Stewart Oakley
Improves Life & Health in Latin America

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ECC CONNECTIONS
College of Engineering, Computer Science, and Construction Management

From the Dean

Michael Ward, Dean

It is often during times of tremendous challenge that our true character and core beliefs are revealed. During the past three years, we have experienced severe budget cuts, an unstable economy that shows little promise of near-future improvement, and an employment outlook for new graduates that is less than encouraging. Despite these challenges, our faculty, students, and alumni continue to create, achieve, and contribute in amazing ways.

In this issue of CONNECTIONS, you will read about Professor Stewart Oakley’s work on wastewater treatment and solid waste management projects in developing countries. His passion for developing sustainable and sanitary solutions within impoverished nations has resulted in a better life for countless people living in communities throughout Latin America. His work has included and inspired many students within the Department of Civil Engineering, creating a strong and sustainable culture of service.

You will also read about the success of our students in regional, national, and international competitions. Year in and year out, our students compete with students from the finest universities in the country and come away with top honors. It is clear that the Chico State tradition of teamwork and strong faculty support is a winning combination.

In these pages, you will also read about alumnus Chris Friedland, co-founder of Faucet Direct, once a small Chico-based company that has over the years evolved into Build.com, an online retailer whose sales in 2010 eclipsed $240 million. Build.com is the second-largest online home improvement retailer in the nation, surpassing even the familiar Lowe’s home improvement stores. His story is one of many where Chico State alumni have used their ECC education as a springboard for launching innovative products and companies that have made a wonderful difference in the lives of people across the globe.

In short, this issue of CONNECTIONS illustrates those things that we hold most dear – innovation, teamwork, meaningful personal connections, and service. We believe that all of these things make the lives of our students, faculty, and alumni more rewarding – and the world a better place to live.

I know you will enjoy reading about these many outstanding individuals in the pages that follow. It is certainly my privilege to know and work with them.
Innovator, Entrepreneur, Mentor

Alumnus Chris Friedland

“No one is an entrepreneur by accident,” said CSU, Chico alumnus Christian Friedland, whose future business acumen was foreshadowed by a childhood candy resale initiative he established at the edge of his driveway to capitalize on people going to and from the local ball field.

“I’ve always seen myself as an entrepreneur, especially because that allows me to do the three things that appeal to me most: build things, create opportunities for others, and make money.”

After earning an undergraduate degree in political science from CSU, Chico in 1999, Friedland rekindled the love for computers that he carried with him throughout his childhood and early teen years through a graduate degree in computer science. In his master’s thesis, he proposed that it would be easier and more cost effective to shop for home improvement products online rather than travelling to a retailer.

The idea came from personal experience: at the time he was working for a wholesale plumbing company, and he knew that loyal customers preferred to purchase plumbing products from the wholesaler over retail outlets.

Friedland pitched the idea to his college friend David Boctor (CE ‘00) who, at the time, was working for Cisco Systems helping develop Cisco’s product configurator. That experience proved instrumental as the two penciled out a business plan that would feature the first e-commerce platform to provide product configuration functionality in the home improvement space.

“As a collegiate entrepreneur, I clearly had no idea what I was doing, but I knew what I wanted to create,” Friedland explained. “I had no money and made a lot of bush-league mistakes, but I really thought I could do it.”

That confidence served him well. With Boctor providing the early funding, the two launched FaucetDirect.com in October 2000. In the first month of sales they made a profit of $5,000 and by the end of their first year of business, sales were at $40,000 per month. Friedland left his job at the wholesale plumbing company and his studies at CSU, Chico to dedicate himself to the business.

In 2002, Friedland and Boctor took Craig Stilwell on as a new shareholder and partner. Stilwell had a background in IT and had also worked at Cisco. With Stilwell as the company’s new vice president of marketing, the three partners continued to develop the company. By 2004, Faucet Direct had expanded to include a total of 14 websites offering a variety of products for “Do it Yourselfers” and was renamed Improvement Direct. The business had grown to $55 million in revenue in seven years.

“As an entrepreneur, I was thinking about selling the company from day one,” he said. “I wanted to gain financial security so I could build other businesses. But as I grew the business, I saw that I could generate that wealth through earnings and started to think that I didn’t want to sell.”

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Build.com employs 250 people, and its online sales in 2010 eclipsed $240 million. It is the second-largest online home improvement retailer in the nation, surpassing Lowe’s.

