The UCF eli² Undergraduate Story:
An Educational Partnership Journey to Infuse
Innovation and Leadership into the Undergraduate Curriculum

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Introduction

This report provides a description and assessment of the undergraduate "All Get Some, Some Get All" program within UCF's Engineering Leadership and Innovation Institute (eli^2). eli^2's mission is to bring forward our students' burning desire and confidence to deliver world-changing solutions. By students we mean:

- Undergraduate students pursuing a Bachelor of Science degree in engineering, computer science, or information technology
- Working professionals returning to school to pursue a Master of Science degree in Engineering Management
- Executives collaborating with us to search for best practices.

This report's intent is to share our story with you. The report is divided into four sections:

1) Welcome to Our Journey
2) The Business Case
3) The Implementation: Detailed Description of the Program Experience
4) Lessons Learned.

Each section goes further in depth than the previous one. You can choose how deep you explore our story.

We Are Sharing the eli^2 Undergrad Story at Multiple Levels.

This report provides a description and assessment of the undergraduate "All Get Some, Some Get All" program within UCF's Engineering Leadership and Innovation Institute (eli^2).

The report is divided into 4 sections. Each successive section provides further detail.

This current "Welcome to Our Journey" section provides:

- A high-level summary of eli^2's mission

- A high-level summary of the program and its impacts.

Executive Summary:
The eli^2 Undergrad Program Delivers on the Business Case.

To describe the eli^2 undergraduate program, we use the business case. This model is explained further in a few pages.

As can be seen from this summary, the program delivers a solution defined by the opportunity and strategic imperative.

In summary, the eli^2 undergrad program (eli^2 UGP) has seven strategic advantages for our industry partners and UCF:

1) **The eli^2 UGP helps our stakeholders close a skills gap in undergraduate engineering, computer science, or information technology students.** Our stakeholders are looking for us to help our students enhance their confidence, desire, and knowledge to:
   1) Be technically sound
   2) Be creative, innovative, collaborative, accountable
   3) Be the owners of their career
   4) Be the owners of a well-balanced life.

Be Technically Sound	Be More Creative, Innovative, Collaborative, and Accountable	Be the Owner of Their Academic Career & Balanced Life
• Awareness Briefings on the Craft of Engineering	• Engineering Leadership Minor/Certificate • Leaders Up Close • Maker Spaces • Senior Design Boot Camp	• Development Circles with Self-Assessment & Planning Guides • Academic Career Roadmaps • Professional Workshops

2) **The eli^2 UGP delivers the unique "All Get Some, Some Get All" integrated program.** The program provides opportunities across four years. The UCF Maker Spaces are an integral part of the program.

2) **The eli^2 UGP is strategic for our stakeholders.** The strategic opportunity for
   • Our corporate partners is a predictable stream of high-quality graduates
   • Our students is being employable when they graduate
   • UCF is to provide "The best undergraduate education available in Florida" and be "America's leading partnership university".

4) **The eli^2 UGP is having a significant impact.** We are providing a balanced portfolio of awareness, understanding, and capability experiences. Since Fall 2010,
   • 33,000+ student experiences
   • 80% reported an increase in their creativity practice (confidence, knowledge, and desire) (based on over 1000 survey responses)
   • 78% reported an increase in their innovation practice (confidence, knowledge, and desire) (based on over 1000 survey responses)
   • 79% reported an increase in their collaboration practice (confidence, knowledge, and desire) (based on over 1000 survey responses)
   • 72% reported an increase in their accountability practice (confidence, knowledge, and desire) (based on over 1000 survey responses)
   • 84% reported an increase in their solution delivery practice (confidence, knowledge, and desire) (based on over 1000 survey responses).

5) **We have built a robust, sustainable capability.** We have built over 41 products/processes across 11 organizational outcomes. Our partners are the key to success. We continue to be strategic, creative, innovative, collaborative, and accountable to deliver and refine the program.

6) **The eli^2 UGP is fiscally stable and responsible.** Our corporate partners are financially supporting us: Duke Energy, Harris Corporation, and Texas Instruments. The MSEM Cohort Program supports our undergraduate efforts.

7) **The eli^2 UGP is "winning" with our students and our corporate partners.** Our students' stories demonstrate how we are enabling multiple, unique pathways to success. Our corporate partners are sharing their energy: Boeing, Kennedy Space Center, Lockheed Martin, Nielsen, Siemens, and The Walt Disney Company.

The Undergraduate Program Transforms Students into Young Professionals.

eli²'s mission is focused on lifelong engagement with engineers and computer scientists.

This report provides a description and assessment of the undergraduate program: All Get Some, Some Get All.

This program focuses on producing new professionals who can lead themselves and bring a sense of professionalism to the workplace. The intent is for the new graduate to hit the ground running on day one of their professional employment.

We Thank the Team Who Have Gone on the Journey With Us.

All great organizations and projects have a great team and set of supporters; eli^2 benefits from having a strong set of team members and supporters.

One of eli^2's key focus areas is collaboration. The eli^2 story is a collaboration story. Our success is a collective success.

We thank our team and supporters for sharing their wisdom, energy, encouragement, and resources.

We thank the IEMS Department and its chair, Dr. Waldemar Karwowski, for having the insight to invest in and support the effort.

We thank our Founding Sponsors for their encouragement and financial support. Their support demonstrates their belief in our mission.

- Duke Energy (Progress Energy)
- Harris Corporation
- Texas Instruments

We thank our Founding Faculty for their dedication to the mission. They provided the initial energy and ideas.

- Al Ducharme
- Bob Hoekstra
- Tim Kotnour
- Chuck Reilly

We thank our corporate leader partners for their dedication to the mission. They provided their time, energy, and endorsement for our mission.

- Kara Colangelo
- Brian Crutcher
- Carl D'Allessandro
- Jerry Feller
- Gloria Hardee
- Chester Kennedy
- Dennis Lind
- Jeannie Parsch
- Mike Sarpu

We thank the UCF administration for their support. They provided the "cover" and encouragement to provide a new model for education.

- Michael Georgiopoulos
- Joel Hartman
- Waldemar Karwowski
- Ranganathan Kumar
- Tom O'Neal
- Charles Reilly
- Marwan Simaan
- Tony Waldrop
- Dale Whittaker

We thank our undergraduate faculty partners from the core disciplines. They supported the mission with ideas, concepts, energy, and their time.

Maker Spaces
- Don Harper
- Dale Jackson
- Tim Lindner

Senior Design Coordinators
- Mark Calabrese
- Mark Heinrich
- Mansooreh Mollaghasemi
- Luis Rabelo
- Sam Richie
- Mark Steiner
- Kurt Stresau
- Lei Wei

Academic Affairs
- Paul Edlen
- Kim Small

Department Chairs
- Mohamed Abdel-Aty
- Waldemar Karwowski
- Gary Leavens
- Yoav Peles
- Zhihua Qu
- Sudipta Seal

Original Department Reps
- Manoj Chopra
- Steven Duranceau
- Seetha Raghavan
- Sam Richie
- Jackie Sullivan
- Bill Thompson
- Parveen Wahid

We thank the eli^2 administrative team.

- Kate Hurt
- Jack Selter

We thank the IEMS graduate students for pulling the assessment data together and completing the numerical analysis.

- Sayli Bhide
- Jennifer Sawicki

We thank the CECS administration team for their support. They provided the energy and encouragement to provide a new model for education.

- Pete Alfieris
- Francesca Botteri
- Robin Knight
- Kimberly Lewis
- Michael McLaughlin
- Bob Rich
- Oscar Rodriquez
- Deb Williams

We thank the IEMS department team. They provided the energy and encouragement to provide a new model for education.

- Waldemar Karwowski
- Liz Stalvey

We Thank the Team Who Have Gone on the Journey With Us.

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One of eli^2's key focus areas is collaboration. The eli^2 story is a collaboration story. Our success is a collective success.

We thank our team and supporters for sharing their wisdom, energy, encouragement, and resources.

We thank the IEMS Department and its chair, Dr. Waldemar Karwowski, for having the insight to invest in and support the effort.

We thank the Dean's Advisory Board, past and present. They supported the mission with ideas, concepts, energy, and their time over the years.

- Siva Banda
- Sharon Bauer
- David Bettner
- Jane Bishop
- James T. Brown
- Robert Cabana
- Kamran Cheema
- Kevin Chocie
- Christos Christodoulou
- Nancy Clutts
- Tim Cowan
- Jeffrey Cox
- Carol Craig
- Brian Crutcher
- Carl D'Alessandro
- Chuck Drake
- Phil Dumas
- Jason Dunn
- George Gilhooley
- Bill Gilliam
- Sasan Goodarzi
- Paul Grimes
- Sam Hanna
- J. Greg Hanson
- Chuck Hardison
- Mark Heck
- Alexander Hoffs
- Chester Kennedy
- Hans-Juergen Kiesow
- Bob Kilmer
- Steve Kramer
- Ken Ksionek
- Bruce Martinez
- David Maxon
- Gregg Melanson
- Bill Miller
- Randy Morgan
- Ankush Oberai
- Ben Patz
- Vinod Philip
- Mike Piatek
- Paulo Pires
- H. Vincent Poor
- Jeff Pridmore
- Zachary Quandt
- Arun Ramaswamy
- Dan Rini
- Oscar Rodriguez
- Mike Sarpu
- Dan Schiappa
- Andy Schwalb
- Beverly Seay
- Pat Simpkins
- Eric Singleton
- Tim Smith
- Jeff Snyder
- Jennifer Szaro
- Kevin Thibault
- Amar Thiraviam
- Tim Yang

We thank our undergraduate student alumni. These students helped refine our model to ensure it was meaningful to the students. They dedicated their time and talents to our mission.

- Casey Brennan
- Chandler Brothers
- Jason Burns
- Bianca Garcia
- Estella Gong
- Matthew Harrison
- Matt Julian
- Marc Mailloux
- Lourdes Matos
- Chase Mildner
- Kenneth (KJ) Mitchell
- Brooke Papa
- JC Perez
- Benneth Rejuso
- Kristina Revueltas
- Patrick Sites
- Khanh Vo
- Gillian Werner

We thank our industry partners who have spoken to our classes and acted as mentors. They dedicated their time and talents to our mission. They made a life-long impact on our students.

- 64 Leaders Up Close speakers (since Fall 2011)

- 34 Development Circles mentors (since Fall 2015)

We Are Sharing the eli² Undergrad Story at Multiple Levels.

This report provides a description and assessment of the undergraduate "All Get Some, Some Get All" program within UCF's Engineering Leadership and Innovation Institute (eli²).

The report is divided into 4 sections. Each successive section provides further detail.

This current "The Business Case" section provides:

- A high-level summary of the business case model we are using to describe the program

- A description of the program using the elements of the business case.

