The eli² Story

“UCF excels at producing fundamentally sound engineers, according to industry,” says Tim Kotnour, industrial engineering professor and director of eli². “Our intention with eli² is to provide students opportunities throughout their entire academic experience to develop a skill set that distinguishes them when they graduate.”

Rising above the competition can be daunting, considering the nation produces more than 80,000 new engineering graduates each year. And UCF is one of the largest producers.

Kotnour and his team have built an institute from the ground up with programming designed to touch UCF engineering and computer science students – all 8,000 of them – such as the Leaders Up Close Seminar Series, an undergraduate minor (or certificate) in Engineering Leadership, professional development opportunities, and dedicated Maker Spaces to unleash creativity that leads to marketable innovations.

While many engineering colleges offer professional development programs, the most distinguishable feature of UCF’s engineering leadership institute is lifelong engagement. Through eli², professionals can get a master’s degree in engineering management.

Ultimately, the goal is to inspire not just leadership in students but a real passion for engineering – a field that comes with such academic rigor that student retention is a priority.

“Convincing our students to stay in engineering and computer science is a huge win,” says Kotnour. It’s a win not only for UCF, but also Duke Energy, which supports eli² and sees it as a valuable pipeline for filling internships. “Duke Energy’s top priorities are workforce development and education,” says district manager Tricia Setzer, “and eli² fits both. Students are learning that there’s more to know as a professional than what is learned in the classroom.”

Why eli²? Because inside every engineer & computer scientist is a heart that desires to make the world better.
Enabling UCF students to come together

"Innovation is our wheel house," said Steve Lyle, TI director, University and Engineering Workforce Development, "so this is some-thing we want to be a part of."

"Creativity is at the very core of engineering. I want students to explore 100 ideas before they arrive at one solution."

"Passion is what’s it’s all about. Students need to remember that engineering is the greatest gig in the world."

"Creative and critical thinking is the difference between a good idea and a great solution."

"I love building things and helping students."

"Enabling UCF students to come together in the spirit of diverse collaboration to hone creative vision is paramount for the next generation of innovators who will make big leaps in Harris’ technology evolution," said Robert Duffy, senior vice president.

The Visionary
Tim Kotnour, Ph.D.
elf® Role: Director

The Creative Guru
Bob Hoekstra, Ph.D.
elf® Role: Creative Director

The Start-Up Launcher
Oscar Rodriguez
elf® Role: Director, Small Business and Entrepreneurial Development

The Innovator
Dale Jackson
elf® Role: Director, Texas Instruments Innovation Lab

The Tinkerer
Don Harper
elf® Role: Director, Information Technology and Special Projects

The People Making it Happen

GLOBAL INNOVATORS
HARRIS

Most people in the high-tech communications and information technology industries know the Harris Corporation. The international company, in business for 117 years, serves government and commercial markets in 125 countries.

But people may not know that UCF is the largest workforce supplier for Harris. The $5 billion company, headquartered in Melbourne, Fla., employs 14,000. The company’s investment in the UCF Maker Space labs translates to more engineers and computer science graduates prepared for the demands of cross-disciplinary global teamwork, and fuels the continued need for creative innovation.

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Thank You

A RICH HISTORY OF INNOVATION

Texas Instruments

Whod’ve thought that a toy would start a technology revolution?

Gene Frantz was onto something when he worked as the system designer for the TI Speak & Spell in the 1970s.

The UCF electrical engineering alumnus and retired TI principal fellow is often called the “father of digital signal processing” for his role in creating the technology inside the beloved early learning device, which featured the world’s first linear predictive coding DSP integrated circuit.

That early platform technology helped to replicate what occurs every day in industry, multidisciplinary teams that strive to transform ideas into next-generation products.

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UCF students can now minor in Engineering Leadership to build sought-after professional skills that employers want. A certificate option is also available. Courses include the Leaders Up Close Seminar Series, and business and marketing courses.

“A student transcript or resume with ‘leadership’ at the top is going to stand out,” says Tim Kotnour, Ph.D., director of eli². “It shows that the student cares – and is prepared – to step into managerial and leadership roles at the workplace and is ready to contribute on day one of a job.”

Three career paths are emphasized in the programs to enable students to become an entrepreneur, a sales engineer or a project engineer.

Skills Emphasized

**CREATIVITY**

Students unleash their creativity to generate and explore numerous ideas to solve a problem.

**INNOVATION**

Students learn to convert ideas into business value. This can spur entrepreneurial ways of thinking as students learn the business side of engineering.

**COLLABORATION**

Students work in teams, just as they do in the professional world. Teamwork builds critical thinking skills in ethics and trust; communication and presentation; discipline; professional savvy (like being on time and taking notes); and social responsibility.

**WORLD-CHANGING SOLUTIONS**

As they bring forth solutions, students develop skills in whole-system “big picture” thinking. They become global thinkers who consider human factors such as diversity and culture in their large-scale approaches to problem-solving.

New in 2014

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New Engineer Credits eli²

As a freshman, Matt Harrison was all set academically. He arrived at UCF from Cypress Bay High School in Weston, Fla., with a passion for space and a willingness to study.

And what Harrison didn’t possess he gained through eli² programs that help students build professional skills beyond a degree.

“When I got to sit down in the seminar class for the first time,” he recounts, “I was just floored.”

As Harrison listened to the guest speakers, he learned precisely why. “They become your role models for that one-hour period. You get to learn everything from them, how they act, how they talk, the tricks of the trade.”

“In that class, character counts more than anything else. High virtue, high moral standards make all the difference when you graduate.”

Four days after graduating with an aerospace engineering degree in May 2014, he began at 3D Medical Manufacturing in West Palm Beach, Fla., where he gets to “solve problems all day.” He’s also been president of two engineering organizations at UCF: Theta Tau Professional Engineering Fraternity and the American Society for Engineering Education.

He credits eli² for much of his success. “I learned how to be a leader, and I learned how to communicate,” he says. “You can’t be an effective engineer if you can’t share your vision with other people.”

Meet the Leadership Interns

L-R: James Palmer, JC Perez, Donovan Williams, Addi Stone, Estella Gong, Richard Augustin

Director of Interns
JC Perez
Senior, aerospace engineering. Also works on marketing and communication to build the eli² brand among students.

Impact Assessment
Estella Gong
Junior, computer engineering
Addi Stone
Senior, aerospace engineering

Marketing and Communications
James Palmer
Junior, industrial engineering

Professional Development
Karen Hoshino
Senior, mechanical engineering
Nicholas Mitchell
Junior, mechanical engineering and aerospace engineering

Project Management/Events
Richard Augustin
Senior, industrial engineering
Donovan Williams
Senior, mechanical engineering

Social Media
Patrick Sites
Junior, electrical engineering

From Dust to Sails

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