last spring, which featured both senior design and other projects. Founding Dean Chell Roberts looked pleased as he visited students and discussed their work with them. “This year has started the path to creating engineering programs where students design, innovate and inspire,” he said. “And when you look at all of this, doesn’t that inspire you?”

Pictured here are students, professors and observers of the 2014 Engineering Showcase: 1) Antwane Green, Lucia Romero Tejera and Professor Mikaya Lumori; 2) First year student Ryan Merrill and Kellen Griffiths; 3) Sergio Palacios; 4) Adam Krebs and Reem Alfazran; 5) Manuel Salazar, Darrel Dotterer, Vinicius Pereira and Luke Nicol; 6) Chase McQuarrie and Xiao Jin; 7) Showcase observer and Julian Ringhof; 8) Shane Fontaine, Ryan Maliszewski, Dean Chell Roberts, Christopher Anderson and Gonzalo Albaledejo.
Peter On the day of the ceremony, he is working as a business analyst at a major technology firm. He started in 2016, and has been promoted to a senior position in the business development team. His work involves developing new partnerships and identifying new opportunities for the company. He is enjoying the fast-paced environment and the challenges it presents.

[1997-2002] Sam Mack (EE) transferred to the Naval Communications Satellite Program Office at STNAR San Diego, where he is now working as a systems engineer for the next generation satellite communication system.

[2002] Ricardo Valdeir (EE) associate professor of systems and industrial engineering at the University of Arizona, recently started a company. The Science of Golf, to work with professional sports teams to promote STEM education. So far, they’ve established Science of Golf programs with several Major League Baseball teams (Red Sox, National, Diamondbacks, Padres, and Angels) and a Science of Success program with one Major League Soccer team (LA Galaxy).

[2001] Ili Mahnab (EE) was promoted to project engineering manager at General Atomics.

Ika Sanzone (EE) works at Bank Central Asia where she is a credit and unit business officer. On May 15, 2014, she gave birth to a beautiful baby girl, Ila Mia Setawan.

[2005] Andrew Putnam (EE) is the lead mechanical engineer for Boeing’s nosecap C-37C Lift System. The nosecap is key to the C-37 flight performance and cooling. Putnam has been working on the nosecap for several years, and is now leading the development of the new nosecap design.

[2005] Melody Abilofa (EE) was awarded an Andrew Mellon Scholarship to attend the University of Virginia. She is currently working at the National Ignition Facility at Lawrence Livermore National Laboratory.

[2007] Bob Fullamuke (EE) has been working at the Naval Research Laboratory in Washington, DC. He is currently involved in developing new technologies for underwater robotics.

[2007] Ali Alamour (EE) reports that he is now working with the United States Navy on a project involving robotic devices. He has been involved in developing new algorithms for controlling the robots.

[2012] Hailey Kim (EE) is working at a consulting firm in San Francisco. She is currently leading a team of engineers working on a project involving renewable energy.

[2013] Christian Fetter (EE) is currently working as a project engineer at Texas A&M University. He is currently working on a project related to water management and environmental sustainability.

[2013] Tony van der Zee (ISyE) is a first-year MBA student at the University of Texas at Austin. He is currently working on a project involving supply chain optimization.

[2013] Mike McK (EE) is currently working as a project engineer at the University of California, Irvine. He is currently working on a project involving the design of new electronic components.

[2013] Michael Hong (EE) is currently working as a project engineer at the University of California, San Diego. He is currently working on a project involving the design of new electronic components.

[2013] Mieke van der Zee (ISyE) is currently working as a project engineer at the University of Texas at Austin. She is currently working on a project involving supply chain optimization.

[2013] Jessica Skier (EE) is a project engineer at the University of California, San Diego. She is currently working on a project involving the design of new electronic components.

[2013] Michael Rice (EE) is currently working as a project engineer at Adobe. He is currently working on a project involving the design of new software applications.

[2013] Andrew Disotell (ISyE) has been working for the past two years as an industrial engineer at General Atomics Aeronautical Systems, focusing on process improvement efforts to improve the efficiency of the manufacturing process. He is currently working on a project involving the design of new manufacturing systems.

[2013] Dan Nix (ISyE) has been working for the past two years as an industrial engineer at General Atomics Aeronautical Systems. He is currently working on a project involving the design of new manufacturing systems.
In 2014, USD’s Shiley-Marcos School of Engineering conferred diplomas to 64 students, our largest graduating class ever. The class was comprised of 20 electrical engineers (EES), 14 industrial and systems engineers (ISyEs) and 30 mechanical engineers (MEs).

Here is what some of our 2013 and 2014 grads have been up to:

Reem Alfazran (ISyE) is a quality control engineer for CCS in Kuwait.

Nemi Alvaro (ISyE) is working for Heb Plus Pharmacy in Houston, Texas.

Alexandra Ambrosio (ISyE) is an industrial engineer with 3M Engineering, Inc. in Puyallup, Wash.

Julie Brown (EE) is a junior signal processor with the Science Applications International Corporation in San Diego.

Alex Demler (ME) is an administrator of commercial laying hens at Pine Hill Egg Ranch in Ramona, Calif.

Vanessa Donnelly (ME) is a test engineer at General Atomics in Poway, Calif.

Sergio Palacios (EE) is a military officer in the U.S. Navy in San Diego.

Byron Riemhofer (ME) is a mechanical engineer at GKN Aerospace.

Michael Rose (ME) is an engineer at the Carlington Charitable Foundation in Greenwich, Conn.

Victoria Ross (ISyE) is employed with Thermo Fisher Scientific in Carlsbad, Calif.

Nathaniel Scherrer (ME) is a design engineer at Hardy Process Solutions in San Diego.

Luke Scherer-Mueller (ME) is serving in the U.S. Navy.

Justin Smelling (ME) is a field engineer at AP Water Conditioning in Santa Fe Springs, Calif.

Robert Thompson (ME) is working at San Diego Electric Sign in El Cajon, Calif.

Andrew Wood (ME) is serving with the Jesuit Volunteer Corps in Baltimore, Md.

We want to hear all about what you’ve been up to since graduation. Keep in touch with us by calling (619) 260-4627.
Darlene Marcos Shiley established the Shiley-Marcos School of Engineering in 2013 with a $20 million gift, which honors her dedication to education and pays tribute to her late husband, renowned engineer Donald P. Shiley. Her gift gives USD engineering students the chance to be true changemakers.