Welcome to Our Journey

(pages 2-7)

- Introduction

- Executive Summary—The eli² Undergrad Program Delivers on the Business Case

- eli² Mission

- Acknowledgements & Thank You to the Team

The Business Case

(pages 8-43)

- The Opportunity

- The Solution

- The Strategic Imperative

- The Results

- The Capability to Deliver

- The Financial Perspective

- The Winning Position

Detailed Description of the Program Experiences
(pages 44-62)

- Overall Program

- Maker Spaces

- Courses
  - Engineering Leadership Minor/Certificate
  - Leaders Up Close Seminar Series (EGS 3030/3031)
  - Engineering Leadership & Innovation (EGS 4624)
  - Engineering Leadership Capstone (EGS 4950)
  - Engineering Entrepreneurship (EGS 4641)
  - Senior Design Boot Camp

- Professional Development
  - NAE Grand Challenges Competition
  - Development Circles
  - eli² Student Leaders
  - Professional Development Workshops
  - Inspire Students to Join the Journey (Support Freshman Engineering Courses EGS 1006/1007)

- Community Engagement
  - Hope & Proud Breakfasts

Lessons Learned

(pages 63-94)

- Our Evolution

- Our Lessons Learned

- Our Impact Assessment Process

- Our Semester-by-Semester Execution
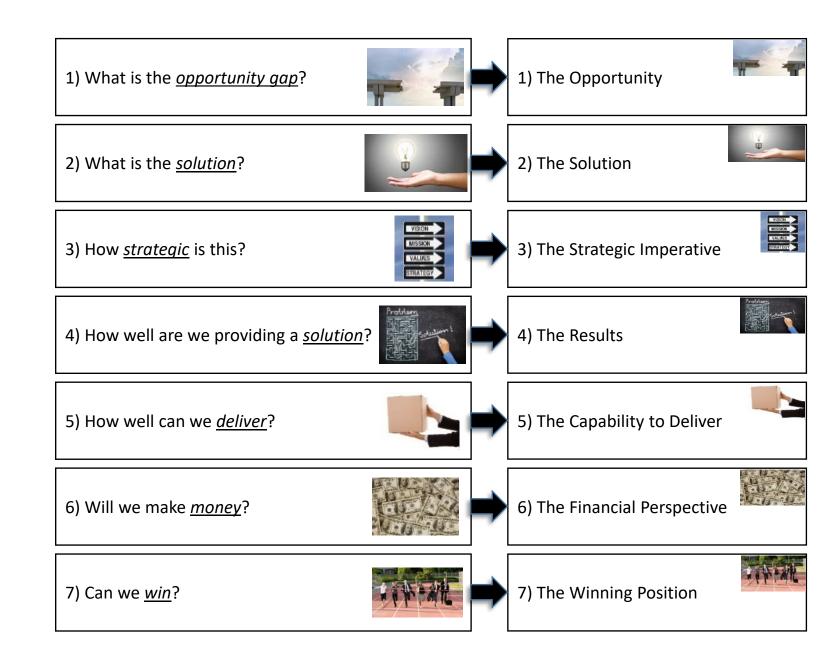
We Tell Our Story Using the Business Case.

To describe the program at a high-level, we will use a "business case" model.

The business case uses seven questions to describe and evaluate an opportunity or project. Answering these questions provides the business case.

We use this model to describe the undergraduate program and impact.

The UCF MSEM Cohort Program uses the "Business Case" as a core element of the program. This model was developed in partnership with Harris Corporation and was refined through our teaching activities.

1) What is the _opportunity gap_?	1) The Opportunity
2) What is the _solution_?	2) The Solution
3) How _strategic_ is this?	3) The Strategic Imperative
4) How well are we providing a _solution_?	4) The Results
5) How well can we _deliver_?	5) The Capability to Deliver
6) Will we make _money_?	6) The Financial Perspective
7) Can we _win_?	7) The Winning Position

Our Stakeholders are Looking for Us to Enhance the Employability of Our Undergraduate Students.

eli² helps our stakeholders close a skills gap in undergraduate engineering, computer science, or information technology students.

Our stakeholders are looking for us to help our students enhance their confidence, desire, and knowledge to:

1) Be technically sound
2) Be creative, innovative, collaborative, and accountable
3) Be the owners of their career
4) Be the owners of a well-balanced life.

Within eli², we focus on the items highlighted in red. We recognize the core disciplines focus on building technically sound students. We reinforce the need to be technically sound in all the student does.

The core disciplines focus on this; eli² reinforces the need for this

eli² reinforces the need for this and provides a few experiences to support this

1) Technically Sound

2) Creative, Innovative, Collaborative, & Accountable

Deliver World-Changing Solutions & Be Employable

4) The Owner of a Well-Balanced Life

3) The Owner of Your Career

eli² provides specific experiences to enhance this

eli² provides specific experiences to enhance this

1) The Opportunity	2) The Solution	3) The Strategic Imperative	4) The Results	5) The Capability to Deliver	6) The Financial Perspective	7) The Winning Position

We Deliver the "All Get Some, Some Get All" Integrated Program Across Four Years Supported by the Maker Spaces to Help Students be…

eli² delivers the unique "All Get Some, Some Get All" integrated program.

To meet the four objectives, we offer a set of specific experiences for our students.

The specific experiences are listed for each of the objectives. Each experience is further described in the next section.

1) Technically Sound

• Inspire Students to Join the Journey (Support 1006/1007)

2) Creative, Innovative, Collaborative, & Accountable

• Maker Spaces
• Senior Design Boot Camp
• NAE Grand Challenges Competition
• Engineering Leadership Minor/Certificate
• Course: Leaders Up Close (3030/3031)
• Course: Engineering Leadership & Innovation (EGS 4624)
• Course: Engineering Leadership Capstone (EGS 4950)
• Course: Engineering Entrepreneurship (EGS 4641)

Deliver World-Changing Solutions & Be Employable

4) The Owner of a Well-Balanced Life

• Hope & Proud Breakfasts
• Professional Development Workshops

3) The Owner of Their Academic Career

• Development Circles
• Career Self-Assessment and Planning Tools
• Professional Development Workshops

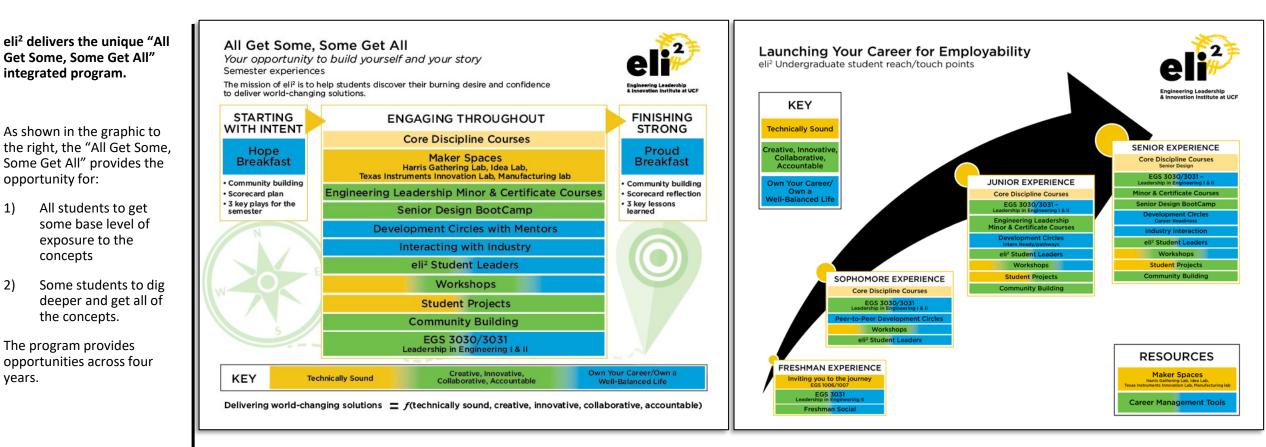| 1) The Opportunity	2) The Solution	3) The Strategic Imperative	4) The Results	5) The Capability to Deliver	6) The Financial Perspective	7) The Winning Position

We Deliver the "All Get Some, Some Get All" Integrated Program Across Four Years Supported by the Maker Spaces.

eli² delivers the unique "All Get Some, Some Get All" integrated program.

As shown in the graphic to the right, the "All Get Some, Some Get All" provides the opportunity for:

1) All students to get some base level of exposure to the concepts

2) Some students to dig deeper and get all of the concepts.

The program provides opportunities across four years.

All Get Some, Some Get All
Your opportunity to build yourself and your story
Semester experiences

The mission of eli² is to help students discover their burning desire and confidence to deliver world-changing solutions.

STARTING WITH INTENT

Hope Breakfast
- Community building
- Scorecard plan
- 3 key plays for the semester

ENGAGING THROUGHOUT
- Core Discipline Courses
- Maker Spaces — Harris Gathering Lab, Idea Lab, Texas Instruments Innovation Lab, Manufacturing lab
- Engineering Leadership Minor & Certificate Courses
- Senior Design BootCamp
- Development Circles with Mentors
- Interacting with Industry
- eli² Student Leaders
- Workshops
- Student Projects
- Community Building
- EGS 3030/3031 Leadership in Engineering I & II

FINISHING STRONG

Proud Breakfast
- Community building
- Scorecard reflection
- 3 key lessons learned

KEY: Technically Sound | Creative, Innovative, Collaborative, Accountable | Own Your Career/Own a Well-Balanced Life

Delivering world-changing solutions = *f*(technically sound, creative, innovative, collaborative, accountable)

Launching Your Career for Employability
eli² Undergraduate student reach/touch points

KEY
- Technically Sound
- Creative, Innovative, Collaborative, Accountable
- Own Your Career/Own a Well-Balanced Life

SENIOR EXPERIENCE
- Core Discipline Courses — Senior Design
- EGS 3030/3031 – Leadership in Engineering I & II
- Minor & Certificate Courses
- Senior Design BootCamp
- Development Circles — Career Readiness
- Industry Interaction
- eli² Student Leaders
- Workshops
- Student Projects
- Community Building

JUNIOR EXPERIENCE
- Core Discipline Courses
- EGS 3030/3031 – Leadership in Engineering I & II
- Engineering Leadership Minor & Certificate Courses
- Development Circles — Intern Ready/pathways
- eli² Student Leaders
- Workshops
- Student Projects
- Community Building

SOPHOMORE EXPERIENCE
- Core Discipline Courses
- EGS 3030/3031 — Leadership in Engineering I & II
- Peer-to-Peer Development Circles
- Workshops
- eli² Student Leaders

FRESHMAN EXPERIENCE
- Inviting you to the journey — EGS 1006/1007
- EGS 3031 — Leadership in Engineering II
- Freshman Social

RESOURCES
- Maker Spaces — Harris Gathering Lab, Idea Lab, Texas Instruments Innovation Lab, Manufacturing lab
- Career Management Tools

1) The Opportunity | 2) The Solution | 3) The Strategic Imperative | 4) The Results | 5) The Capability to Deliver | 6) The Financial Perspective | 7) The Winning Position

12

We Deliver the "All Get Some, Some Get All" Integrated Program Across Four Years Supported by the Maker Spaces.
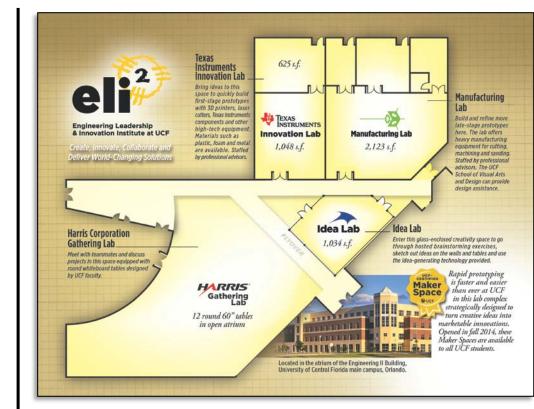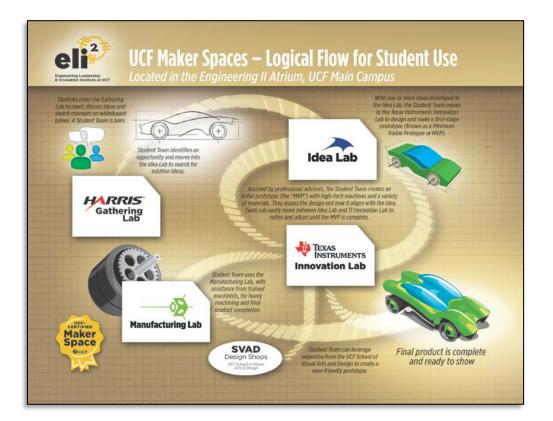
eli² delivers the unique "All Get Some, Some Get All" integrated program.