“The best way I can give back is to initiate a multiplier effect, where I encourage enough students that a few more Build.com-like enterprises bloom, scale, and grow in Chico.”

– Chris Friedland

Outstanding Civil Engineering Student Named

Andrew Langelier was named an American Society of Civil Engineers (ASCE) Region 9 Outstanding Civil Engineering Student this past winter. Langelier won the award for managing the society’s Mid-Pacific Conference in 2010, which was attended by 420 students from 12 schools who participated in various competitions.

Region 9 encompasses the state of California and includes ASCE student chapters at 18 CSU and UC campuses. Langelier is a past recipient of the Lieutenant Robert Merton Rawlins Merit Award at CSU, Chico. Last year, he was chair of the ASCE Mid-Pacific Conference hosted at CSU, Chico by the University’s ASCE student chapter.
Instead, in developing countries, untreated sewage is routinely discharged into surface waters that flow through town and empty into lakes and bays. Children play alongside these very contaminated waters, which are used downstream for drinking water and irrigation of crops that are eaten raw. That combination promotes dysentery and other wastewater-related diseases and health problems.

Enter Professor Stewart Oakley of the Department of Civil Engineering, a man who literally goes where others fear to tread.

“I work on wastewater treatment and solid waste management projects in developing countries, most especially in Latin America,” he said.

He became interested in the field as a Fulbright Scholar in Colombia in 1981.

“I had just finished my PhD at Oregon State and wanted to work internationally, so I applied for the Fulbright Fellowship,” he said. “During my stay in Colombia, I became fluent in Spanish and have been working in Latin America ever since. Many of my best friends and colleagues are Latin Americans.”

His experience in Latin America informed his desire to use his skills in environmental engineering, wastewater treatment, and solid waste management to vastly improve the life and health of many of the world’s citizens. He has become instrumental in the development of sustainable wastewater treatment systems and also sanitary landfills for small municipalities with few resources.

“Conventional wastewater treatment methods, as practiced in the United States and Europe, don’t exist in developing countries, mainly because they are simply not affordable,” he explained.

His passion for developing sustainable and sanitary solutions within the means of a community’s available resources spills over into his work as teacher and mentor. He seeks to inspire students to become internationally responsible professionals who are able to collaborate with different cultures. One way he accomplishes this is by selecting projects for student participation in his role as faculty advisor of the Sustainable Engineering and Environmental Health for Development (SEEHD) student club.

SEEHD members take on engineering projects designed to improve the health and well-being of small international communities. The program also raises the students’ awareness about the overlap in environmental health and environmental engineering. Since 2005, club members have been working with a community in Tela, Honduras, where they developed and implemented a waste water lagoon system. Soon, another community will benefit from their skills.

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Lack of wastewater treatment is a health hazard in all developing countries. There, the norm is a far cry from what the American experience is: turn on a tap for clean water; cleanly flush waste away; wash cars and water gardens with a supply of water that is also clean enough to drink.

Professor Stewart Oakley’s Work in Latin America

Professor Stewart Oakley

Teaching Areas

• Environmental Engineering
• Natural Systems for Wastewater Treatment
• Solid and Hazardous Waste Management
• Engineering Ethics

Awards

• Professional Achievement Honor for Excellence in Teaching and Significant Contributions to Discipline, California State University, February 2008.

Most Recent Publication

World View

• Approximately 1.1 billion people lack access to improved water sources for drinking and personal hygiene.
• Approximately 1.4 billion people have no access to any form of improved sanitation.
• Excreted-related infections are a major cause of morbidity and mortality worldwide.

Source: UNICEF and The World Health Organization

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“As part of a class project this semester we are designing a sanitary landfill for the Municipality of El Paraiso, Honduras, with a population of 27,000,” he said. “It is a preliminary design, with recommendations on the most sustainable alternatives that minimize heavy equipment requirements.” Participation in SEEHD projects has benefits for the students as well, who gain skills in designing technologically appropriate solutions for developing communities, insights into sustainable engineering design, and opportunities to participate in valuable and meaningful research. In addition, they gain important cultural enrichment, Oakley said.

“When students participate in these international projects, they realize the significant contributions they can make as engineers when it comes to international development,” he explained. “I get the most satisfaction from that.”