The UCF Maker Spaces are an integral part of the program.
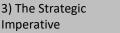
The UCF Maker Spaces include:

1) The Harris Gathering Lab: a space for students to collaborate and forge relationships

2) The Idea Lab: a space for students to ideate and collaborate on projects

3) The Texas Instruments Innovation Lab: a space for students to collaborate on creating and innovating to build prototypes

4) The Manufacturing Lab: a space for students to convert their prototypes to the next level of fidelity.
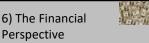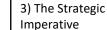
| 1) The Opportunity | 2) The Solution | 3) The Strategic Imperative | 4) The Results | 5) The Capability to Deliver | 6) The Financial Perspective | 7) The Winning Position |

13

Our Stakeholders are Looking for Us to Enhance the Employability of Our Undergraduate Students.

eli² is strategic for our stakeholders.

Both national studies and an industry survey of our partners highlight the need for our graduates to have a set of skills beyond the math and science of engineering.

The strategic opportunity for

- Our corporate partners is a predictable stream of high-quality graduates
- Our students is being employable when they graduate
- UCF is to provide "The best undergraduate education available in Florida" and "Be America's leading partnership university".

National Studies

Numerous national studies have called for enhancing skills:

- **The Science and Engineering Workforce: Realizing America's Potential** (National Science Board, 2003)
- **Educating the Engineer of 2020** (National Academy of Engineering, 2005)
- **Engineering Research and America's Future: Meeting the Challenges of a Global Economy** (Duderstadt, National Academy of Engineering, 2005)
- **The Engineer of 2020 (Parts I and II)** (Clough, National Academy of Engineering, 2004, 2005)
- **Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future** (Augustine, National Academies, 2005)
- **The National Innovation Initiative** (Council on Competitiveness, 2006)
- **Educating Engineers: Theory, Practice, and Imagination** (Sheppard & Sullivan, Carnegie Foundation for the Advancement of Teaching, 2007)
- **Moving Forward to Improve Engineering Education** (National Science Board, 2007)
- **The Vision for Civil Engineering in 2025** (ASCE, 2007)
- **Engineering for a Changing World: A Roadmap to the Future of Engineering Practice, Research, and Education** (Duderstadt, The Millennium Project, The University of Michigan, 2008)

- The book *Whole New Engineer* provides an example of how one school is infusing the leaderships skills into their core curriculum.

Industry Survey

We surveyed our industrial advisory board members and their organizations. The skills they identified are:

- Technically Sound (100%)
- Ethical & Trustworthy (93%)
- Connected to and "InSync" with the Project (93%)
- Critical & Systems Thinker (87%)
- Disciplined (87%)
- Creative (87%)
- Innovative (87%)
- Team Player (73%)
- Learner/Reflective Practitioner (73%)
- Good Communicator (67%)
- Builder (60%)
- Professional (53%)
- Business/ Financially Savvy (33%)
- Entrepreneurial (20%)
- Appreciates/Values Being an Engineer (33%)
- Socially Responsible (27%)

The % represents the % of industry respondents who believe this skill/attribute is critical to a new employee's success.

UCF Collective Impact Strategic Plan

The UCF strategic plan identifies key metrics:

- 1st year retention rate
  - We believe our "inspirational" talks in EGS 1006 & EGS 1007 along with the Maker Spaces provide an additional source of inspiration and connectedness to help retain freshmen in engineering.

- 6 year graduation rate of 75%
  - We believe our focus on leadership and career development will encourage students to complete their degree in a timely manner.

- 100% of undergraduates participate in a positive, high impact student experience either on or off campus
  - We believe eli² offers high impact experiences such as Senior Design Boot Camps, eli² Student Leaders, and Development Circles.

- Engage students in at least one service learning activity annually.
  - We believe eli² offers the opportunity for students to provide service activities to CECS and fellow students through the eli² Student Leaders.
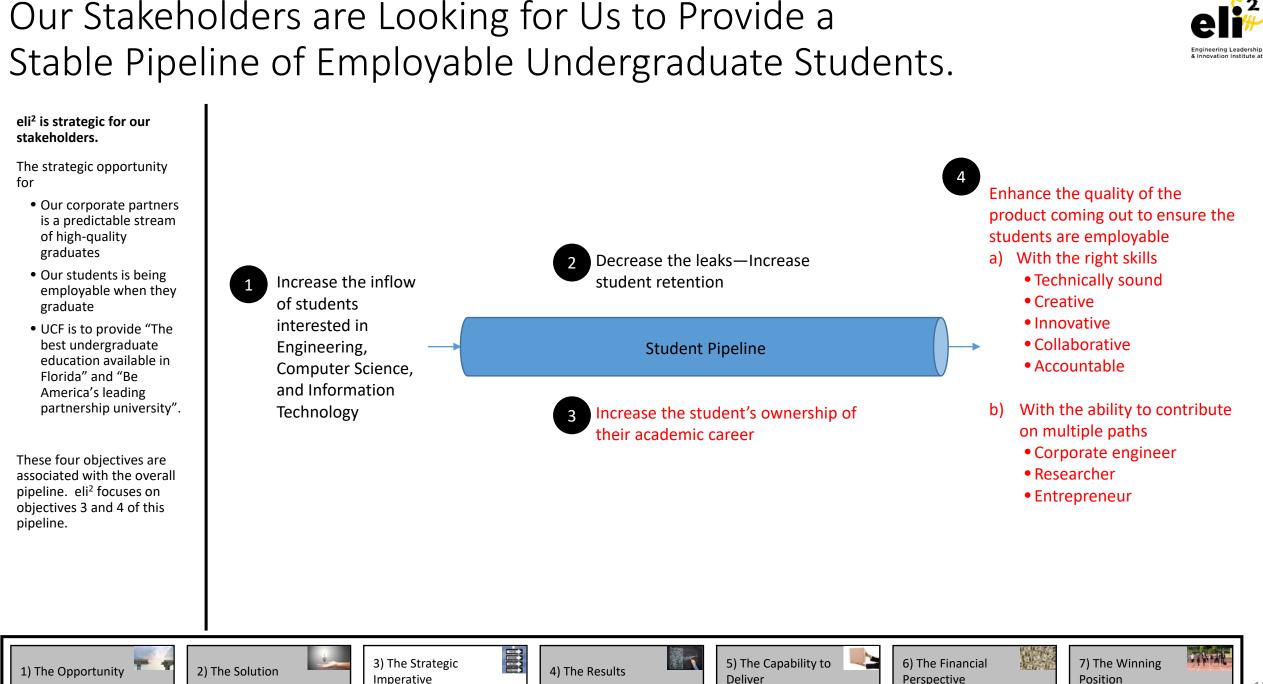
1) The Opportunity	2) The Solution	3) The Strategic Imperative	4) The Results	5) The Capability to Deliver	6) The Financial Perspective	7) The Winning Position

Our Stakeholders are Looking for Us to Provide a Stable Pipeline of Employable Undergraduate Students.

eli² is strategic for our stakeholders.

The strategic opportunity for

- Our corporate partners is a predictable stream of high-quality graduates
- Our students is being employable when they graduate
- UCF is to provide "The best undergraduate education available in Florida" and "Be America's leading partnership university".

These four objectives are associated with the overall pipeline. eli² focuses on objectives 3 and 4 of this pipeline.

1 Increase the inflow of students interested in Engineering, Computer Science, and Information Technology

2 Decrease the leaks—Increase student retention

Student Pipeline

3 Increase the student's ownership of their academic career

4 Enhance the quality of the product coming out to ensure the students are employable

a) With the right skills
- Technically sound
- Creative
- Innovative
- Collaborative
- Accountable

b) With the ability to contribute on multiple paths
- Corporate engineer
- Researcher
- Entrepreneur

1) The Opportunity	2) The Solution	3) The Strategic Imperative	4) The Results	5) The Capability to Deliver	6) The Financial Perspective	7) The Winning Position

We are Providing a Balanced Portfolio of Community Building, Awareness, Understanding, and Capability Experiences.

eli² is having a significant impact.

We think of our experiences based on two factors:

- Number of Students Impacted Each Year through the Experience

- Intent of the Experience.

This balance of experiences gives us the ability to live our focus of "All Get Some, Some Get All". We expose all students to a base level of awareness and understanding. The "Some Get All" students self select to enhance their capabilities to a deeper level.

We are providing a balanced portfolio of community building, awareness, understanding, and capability experiences.

The intent (awareness, understanding, and capability) concept is from taken from Kolb.

Number of Students Impacted Each Year through the Experience		Build Community	Enhance Awareness	Enhance Understanding	Enhance Capability
	1000s	• Harris Gathering Lab	• Inspire Students to Join the Engineering Journey (via motivational presentation to EGS 1006 Introduction to Engineering course) • Inspire Students to Own their Academic Journey & Provide a Career Roadmap (via motivational presentation to EGS 1007 Introduction to Engineering course)		• Senior Design Boot Camp • Maker Spaces
	100s			• NAE Grand Challenges Competition (in EGS 3030) • Course: Leaders Up Close Seminar Series (EGS 3030/3031)	• Course: Engineering Leadership & Innovation (EGS 4624) • Professional Development Workshops • Development Circles
	10s	• Hope & Proud Breakfasts			• Engineering Leadership Minor/Certificate • Course: Engineering Leadership Capstone (EGS 4950) • Course: Engineering Entrepreneurship (EGS 4641) • Student Leaders/Interns
		Build Community	**Enhance Awareness**	**Enhance Understanding**	**Enhance Capability**

Intent of the Experience

1) The Opportunity 2) The Solution 3) The Strategic Imperative 4) The Results 5) The Capability to Deliver 6) The Financial Perspective 7) The Winning Position

Students Are Increasing Their Practice of Key Leadership Skills.

eli² is having a significant impact.

Students believe their practice of a skill has increased. We believe a practice of a skill is enhanced by increasing a student's confidence, knowledge, and desire to practice that skill.

We focus on the five key leadership skills:

- Be creative
- Be innovative
- Be collaborative
- Be accountable
- Deliver solutions.

These results represent the percent of students across all eli² surveyed experiences that have had a increase or significant increase in their practice of the leadership skills. The % represents the total % of all survey respondents across all experiences from Fall 2012 through Fall 2017. Over 1,000 surveys have been completed.

			Leadership Skill				
			Creative	Innovative	Collaborative	Accountable	Deliver Solutions
			80%	78%	79%	72%	84%
"Practice of Skill"	Desire	82%	83%	80%	83%	75%	87%
	Knowledge	80%	81%	79%	79%	72%	86%
	Confidence	76%	75%	75%	77%	70%	81%
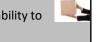
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17
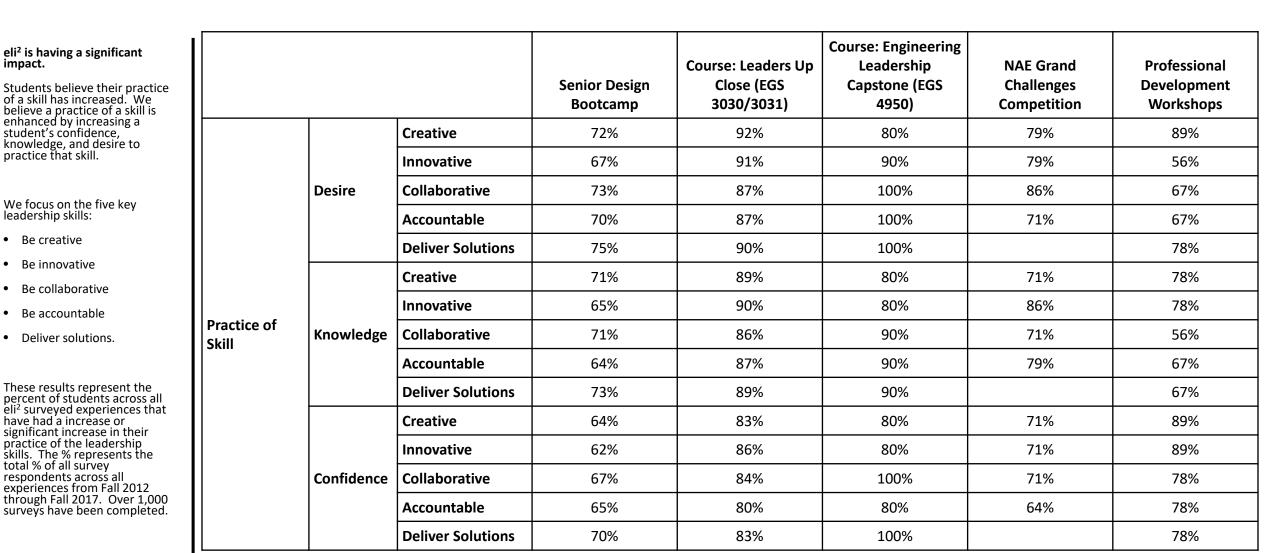
Each Program Element is Having a Positive Impact.

eli² is having a significant impact.

Students believe their practice of a skill has increased. We believe a practice of a skill is enhanced by increasing a student's confidence, knowledge, and desire to practice that skill.

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- Deliver solutions.

These results represent the percent of students across all eli² surveyed experiences that have had a increase or significant increase in their practice of the leadership skills. The % represents the total % of all survey respondents across all experiences from Fall 2012 through Fall 2017. Over 1,000 surveys have been completed.

			Senior Design Bootcamp	Course: Leaders Up Close (EGS 3030/3031)	Course: Engineering Leadership Capstone (EGS 4950)	NAE Grand Challenges Competition	Professional Development Workshops
Practice of Skill	**Desire**	Creative	72%	92%	80%	79%	89%
		Innovative	67%	91%	90%	79%	56%
		Collaborative	73%	87%	100%	86%	67%
		Accountable	70%	87%	100%	71%	67%
		Deliver Solutions	75%	90%	100%		78%
	Knowledge	Creative	71%	89%	80%	71%	78%
		Innovative	65%	90%	80%	86%	78%
		Collaborative	71%	86%	90%	71%	56%
		Accountable	64%	87%	90%	79%	67%
		Deliver Solutions	73%	89%	90%		67%
	Confidence	Creative	64%	83%	80%	71%	89%
		Innovative	62%	86%	80%	71%	89%
		Collaborative	67%	84%	100%	71%	78%
		Accountable	65%	80%	80%	64%	78%
		Deliver Solutions	70%	83%	100%		78%

1) The Opportunity 2) The Solution 3) The Strategic Imperative 4) The Results 5) The Capability to Deliver 6) The Financial Perspective 7) The Winning Position

The Development Circles Have a Positive Impact.

eli² is having a significant impact.

Students believe their practice of a skill has increased. We believe a practice of a skill is enhanced by increasing a student's confidence, knowledge, and desire to practice that skill.

The development circles are having a positive impact.

These results represent are from the 2016 Development Circle group.

As a result of your participation in the Skills Reflection Circle, how did your ABILITY change to:

	Significantly decreased	Decreased	Did not change	Increased	Significantly increased	Total
Reflect on yourself and your experiences:	0(0%)	1(4.55%)	2(9.09%)	15(68.18%)	4(18.18%)	22
Critically think about a your skills:	0(0%)	0(0%)	6(27.27%)	8(36.36%)	8(36.36%)	22
Identify your strengths:	0(0%)	0(0%)	7(31.82%)	8(36.36%)	7(31.82%)	22
Identify your weaknesses:	0(0%)	0(0%)	6(27.27%)	8(36.36%)	8(36.36%)	22
Develop a path forward to improve your skills:	0(0%)	0(0%)	8(36.36%)	4(18.18%)	10(45.45%)	22

As a result of your participation in the Skills Reflection Circle, how did your ABILITY change to:

	Significantly decreased	Decreased	Did not change	Increased	Significantly increased	Total
Be creative (Brainstorm and generate new and novel ideas on how to solve a problem):	0(0%)	0(0%)	13(59.09%)	6(27.27%)	3(13.64%)	22
Be innovative (Convert an creative idea into a useful solution that can be sold):	0(0%)	0(0%)	10(45.45%)	10(45.45%)	2(9.09%)	22
Be collaborative (Work in a professional manner on a team):	0(0%)	0(0%)	4(18.18%)	12(54.55%)	6(27.27%)	22
Be accountable (Meet project commitments):	0(0%)	0(0%)	7(31.82%)	13(59.09%)	2(9.09%)	22
Deliver solutions (Develop a useful system):	0(0%)	0(0%)	9(40.91%)	10(45.45%)	3(13.64%)	22
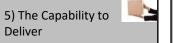
1) The Opportunity | 2) The Solution | 3) The Strategic Imperative | 4) The Results | 5) The Capability to Deliver | 6) The Financial Perspective | 7) The Winning Position

19

The Idea Lab Has a Positive Impact.

eli² is having a significant impact.

The Idea Lab has a positive impact on the users.

The survey was shared with the users of the Idea Lab from the Fall 2015 and Spring 2016 semesters. Eighty-nine of the 1048 lab users completed the survey. The low response rate could be attributed to the survey being conducted in the middle of the summer.

What did you use the Idea Lab for?

	Never	1/semester	1/week	Numerous times each week
Explore ideas:	23.17%	34.15%	31.71%	10.98%
Support class homework:	35.9%	20.51%	32.05%	11.54%
Support "Introduction to Engineering" project:	65.38%	8.97%	15.38%	10.26%
Support class group project:	21.52%	29.11%	36.71%	12.66%
Support "Senior Design" project:	66.23%	10.39%	14.29%	9.09%
Explore idea for a new business I'd like to start:	76.32%	13.16%	6.58%	3.95%

What level of support did you use?

	Seldom	Sometimes	Often	Usually	Consistently
Used the space by myself to work on an assignment:	32.5%	28.75%	12.5%	21.25%	5%
Used the space by myself on a design project:	31.25%	23.75%	13.75%	22.5%	8.75%
Interacted with Lab Assistants (student assistants):	61.73%	16.05%	2.47%	13.58%	6.17%

Who did you use the Idea Lab with?

	Seldom	Sometimes	Often	Usually	Consistently
Myself:	29.49%	21.79%	15.38%	24.36%	8.97%
Other students in a group:	9.76%	20.73%	15.85%	28.05%	25.61%

1) The Opportunity	2) The Solution	3) The Strategic Imperative	4) The Results	5) The Capability to Deliver	6) The Financial Perspective	7) The Winning Position

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As a result of your use of the Idea Lab, how did your ABILITY change:					
	Significantly decreased	Decreased	Did not change	Increased	Significantly increased
Critically think about a product:	0%	0%	36.99%	41.1%	21.92%
Define the purpose of the prototype:	0%	0%	35.62%	43.84%	20.55%
Define what you want to test with the prototype:	0%	0%	39.73%	41.1%	19.18%
Build a prototype:	0%	0%	46.58%	31.51%	21.92%
Identify the best way (equipment) to build the prototype:	0%	0%	36.99%	38.36%	24.66%
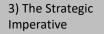
As a result of your use of the Idea Lab, how did your ABILITY change to:					
	Significantly decreased	Decreased	Did not change	Increased	Significantly increased
Be creative (Brainstorm and generate new and novel ideas on how to solve a problem):	0%	1.37%	20.55%	47.95%	30.14%
Be innovative (Convert an creative idea into a useful solution that can be sold):	0%	1.37%	23.29%	52.05%	23.29%
Be collaborative (Work in a professional manner on a team):	0%	1.37%	21.92%	45.21%	31.51%
Be accountable (Meet project commitments):	0%	1.37%	38.36%	32.88%	27.4%
Deliver solutions (Develop a useful system):	0%	1.37%	38.36%	34.25%	26.03%
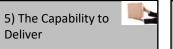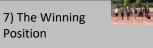
1) The Opportunity | 2) The Solution | 3) The Strategic Imperative | 4) The Results | 5) The Capability to Deliver | 6) The Financial Perspective | 7) The Winning Position

21

The TI Innovation Lab Has a Positive Impact.

eli² is having a significant impact.

The TI Innovation Lab has a positive impact on the users.

The survey was shared with the users of the TI Innovation Lab from the Fall 2015 and Spring 2016 semesters. Seventy-nine of the 787 lab users completed the survey. The low response rate could be attributed to the survey being conducted in the middle of the summer.

What did you use the Idea Lab for?

	Never	1/semester	1/week	Numerous times each week
Explore ideas	22.06%	23.53%	32.35%	22.06%
Support class homework	34.33%	32.84%	22.39%	10.45%
Support "Introduction to Engineering" project	49.28%	17.39%	15.94%	17.39%
Support class group project	23.88%	29.85%	23.88%	22.39%
Support "Senior Design" project	59.7%	7.46%	14.93%	17.91%
Explore idea for a new business I'd like to start	84.85%	6.06%	6.06%	3.03%

What level of support did you use?