Battle of the Brains – Bragging Rights

The competition was stiff. As one of 24 North American college teams in a field of 105 total teams, CSU, Chico’s WildCat1 computer science team was recognized for its valiant efforts in the IBM-sponsored International Collegiate Programming Contest this summer. The Chico team beat out teams from Stanford and 73 other universities at the Pacific Northwest Programming Contest to qualify for the international event, known as the Battle of the Brains.

While China, not Chico, dominated the contest, the Chico team placed fifth out of the teams from the United States, ranking ahead of 13 well-known universities. Overall, the team placed 59th in the world. According to their team advisor Professor Moaty Fayek, that ranking puts the team among the top 1 percent in the world.

During the competition, the world-class teams were challenged to solve 11 extremely difficult computer-programming problems in only five hours. Team members David Stolp, Katherine Gabales, Abhishek Iyer, and Jennifer Coryell were accompanied to the competition Fayek and their Association for Computing Machinery (ACM) chapter president Ryan Feenstra.

CSU, Chico computer science students have participated in the contest since the first one took place in 1977.

Human Powered Vehicle Excels at Competition

Better. Faster. More efficient. That is the mission of mechanical engineers who design and develop components, products, and systems that make life easier for the rest of us.

It’s also a mission CSU, Chico students have taken on with gusto every year as part of their competitive entry in the American Society of Mechanical Engineers International Human Powered Vehicle Challenge.

This year students entered their vehicle in the unrestricted class category of the competition. They were required to design and build a utility motor bike that was practical in an everyday setting, but also able to be driven in all weather, with suitable lighting and cargo storage space.

Shaped like the nose-cone of a rocket, the vehicle features rear-wheel drive, front steering, and a tadpole design with two wheels in the front and one in the back.

The students who designed the vehicle – and who also won a team spirit award – applied their knowledge to develop a sustainable and practical transportation alternative. Their vehicle performed well in the contest, garnering first place in the speed endurance event, second place in the utility endurance event, and third place in the male sprint event.

“The contest gives students hands-on design experience,” said the group’s advisor, Greg Watkins, Department of Mechanical Engineering, Mechatronic Engineering, and Sustainable Manufacturing. “They produced an outstanding bike that performed very well in the competition, outperforming designs from many better-known schools. We can all be very proud of their accomplishment.”

Designing and building the vehicle takes a year. The process begins with formulating a comprehensive 30-page design report, which is part of the judging criteria. Once the vehicle is built, tested, and modified, the students give a technical demonstration at the event and compete in speed and endurance trials.

“The contest gives students hands-on design experience.”

– Greg Watkins
Department of Mechanical Engineering, Mechatronic Engineering, and Sustainable Manufacturing
**SME Students’ Formula for Success**

A competitive spirit and the challenge of maintaining a legacy of success fuels students in CSU, Chico’s Sustainable Manufacturing Program (SMP) to bring home the gold – every year.

2011 marked the 11th year the students won the grand prize in the Society of Manufacturing Engineers Manufacturing Challenge during the AeroDef Manufacturing Convention. The annual competition gives students an opportunity to exercise their creativity and apply their knowledge of science and technology to enhance design and manufacturing.

“The best thing they get from this competition is the chance to measure their skill against skills of other students from other universities, in front of an audience of people who, in many cases, are potential employers,” said Daren Otten, coordinator of the Sustainable Manufacturing Program.

Students from leading colleges and universities work all year to develop project plans, execute, and refine their entries in the annual competition. Those entries are then displayed at the convention and judged using the guiding principles of contemporary manufacturing processes. These processes are non-polluting, conserve energy and natural resources, and are economically sound and safe for employees, communities, and consumers.

What makes the CSU, Chico team unique among other teams is the way the students support and encourage each other in the process of developing and manufacturing their entry. “These students have a great system in place to tackle this challenge,” he explained. “They are completely dedicated to a collaborative effort, with seasoned student leaders who work side-by-side with freshman students on the team.”

That teamwork is a vital part of what makes the USC, Chico learning experience a rich one, side-by-side with freshman students on the team. “These processes are non-polluting, conserve energy and natural resources, and are economically sound and safe for employees, communities, and consumers.”

A Legacy of Success

Since 2003, students in CSU, Chico’s Sustainable Manufacturing Program have brought home eight grand prizes in the Society of Manufacturing Engineers Manufacturing Challenge. The teams accomplished this by melding their knowledge of science and technology with a creative vision. That vision resulted in these products:

- **Machine’s Tool Chest**
  This project combined a traditional wooden chest with technology that allows vacuum fi

- **Biodiesel Processing System**
  Students invented a process to convert fuel, grease, and oil waste from University food services into diesel to be used on the University farm.