	Seldom	Sometimes	Often	Usually	Consistently
Just used the space	4.11%	12.33%	23.29%	24.66%	35.62%
Interacted with Lab Assistants (student assistants)	12.86%	21.43%	21.43%	20%	24.29%
Interacted with the Lab Director (Don to share ideas)	39.71%	30.88%	11.76%	8.82%	8.82%
Interacted with the Lab Director (Don on a consultation for a specific need)	45.59%	26.47%	11.76%	10.29%	5.88%

Who did you use the Idea Lab with?

	Seldom	Sometimes	Often	Usually	Consistently
Myself	14.71%	13.24%	25%	17.65%	29.41%
Other students in a group	5.48%	17.81%	17.81%	24.66%	34.25%

1) The Opportunity 2) The Solution 3) The Strategic Imperative 4) The Results 5) The Capability to Deliver 6) The Financial Perspective 7) The Winning Position

22

The TI Innovation Lab Has a Positive Impact.

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The TI Innovation Lab has a positive impact on the users.

The survey was shared with the users of the TI Innovation Lab from the Fall 2015 and Spring 2016 semesters. Seventy-nine of the 787 lab users completed the survey. The low response rate could be attributed to the survey being conducted in the middle of the summer.

As a result of your use of the Idea Lab, how did your ABILITY change:

	Significantly decreased	Decreased	Did not change	Increased	Significantly increased
Critically think about a product:	0%	1.47%	38.24%	44.12%	16.18%
Define the purpose the prototype:	0%	1.47%	36.76%	41.18%	20.59%
Define what you want to test with the prototype:	0%	0%	29.41%	48.53%	22.06%
Build a prototype:	0%	0%	21.74%	40.58%	37.68%
Identify the best way (equipment) to build the prototype:	0%	0%	22.06%	47.06%	30.88%

As a result of your use of the Idea Lab, how did your ABILITY change to:

	Significantly decreased	Decreased	Did not change	Increased	Significantly increased
Be creative (Brainstorm and generate new and novel ideas on how to solve a problem):	0%	1.45%	34.78%	52.17%	11.59%
Be innovative (Convert an creative idea into a useful solution that can be sold):	0%	1.45%	42.03%	42.03%	14.49%
Be collaborative (Work in a professional manner on a team):	0%	0%	31.88%	42.03%	26.09%
Be accountable (Meet project commitments):	0%	1.45%	46.38%	31.88%	20.29%
Deliver solutions (Develop a useful system):	0%	1.45%	26.09%	44.93%	27.54%

1) The Opportunity 2) The Solution 3) The Strategic Imperative 4) The Results 5) The Capability to Deliver 6) The Financial Perspective 7) The Winning Position

23

The TI Innovation Lab Has a Positive Impact.

eli² is having a significant impact.

The TI Innovation Lab has a positive impact on the users.

The survey was shared with the users of the TI Innovation Lab from the Fall 2015 and Spring 2016 semesters. Seventy-nine of the 787 lab users completed the survey. The low response rate could be attributed to the survey being conducted in the middle of the summer.

How valuable were each of the lab elements to your experience?					
	Not at All Valuable	Not Valuable	Neutral	Very Valuable	Extremely Valuable
Space to build in:	1.52%	4.55%	6.06%	39.39%	48.48%
Materials:	3.08%	1.54%	18.46%	35.38%	41.54%
3D printers:	10.77%	1.54%	38.46%	23.08%	26.15%
Laser cutter:	3.03%	1.52%	15.15%	16.67%	63.64%
Electronics equipment:	7.58%	1.52%	27.27%	28.79%	34.85%
Lab assistants:	1.52%	4.55%	12.12%	43.94%	37.88%
Lab director:	4.55%	1.52%	30.3%	25.76%	37.88%

| 1) The Opportunity | 2) The Solution | 3) The Strategic Imperative | 4) The Results | 5) The Capability to Deliver | 6) The Financial Perspective | 7) The Winning Position |

24

Students Are Joining the Journey.

eli² is having a significant impact.

Students are participating in the program elements.

Consistent with the eli² development approach, we added program elements over time. The total level of participation is based on when the program began and the element's intended audience.

| | | Date Program Began | Department | | | | | | Other (Undecided/ Unknown/Non-CECS) | Total Participation |
			CEE	CS	EECE	IEMS	MAE	Material / PS&E		
Technically Sound	Inspire students to Join the Journey (Support Introduction to Engineering EGS 1006/1007)	Fall 2011	0	0	0	0	0	0	14879	**14879**
Creative, Innovative, Collaborative, Accountable	Outreach Events Supported		0	0	0	0	0	0	0	**0**
	Maker Spaces	Fall 2014	384	349	2192	376	4294	23	5717	**13336**
	Senior Design Bootcamp	Fall 2014	0	513	550	282	810	0	80	**2245**
	Engineering Leadership Minor/Certificate (Graduates)	Fall 2014	0	0	0	0	0	0	25	**0**
	Course: Leaders Up Close (EGS 3030/3031)	Fall 2010	136	106	250	97	525	0	26	**1140**
	Course: Engineering Leadership & Innovation (EGS 4624)	Fall 2010 (??)	0	0	1	446	581	0	137	**1165**
	Course: Engineering Leadership Capstone (EGS 4950)	Fall 2016	1	0	2	6	7	0	0	**16**
	Course: Engineering Entrepreneurship (EGS 4641)		0	0	0	0	0	0	0	**0**
	NAE Grand Challenges Competition	Spring 2015 & Fall 2016	3	5	17	7	37	0	0	**69**
	Professional Development Workshops	Fall 2015	0	0	0	0	0	0	96	**96**
Own Your Career	Development Circles		0	0	0	0	0	0	394	**394**
	eli² Interns and Student Committee	Spring 2013	0	2	6	0	16	0	65	**89**
Own A Well-Balanced Life	Community Engagement: Hope & Proud Breakfasts	Fall 2015	0	0	0	0	0	0	320	**320**
Total Participation			**524**	**975**	**3018**	**1214**	**6270**	**23**	**21460**	**33749**

1) The Opportunity

2)

We are Providing a Balanced Portfolio of Awareness, Understanding, and Capability Experiences.

eli² is having a significant impact.

Students believe their practice of a skill has increased. We believe a practice of a skill is enhanced by increasing a student's confidence, knowledge, and desire to practice that skills

We focus on the four key leadership skills:

- Be creative
- Be innovative
- Be collaborative
- Be accountable.

Students are participating in these activities. The start dates for each experience are different. We added experiences over time.

Number of Students Impacted Each Year through the Experience		Build Community	Enhance Awareness	Enhance Understanding	Enhance Capability
	1000s	• Harris Gathering Lab	• Inspire Students to Join the Engineering Journey (via motivational presentation to EGS 1006 Introduction to Engineering course) • Inspire Students to Own their Academic Journey & Provide a Career Roadmap (via motivational presentation to EGS 1007 Introduction to Engineering course)		• Senior Design Boot Camp • Maker Spaces
	100s			• NAE Grand Challenges Competition (in EGS 3030) • Course: Leaders Up Close Seminar Series (EGS 3030/3031)	• Course: Engineering Leadership & Innovation (EGS 4624) • Professional Development Workshops • Development Circles
	10s	• Hope & Proud Breakfasts			• Engineering Leadership Minor/Certificate • Course: Engineering Leadership Capstone (EGS 4950) • Course: Engineering Entrepreneurship (EGS 4641) • Student Leaders/Interns
		Build Community	**Enhance Awareness**	**Enhance Understanding**	**Enhance Capability**
			Intent of the Experience		

1) The Opportunity 2) The Solution 3) The Strategic Imperative 4) The Results 5) The Capability to Deliver 6) The Financial Perspective 7) The Winning Position

26

Maker Spaces: What Do We Want to See and Hear?

eli² is having a significant impact.

We created the Maker Spaces to provide spaces for the students to collaborate while they are being technically sound, creative, innovative, and accountable.

We leveraged existing spaces and utilized them in a more intentional way.

We created spaces to enable students to not have to meet in the hallway.

1) The Opportunity	2) The Solution	3) The Strategic Imperative	4) The Results	5) The Capability to Deliver	6) The Financial Perspective	7) The Winning Position

Maker Spaces: What Do We Want to See and Hear?
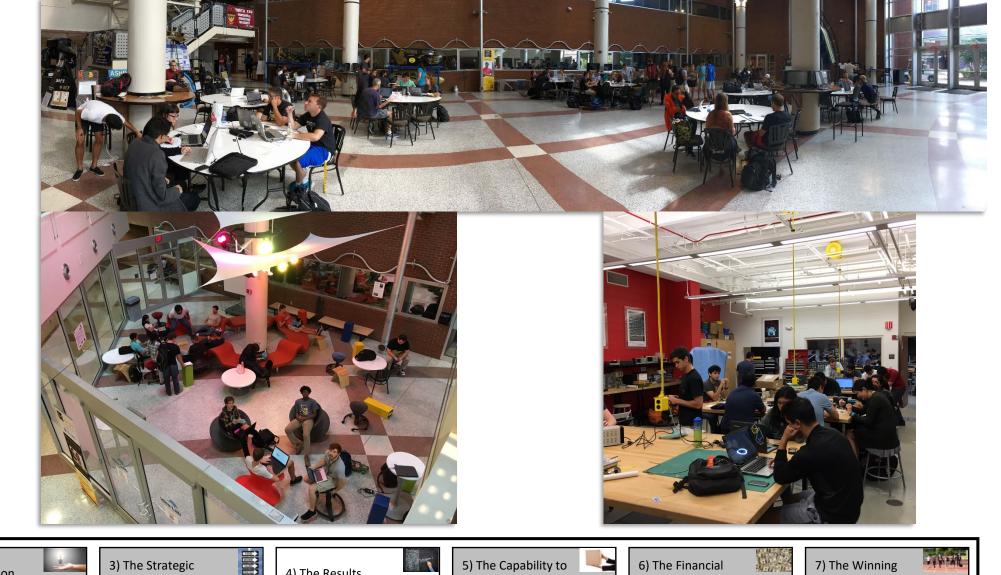
eli² is having a significant impact.

We created the Maker Spaces to provide spaces for the students to collaborate while they are being technically sound, creative, innovative, and accountable.

Students are using the Maker Spaces in a meaningful way.

These images show the Makers Spaces in use.

1) The Opportunity	2) The Solution	3) The Strategic Imperative	4) The Results	5) The Capability to Deliver	6) The Financial Perspective	7) The Winning Position

28
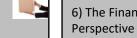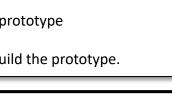
Maker Spaces: They Are Making a Difference

eli² is having a significant impact.

We created the Maker Spaces to provide spaces for the students to collaborate while they are being technically sound, creative, innovative, and accountable.

Students are using the Maker Spaces in a meaningful way.

The students identified the uses of the Maker Spaces:

1) Provide a space to work on class homework
   - Alone
   - With a group of students.

2) Support class and professional projects
   - Freshman class projects
   - Class projects throughout a student's career
   - Joint project design space with the Visual Arts & Design industry-based projects
   - Senior design projects
   - Professional society design projects (e.g., AIAA)
   - Community support projects (e.g., FIRST robotics, Bithlo Community Bookshelf)
   - Student driven projects
   - MSEM cohort working lab for creativity session.

3) Provide a place to study
   - Alone
   - As a group.

4) Explore new products
   - Critically think about a product
   - Define the purpose of the prototype
   - Define what you want to test with the prototype
   - Build a prototype
   - Identify the best way (equipment) to build the prototype.
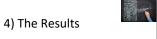
1) The Opportunity	2) The Solution	3) The Strategic Imperative	4) The Results	5) The Capability to Deliver	6) The Financial Perspective	7) The Winning Position

We Have Built a Sustainable Organization.

We have built a robust, sustainable capability.

We have built over 41 products/processes across 11 organizational outcomes.

These processes and products leave a robust capability for the program to last beyond 1-2 people.

Outcomes	Products		
1) Created a Laser-Focused, Interconnected Curriculum Based on Industry Needs & Best Practices	1) Informal benchmarking 2) Survey of other institutes 3) Skills survey 4) Senior design skills industry analysis		
2) Established Minor & Certificate	5) Revised Minor 6) Created Certificate		
3) Developed New Courses	7) Leader's Up Close (EGS 3030/3031) 8) Engineering Leadership & Innovation (EGS 4624) 9) Engineering Leadership Capstone (EGS 4950) 10) Engineering Entrepreneurship (EGS 4641)		
4) Built the Maker Spaces	11) Harris Gathering Lab 12) Idea Lab 13) TI Innovation Lab		
5) Developed Professional Development Workshops	**Awareness (1006 & 1007)** 14) "The New Engineer's Leadership Skills: You Have a Choice on the Type of Engineer You Want to Be" (Kotnour) 15) "You Have a Choice to Be the CEO Today" (Kotnour) 16) Learn Everything you can about Everything...(Including Art, Philosophy, Psychology) (Hoekstra) 17) "Technology Entrepreneurship - Lessons From Silicon Valley" (Rodriguez)	**Understanding & Capability** 18) Google Sprint Process & NAE Grand Challenges 19) The Role of Vulnerability in Engineering 20) Accountability 21) Professional Mission Statement 22) Professional Strategic Plan 23) "My Beliefs that Guide My Drive and Search for Dignity and Significance" (Kotnour) 24) "Calculate but above all Create" (Hoekstra) 25) "Passion Not Position" (Hoekstra) 26) Workshop Series: Sales Engineering 1 & 2	**Capability** 27) Senior Design Boot Camp 1 & 2 28) Development Circles
6) Built Guidance Packages for Industry Involvement	29) Leaders Up Close Speakers Package 30) Development Circles: What They Are and Are Not		
7) Built Student Resources	31) Career Roadmap (Share in EGS 1006/1007) 32) Career Self-Assessment and Planning Guide (for use in Development Circles)		
8) Built a Student Led Team—that Leads the College	33) eli² Interns and Student Committee		
9) Built Community Building Experiences	34) Hope Breakfast 35) Proud Breakfast		
10) Established the Infrastructure to Run	36) Established strategic plan 37) Created assistant director position 38) Established semester operating plans 39) Documented process in an "Undergraduate Playbook"		
11) Built a Robust Assessment Process	40) Capability/readiness scorecard 41) Impact assessments completed for Courses, Workshops, Boot camps, Labs		

1) The Opportunity 2) The Solution 3) The Strategic Imperative 4) The Results 5) The Capability to Deliver 6) The Financial Perspective 7) The Winning Position

We Continue to Define, Deliver, Measure, and Refine the Program With our Partners.

We have built a robust, sustainable capability.

We have built over 41 products/processes across 11 organizational outcomes.

Our approach continues to be one of iterative development:

- Paint the vision
- Experiment with an element
- Learn from the experiment
- Improve the element
- Add a new element.

We used this philosophy to grow both the number of and maturity of the experiences.

Objective	Program Element	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012	Spring 2013	Fall 2013	Spring 2014	Fall 2014	Spring 2015	Fall 2015	Spring 2016	Fall 2016	Spring 2017	Fall 2017
Technically Sound	Inspire Students to Join the Journey (Support 1006/1007)			🟦	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩
Creative, Innovative, Collaborative, Accountable	Maker Spaces									🟦	🟩	🟩	🟩	🟩	🟩	🟩
	Senior Design Boot Camp									🟦	🟩	🟩	🟩	🟩	🟩	🟩
	NAE Grand Challenges Competition										🟦			🟦	🟩	🟩
	Minor/Certificate									🟦	🟩	🟩	🟩	🟩	🟩	🟩
	Leaders Up Close (3030/3031)	🟦	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩
	Engineering Leadership & Innovation (EGS 4624)		🟦	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩
	Engineering Leadership Capstone (EGS 4950)													🟦	🟩	🟩
	Engineering Entrepreneurship (EGS 4641)															
Own Your Career	Professional Development Workshops									🟦	🟩	🟩	🟩	🟩	🟩	🟩
	Development Circles											🟦	🟦	🟩	🟩	🟩
	eli² Student Leaders						🟦	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩
Own a Well-Balanced Life	Community Engagement: Hope & Proud Breakfast													🟦	🟩	🟩

1) The Opportunity 2) The Solution 3) The Strategic Imperative 4) The Results 5) The Capability to Deliver 6) The Financial Perspective 7) The Winning Position
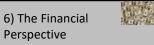
The eli² Winning Position Comes from Multiple Views.

eli² is "winning" with our students and our corporate partners.

In thinking about and describing our winning position, we believe it is best described by:

1) Students enhancing their employability.

2) Students giving back to their peers.

3) Students finding value in the program.

4) Industry's willingness to actively participate in the program.

5) Industry being positively impacted by participating in the program.

This section highlights these wins.
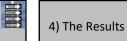
Win Position 1: Students Enhancing their Employability

Win Position 2: Students Giving Back to Their Peers
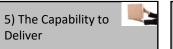
Win Position 3: Students Finding Value in their Experience
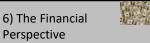
Win Position 4: Industry Actively Participating in and Supporting the Program
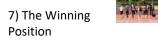
Win Position 5: Industry being Impacted from their Participation in the Program
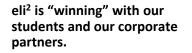
| 1) The Opportunity | 2) The Solution | 3) The Strategic Imperative | 4) The Results | 5) The Capability to Deliver | 6) The Financial Perspective | 7) The Winning Position |

32

Our Students' Stories Demonstrate How We are Enabling Multiple, Unique Pathways to Success.

eli² Engineering Leadership & Innovation Institute at UCF

eli² is "winning" with our students and our corporate partners.

Our students' stories demonstrate how we are enabling multiple, unique pathways to success.

Name: Jonell Gregor
Major: B.S. Mechanical Engineering
Case Example: EGS 3030 and Development Circles Mentor

Testimonial: "*My favorite part of the series was hearing the different stories of leadership from each speaker and the uniqueness of the paths they were on. The series exposed me to many of the leadership styles I use today in both my career and my extracurricular activities. This series planted seeds that have led to many "aha" moments throughout my career. As a mentor with the Development Circles, I hope I am planting those seeds to my group that were planted for me through eli² and the many mentors I have.*"

Occupation: Project Planner, Walt Disney World

Name: Michael Herman
Major: B.S. Civil Engineering
Case Example: A part of first EGS 3030 class and now a Development Circles Mentor

Testimonial: "*Working with the students over the past semesters has been as beneficial to me as it has been to them. While only three short years ago I was completing the paper-work for my own Senior Design project, it is easy to forget the uneasiness and sometimes anxiety that accompanies the jump from academia to Industry. With programs like this one that the University offers, this transition is becoming much less of a jump and much more of a step forward. I am so happy and honored that I can be a part of it.*"

Occupation: Construction Manager, Walt Disney Imagineering

Name: Gillian Werner
Major: B.S Aerospace Engineering
Case Example: eli² Students Leaders – Director of Interns (17-18)

Testimonial: "e*li² has given me the confidence to develop professionally and has significantly enhanced my leadership ability. It has given me an entirely different skillset than my classes to make me a much more well-rounded and capable engineer. The opportunity to jumpstart your career in technical leadership is incredibly valuable, and I could not be more thankful to eli² for giving our students that opportunity.*"

Occupation: Project Engineer, Lockheed Martin

Name: Dillon Martin
Major: B.S. Mechanical Engineering
Case Example: EGS 3030/3031 & Development Circles

Testimonial: "*eli² gave me the opportunity to learn from people with a variety of different backgrounds and broke the barriers between students and upper management. This allowed me to decide what I wanted my future to look like and exactly what I needed to do in order to make it happen. The community of people that eli² has brought together has helped me land jobs and internships and has given me contacts that will continue to benefit me years after graduation. I can honestly say I wouldn't be where I am today without eli².*"

Occupation: Test Equipment Engineer at SpaceX (Mars program)

Name: Kristina Revueltas
Major: B.S. Mechanical Engineering
Case Example: eli² Student Intern

Testimonial: "*eli² has provided me with many opportunities to develop myself both professionally and personally. Participating in this program and all that it has to offer has allowed me to discover my passions in engineering and learn how to effectively work in a team. More importantly, eli² contributed towards many beneficial experiences and gaining valuable friends that made me the engineer I am today.*"

Occupation: Project Engineer, ZIO

Name: JC Perez
Major: B.S. Mechanical Engineering
Case Example: eli² Student Leaders – Director of Interns (14-15, 15-16)
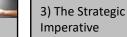
Testimonial: "*eli² offered me an opportunity to succeed as a student and as an engineer. Being a part of eli² gave me access into lessons learned from Leaders in Engineering that shaped my professional and personal life. It taught me that my skills could change the world. Lastly, eli² offered me a place to meet like-minded students allowing me to collaborate outside of my engineering major.*"

Occupation: Project Engineer, Belcan

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1) The Opportunity	2) The Solution	3) The Strategic Imperative	4) The Results	5) The Capability to Deliver	6) The Financial Perspective	7) The Winning Position

Win Position 1:
Students Enhancing their Employability

eli² is "winning" with our students and our corporate partners.

As part of our efforts to help students "Own Their Academic Career", we provide them with a scorecard for 10 major responsibilities they need to take care of.

This image shows the scorecard. The next page highlights the eli² student interns' scorecards.

Make the Choice to be An Engineering Leader (Spring 2017)
Tim Kotnour, Director, UCF Engineering Leadership & Innovation Institute

| 1) The Opportunity | 2) The Solution | 3) The Strategic Imperative | 4) The Results | 5) The Capability to Deliver | 6) The Financial Perspective | 7) The Winning Position |

Win Position 1:
Students Enhancing their Employability—eli² Student Interns

eli² is "winning" with our students and our corporate partners.

As seen by these scorecards, these students have enhanced their employability.