- **Transmission Adaptor**
  Team members redesigned and machined an aluminum transmission adaptor case, and developed an innovative robotic part inspection program.

- **Wheel Chair**
  Students developed a transmission system that allows a paraplegic to operate a wheel chair using a rowing action.

**Applied Graphics Program Produces Award Winners**

Meld art with technology and there are infinite ways to communicate, inform, and entertain. CSU, Chico students in the Applied Graphics Program develop dynamic, award-winning visual media.

When Emmy-award winning Interstellar Studios produced a PBS documentary supporting the International Year of Astronomy in 2009, it tapped the creative energies of CSU, Chico to provide animation. Student talent is featured throughout 400 Years of the Telescope, from opening animation scenes reconstructing Stonehenge, to instructive models detailing telescope function and conceptual diagrams of constellations and astronomical discoveries.

The documentary won a silver Telly Award, the premier award honoring outstanding film and television production. It also garnered a bronze Telly Award for outstanding achievement in the use of animation.

Also to the program’s credit are multiple awards for work submitted to the annual Media Arts Festival. Established in 1991 for students within the 23-campus California State University system, the festival is as an outlet for talented students studying film, video, and new media to present their work for critical review. Since then, the event has expanded to help CSU students launch careers in the entertainment and media industries by providing seminars and networking events. Industry sponsors have included DreamWorks, Electronic Arts, From the Heart Productions, the International Cinematographers Guild, Kodak, Modern VideoFilm, and Warner Bros Studios.

Last year, two CSU, Chico students won awards at the festival for their animation and video game projects.

Student David Logan and his team – Sarah Dehachi, Grenarios Crawford, and Michael Bling – earned second place in the interactive media category. The game they created, “Earth Haven 2: Retribution,” is a role-playing game about a boy avenging his father’s death.

Senior Samuel Fries received a third-place award for his short animation entry, “Catfight!” Fries made the film with fellow students Jackson Pratt and Elias Villalobos in Applied Computer Graphics 240, taught by Professor John Pozzi.

Since the contest’s inception, CSU, Chico entries have won awards in animation and interactive video 11 times, including four Best In Show awards.

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Blitz Build Homes Net Gold Certification

Detailed attention to community service and sustainable design has multiple rewards.

Over the past two years, faculty and students have partnered with local builders and the city of Chico to design and build a total of four homes for Catalyst, a service provider for victims of domestic violence and their children.

“It’s a really good feeling, that someone will appreciate and will feel safe in something you built,” said CSU, Chico Construction Management senior Shana Jackson.

The students’ detailed attention to the principles of sustainable development has been rewarded. The first two homes, built during the Blitz Build event in 2010, have been awarded the Leadership in Energy and Environmental Design (LEED) gold level of certification by the U.S. Green Building Council.

LEED is an internationally recognized certification for buildings of all types that display an exceptional level of commitment to environmental design and building practices. “LEED Gold certification is one of the highest levels of achievement that a building can reach,” explained Construction Management professor Jim O’Bannon, a faculty advisor for the Blitz Build project.

The homes feature sustainable components like high-efficiency water-saving fixtures and fittings, tankless water heaters and efficient domestic water systems, and Energy Star labeled appliances. In addition, the students used a multitude of sustainable building practices during construction, including off-site prefabrication to increase framing efficiencies and significantly reduce waste; use of recycled materials and low volatile organic compounds adhesives; and sealed, burnished concrete for flooring.

While higher costs are usually associated with building a LEED certified home, this project was markedly different. “That such a project, designed and built by students, resulted in a LEED Gold certification is noteworthy; that this was accomplished at a 30 percent-lower cost than a standard home is nothing short of phenomenal.”

Supported by a $250,000 loan from the Chico Redevelopment Agency, the Blitz Build project brought together 130 faculty and student volunteers, local builders, and the city of Chico.

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Mentoring – share your career development experiences in the classroom, mentor an aspiring professional, or serve in an advisory capacity to your department or program

Industry Connection – link ECC with your company – we’re continually seeking partnerships that provide internship and employment positions for our graduates, research and development opportunities for faculty, and industry linkages that help facilitate curricular currency

For more information about getting involved with the college and gift planning, please contact:

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