The students are taking the practical, real steps to increase their employability.

Responsibility	Student 1 (Director of Interns)	Student 2	Student 3	Student 4	Student 5	Student 6
1) Learn the Most from Your Engineering Courses	Gold (3.5 or better GPA)	Gold (3.5 or better GPA, research with Professor and TA)	Bronze (3.0 GPA)	Bronze (3.0 GPA)	Silver (3.2 GPA)	Gold (3.5 or better GPA, research with Professor)
2) Expand Your Network and Resources	Gold	Gold	Gold	Silver	Silver	Gold
3) Learn from Life Experiences	Gold	Gold	Silver	Gold	Bronze	Silver
4) Experiment with Creating and Innovating	Gold	Gold	Gold	Gold	Gold	Gold
5) Gain Relevant Work Experiences	Gold (Lockheed Martin internship and Air Force Research Labs internship)	Bronze (Research assistant for UCF CREOL optical ceramics group, Kel-Tech CNC)	Gold (Univision internship, UCF facilities internship, Zio internship)	Gold (Disney project management internship, Disney current attractions internship)	Bronze	Bronze (Math research modeling multiple sclerosis)
6) Learn from Leadership Courses	Bronze	Bronze	Bronze	Gold (Engineering Leadership Minor)	Bronze	
7) Learn from Leaders – Pathway & Peer Mentors	Gold (Development Circles, Mentor)	Gold (Development Circles, Mentor)	Gold (Development Circles, Mentor)	Silver	Gold (Development Circles, Mentor)	
8) Reflect on Yourself and Your Experiences	Gold	Gold	Gold	Gold	Gold	Gold
9) Ensure you are Mentally, Physically, Emotionally Well						
10) Join the Leadership Journey	Gold	Gold	Gold	Gold	Gold	Gold
Job Result	Lockheed Martin Project Engineer	Graduate School	ZIO Project Engineer			

1) The Opportunity	2) The Solution	3) The Strategic Imperative	4) The Results	5) The Capability to Deliver	6) The Financial Perspective	7) The Winning Position

eli² is "winning" with our students and our corporate partners.

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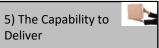
Responsibility	Student 7	Student 8	Student 9	Student 10
1) Learn the Most from Your Engineering Courses	Gold (3.5 or better GPA)	Bronze (3.0 GPA, research with Professor)	Silver (3.2 GPA)	Gold (3.5 or better GPA)
2) Expand Your Network and Resources	Gold	Gold	Silver	
3) Learn from Life Experiences	Silver	Bronze	Gold	Silver
4) Experiment with Creating and Innovating	Bronze	Gold	Bronze	Gold
5) Gain Relevant Work Experiences	Bronze		Gold (Fiserv internships, Siemens internship)	Silver (Mitsubishi power internship)
6) Learn from Leadership Courses	Bronze (Engineering Leadership Minor)	Bronze	Bronze	
7) Learn from Leaders – Pathway & Peer Mentors			Gold	Silver
8) Reflect on Yourself and Your Experiences	Gold	Bronze	Gold	Bronze
9) Ensure you are Mentally, Physically, Emotionally Well				
10) Join the Leadership Journey	Silver	Silver	Silver	Silver
Job Result				

1) The Opportunity	2) The Solution	3) The Strategic Imperative	4) The Results	5) The Capability to Deliver	6) The Financial Perspective	7) The Winning Position

Win Position 2:
Students Giving Back to Their Peers—eli² Student Leaders (Interns and Student Committee)

eli² is "winning" with our students and our corporate partners.

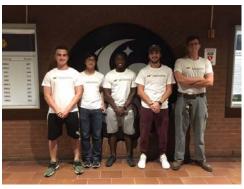We established the eli² student leaders committee. Their mission is:

- To be leaders in the classroom and inspire students to deliver world-changing solutions by being more creative, innovative, collaborative, and accountable.

A summary of their activities is provided.

Aim	Activities	Impact
Inspire Students	Educational Outreach Projects	Impacted younger generation at events like STEM Day and National Engineers Week
	eli² Maker Space Tours	Provided an inside understanding of the eli² resources available to students here at UCF
Collaborate with Other Disciplines	Student Panel of Engineering and Computer Science (SPECS) Meetings	Assisted student organizations to operate meetings and encourage collaboration
	National Engineers Week at UCF	Hosted events with other engineering clubs, local schools, Orlando Science Center, and NASA
	CECS Club Showcase	Organizing CECS student organizations to showcase themselves to students wanting more of an opportunity to be involved
Mentor Peers	Development Circles	Enabled networking and mentorship between industry and students
	Hope & Proud Breakfasts	Provided the opportunity for students and industry to set goals for the semester and reflect on what they've accomplished, community building and career management
Build up Fellow Leaders	NAE Grand Challenges Program	Provided the opportunity for students to gain experience in critical thinking and bringing different disciplines together to work towards a common objectives
	Leaders Up Close Seminar Series	Opportunity for students to learn from leadership insight and past experiences, connecting with industry
	Lead eli² Student Committee	Recruiting and mentoring members while continuing to grow fellow students leaders I the eli² program

2017-2018 Intern Team
Left to Right: Chandler Brothers, Benneth Rejuso, Matt Julian, Gillian Werner (Director of Interns), Kristina Revueltas
Not pictured: Brooke Papa, Jason Burns
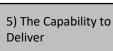

2017-2018 Student Committee
Left to Right: Khanh Vo, Kenneth Mitchell Jr., Vicente Antonorsi, Casey Brennan, Not pictured: Wade McDonald, Chase Mildner, Corey Brecher

1) The Opportunity	2) The Solution	3) The Strategic Imperative	4) The Results	5) The Capability to Deliver	6) The Financial Perspective	7) The Winning Position

Win Position 3:
Students Finding Value in their Experience

eli² is "winning" with our students and our corporate partners.

Our corporate partners are sharing their energy. From their participation, the industry folks have felt a positive impact in their life.

Provided are a set of quotes about the impact on a student's life.

Seminar Series

- Through the Seminar Speaker Series, leaders in engineering fields are able to organically communicate their stories. The conversational aspect of the presentations makes the experience invaluable. When class meets outside of the speaker days, important information about how to logistically prepare for these careers is given by various departments on campus. In my personal experience, this program has made an incredible impact on my professional development and confidence in my future. – Brooke Papa

- The seminar series has really helped guide my academic career. The advice given by industry speaker has helped me form the ideals that are important to me. – eli² student

Development Circles

- Through the mentorship and encouragement of industry mentors I met through the development circles program and other students on the eli² team, I was able to secure an internship with the Air Force Research Labs and later an internship with Lockheed Martin working in chief engineering. These two opportunities let me apply the knowledge I've gained from my college experiences to learn about how industry operates. – Gillian Werner

- The passion and insight my mentor has brought to our meetings has bolstered my confidence in my ability and provided a clearer look into professional life. – eli² student

Maker Spaces

- The maker spaces that are available to us as students are an excellent resource. They not only provide physical resources to help us learn how to prototype but also allow us to bring our ideas off paper and into life. This is also an opportunity to collaborate and discuss ideas with other students and also with the knowledgeable people who are employed there to help students. - Matt Julian

Senior Design Boot Camp

- The senior design boot camp helped not only myself but also my team by creating relationships founded on values that will push us to create a successful senior design project and allowed us to have fun while doing it. – eli² student

- The senior design boot camp helped us develop the foundation and management structure our team needed to have a successful senior design project. We have been able to carry the lessons learned in boot camp throughout our project efforts to address issues as they come up and work through the various problems we've faced. – eli² student

Engineering Leadership & Innovation (EGS 4624)

- I truly enjoyed how passionate the professor was towards the class. He took the time to really provide the students with opportunities that would better their innovative potentials. He encouraged us to think differently and taught us ways to improve our abilities. He really changed my way of thinking and I truly enjoyed this class because of him. – CECS Student

| 1) The Opportunity | 2) The Solution | 3) The Strategic Imperative | 4) The Results | 5) The Capability to Deliver | 6) The Financial Perspective | 7) The Winning Position |

Win Position 4: Industry Actively Participating in and Supporting the Program

eli² is "winning" with our students and our corporate partners.

Our corporate partners are sharing their energy: The Walt Disney Company, Siemens, Lockheed Martin, NASA/Kennedy Space Center.

Industry speakers give their time, energy, and wisdom to our students. Their inspiration has a life-long impact.

Shown to the right are the speakers who have participated in our seminar series.

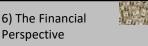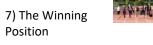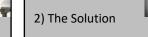| 1) The Opportunity	2) The Solution	3) The Strategic Imperative	4) The Results	5) The Capability to Deliver	6) The Financial Perspective	7) The Winning Position

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Our corporate partners are sharing their energy: The Walt Disney Company, Siemens, Lockheed Martin, NASA/Kennedy Space Center.

Industry speakers give their time, energy, and wisdom to our students. Their inspiration has a life-long impact.

Shown to the right are the mentors who have participated in our development circles.
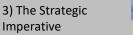
	2015-2016 Development Circles Mentors	2016-2017 Development Circles Mentors	2017-2018 Development Circles Mentors	
Sponsors	- Siemens - Walt Disney World - Boeing - Nielsen	- Siemens - Walt Disney World - Boeing - Nielsen	- Siemens - Walt Disney World - Boeing - Nielsen - CECS Alumni Chapter	
Mentors	- Linda Herrera (Boeing) - Kelly Lai (Boeing) - Brian McNally (Boeing) - Nick Newell (Boeing) - Brian Walters (Disney) - Jeff Piggrem (Disney) - Bob Beaver (Disney) - Jordan Kimelman (Disney) - Stanely Woodruff (Nielsen) - Josh Langley (Nielsen) - Cheryl Boddiford (Siemens) - Juan Lopez (Siemens) - Pamela Caraballo (Siemens)	- Andres Monsalve (Siemens) - Cheryl Boddiford (Siemens) ** - Jitin Patel (Nielsen) - Raghu Ranganathan (Nielsen) - Bob Beaver (Disney) ** - Michael Herman (Disney) - Jeff Piggrem (Disney) ** - Kelly Lai (Boeing) ** - Brian McNally (Boeing) ** - Nick Newell (Boeing) **	- Justin Fahnestock (Nielsen) - Jonell Gregor (Disney) - Bob Beaver (Disney) *** - Michael Herman (Disney) *** - Jeff Priggrem (Disney) *** - Kelly Lai (Boeing) *** - Brian McNally (Boeing) *** - Nick Newell (Boeing) *** - Micha Schwappach (Siemens) - Monica Boesen (Siemens) - Asa Cervone (Siemens) - Deborah Wutter (Siemens) - Terry Gorski (Siemens)	- Jenifer Hammel (Siemens) - Julie Leonen (Siemens) - Ricky Ly (CECS Alumni Chapter) - Cheryl Jordahl (CECS Alumni Chapter) - Phil Kruse (CECS Alumni Chapter) - Dusan Kuzmanovic (CECS Alumni Chapter) - Michael Ferrante (CECS Alumni Chapter) - VB Joshi (CECS Alumni Chapter) - Brooke Myers (CECS Alumni Chapter) - Sondra Kennett (CECS Alumni Chapter)

Note: The number of ** after the names indicates the number of years they have mentored in the program.
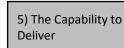
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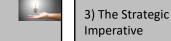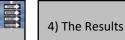
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Win Position 5:
Industry being Impacted from their Participation in the Program

eli² is "winning" with our students and our corporate partners.

Our corporate partners are sharing their energy. From their participation, the industry folks have felt a positive impact in their life.

This note is an example of the impact industry partners are gaining from the experience.

December 2016

Working with the students this past semester, I was so proud to see the growth in the University, the department, and the eli² program over just the past few years.

During my Senior year at UCF, I discovered and participated in the newly formed Leadership in Engineering program. At that time, the opportunity was a guest lecture by an industry leader every few weeks followed by a personal write-up. This program had a huge impact in how I looked at companies I would like to work for. It gave me real world examples of identifying company cultures and ensuring they matched my own goals and morals. Having this understanding prior to graduation prepared me immensely for my career which was to follow.

I graduated with a Civil Engineering degree from UCF in 2013 and immediately began a career with Walt Disney Imagineering. Moving to the west side of Orlando, I really never made it back to the UCF campus following my graduation ceremony. While working at WDI, I completed an MS degree in Civil Engineering through the University of Washington as well as spent a year in Asia supporting the Shanghai Disney Resort project. Recently upon repatriating, I began to look for opportunities to become involved with the engineering program at UCF. I discovered the eli² program had expanded and there was a need for industry mentors. I jumped at the chance and am so glad I did.

Working with the students this past semester has been as beneficial to me as it has been to them. While only three short years ago I was completing the paper-work for my own Senior Design project, it is easy to forget the uneasiness and sometimes anxiety that accompanies the jump from academia to Industry. With programs like this one that the University offers, this transition is becoming much less of a jump and much more of a step forward. I am so happy and honored that I can be a part of it.
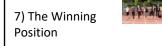
Michael Herman

1) The Opportunity	2) The Solution	3) The Strategic Imperative	4) The Results	5) The Capability to Deliver	6) The Financial Perspective	7) The Winning Position

Executive Summary:
The eli^2 Undergrad Program Delivers on the Business Case.

To describe the eli^2 undergraduate program, we use the business case. This model is explained further in a few pages.

As can be seen from this summary, the program delivers a solution defined by the opportunity and strategic imperative.

In summary, the eli^2 undergrad program (eli^2 UGP) has seven strategic advantages for our industry partners and UCF:

1) **The eli^2 UGP helps our stakeholders close a skills gap in undergraduate engineering, computer science, or information technology students.** Our stakeholders are looking for us to help our students enhance their confidence, desire, and knowledge to:
   1) Be technically sound
   2) Be creative, innovative, collaborative, accountable
   3) Be the owners of their career
   4) Be the owners of a well-balanced life.

Be Technically Sound	Be More Creative, Innovative, Collaborative, and Accountable	Be the Owner of Their Academic Career & Balanced Life
• Awareness Briefings on the Craft of Engineering	• Engineering Leadership Minor/Certificate • Leaders Up Close • Maker Spaces • Senior Design Boot Camp	• Development Circles with Self-Assessment & Planning Guides • Academic Career Roadmaps • Professional Workshops

2) **The eli^2 UGP delivers the unique "All Get Some, Some Get All" integrated program.** The program provides opportunities across four years. The UCF Maker Spaces are an integral part of the program.

2) **The eli^2 UGP is strategic for our stakeholders.** The strategic opportunity for
   • Our corporate partners is a predictable stream of high-quality graduates
   • Our students is being employable when they graduate
   • UCF is to provide "The best undergraduate education available in Florida" and be "America's leading partnership university".

4) **The eli^2 UGP is having a significant impact.** We are providing a balanced portfolio of awareness, understanding, and capability experiences. Since Fall 2010,
   • 33,000+ student experiences
   • 80% reported an increase in their creativity practice (confidence, knowledge, and desire) (based on over 1000 survey responses)
   • 78% reported an increase in their innovation practice (confidence, knowledge, and desire) (based on over 1000 survey responses)
   • 79% reported an increase in their collaboration practice (confidence, knowledge, and desire) (based on over 1000 survey responses)
   • 72% reported an increase in their accountability practice (confidence, knowledge, and desire) (based on over 1000 survey responses)
   • 84% reported an increase in their solution delivery practice (confidence, knowledge, and desire) (based on over 1000 survey responses).

5) **We have built a robust, sustainable capability.** We have built over 41 products/processes across 11 organizational outcomes. Our partners are the key to success. We continue to be strategic, creative, innovative, collaborative, and accountable to deliver and refine the program.

6) **The eli^2 UGP is fiscally stable and responsible.** Our corporate partners are financially supporting us: Duke Energy, Harris Corporation, and Texas Instruments. The MSEM Cohort Program supports our undergraduate efforts.

7) **The eli^2 UGP is "winning" with our students and our corporate partners.** Our students' stories demonstrate how we are enabling multiple, unique pathways to success. Our corporate partners are sharing their energy: Boeing, Kennedy Space Center, Lockheed Martin, Nielsen, Siemens, and The Walt Disney Company.

Thank you to our Sponsors:

We Are Sharing the eli^2 Undergrad Story at Multiple Levels.

eli^2
Engineering Leadership
& Innovation Institute at UCF

This report provides a description and assessment of the undergraduate "All Get Some, Some Get All" program within UCF's Engineering Leadership and Innovation Institute (eli^2).

The report is divided into 4 sections. Each successive section provides further detail.

This current "The Implementation" section provides:

- A description of the overall program

- A one-page description of each of the program elements.

Our Stakeholders are Looking for Us to Enhance the Employability of Our Undergraduate Students.

eli² helps our stakeholders close a skills gap in undergraduate engineering, computer science, or information technology students.

Our stakeholders are looking for us to help our students enhance their confidence, desire, and knowledge to:

1) Be technically sound
2) Be creative, innovative, collaborative, and accountable
3) Be the owners of their career
4) Be the owners of a well-balanced life.

Within eli², we focus on the items highlighted in red. We recognize the core disciplines focus on building technically sounds students. We reinforce the need to be technically sound in all that the student does.

The core disciplines focus on this, eli² reinforces the need for this

eli² reinforces the need for this and provides a few experiences to support this

eli² provides specific experiences to enhance this

eli² provides specific experiences to enhance this

1) Technically Sound

2) Creative, Innovative, Collaborative, & Accountable

Deliver World-Changing Solutions & Be Employable

4) The Owner of a Well-Balanced Life

3) The Owner of Your Career

We Deliver the "All Get Some, Some Get All" Integrated Program Across Four Years Supported by the Maker Spaces to Help Students be…

eli² delivers the unique "All Get Some, Some Get All" integrated program.

To meet the four objectives, we offer a set of specific experiences for our students.

The specific experiences are listed for each of the objectives. Each experience is further described in the next section.

1) Technically Sound

- Inspire Students to Join the Journey (Support 1006/1007)

2) Creative, Innovative, Collaborative, & Accountable

- Maker Spaces
- Senior Design Boot Camp
- NAE Grand Challenges Competition
- Engineering Leadership Minor/Certificate
- Course: Leaders Up Close (3030/3031)
- Course: Engineering Leadership & Innovation (EGS 4624)
- Course: Engineering Leadership Capstone (EGS 4950)
- Course: Engineering Entrepreneurship (EGS 4641)

Deliver World-Changing Solutions & Be Employable

4) The Owner of a Well-Balanced Life

- Hope & Proud Breakfasts
- Professional Development Workshops

3) The Owner of Their Academic Career

- Development Circles
- Career Self-Assessment and Planning Tools
- Professional Development Workshops

eli² delivers the unique "All Get Some, Some Get All" integrated program.

As shown in the graphic to the right, the "All Get Some, Some Get All" provides the opportunity for:

1) All students to get some base level of exposure to the concepts

2) Some students to dig deeper and get all of the concepts.

The program provides opportunities across four years.

Each Program Element Has a Specific Purpose

eli² delivers the unique "All Get Some, Some Get All" integrated program.

We define a set of program elements to support each of the four objectives.

Each of the program elements are described by the:

- Intent of the program:
  - Awareness
  - Understanding
  - Capability

- The number of students impacted by the element.

These program elements provide a balanced portfolio of activities for all of our students.

Objective	Program Element	Description	Intent	Magnitude
Technically Sound	Inspire Students to Join the Journey (Support Introduction to Engineering EGS 1006/1007)	Presentations are provided to the introduction to Engineering course that is mandatory for all freshman. The eli² presentations focus on inspiring the students about 1) the crucial role engineering plays in our everyday life and 2) the need to take ownership of their academic life. A roadmap and scorecard are provided to the students.	Awareness	1000s
Creative, Innovative, Collaborative, Accountable	Maker Spaces	Four labs make up the Maker Spaces: • Harris Gathering Lab—place for students to collaborate with each other • Idea Lab—place for students to work in a creative space • TI Innovation Lab—place for students to build prototypes. • Manufacturing Lab—a space for students to convert their prototypes to the next higher level of fidelity.	Capability	100s
	Senior Design Boot Camp	An interactive workshop to senior designs teams that provides the teams with creativity, innovation, collaboration, and accountability tools to use on their senior design projects. We offer two experiences: a project kickoff at the start of senior design 1 and a project check-in at the start of senior design 2.	Capability	1000s
	Engineering Leadership Minor/Certificate	Series of courses to help students develop their Engineering Leadership skills and capabilities.	Capability	10s
	Course: Leaders Up Close (EGS 3030/3031)	This seminar series course focuses on helping students build their creativity, innovation, and ethics skills. It includes • Leaders from industry and the university sharing their leadership story and lessons learned • Professional development workshops • NAE Grand Challenges competition • Development Circles.	Understanding	100s
	Course: Engineering Leadership & Innovation (EGS 4624)	This course focuses on helping students build their creativity, innovation, and ethics skills.	Capability	100s
	Course: Engineering Leadership Capstone (EGS 4950)	Final course in the Engineering Leadership Certificate/Minor in which students reflect on their academic career, develop a roadmap to their future, and build their approach for delivering solutions in their workplace. The course is highly interactive and student driven.	Capability	10s
	Course: Engineering Entrepreneurship (EGS 4641)	This course focuses on helping students build their entrepreneurship skills including the focus on understanding the customer's true needs.	Capability	100s
	NAE Grand Challenges Competition	Teams of 3 to 4 students use the Google Sprint process to understand global challenges defined by the National Academy of Engineering. The students use the Google Sprint process to develop a cool way to solve our world's grand challenges.	Capability	100s
	Professional Development Workshops	Provide additional skills and insights for our students related to creativity, innovation, collaboration, accountability, and career management.	Capability	10s
Own Your Career	Professional Development Workshops	Provide additional skills and insights for our students related to creativity, innovation, collaboration, accountability, and career management.	Capability	10s
	Development Circles	A year-long mentoring program with industry partners working with small groups of students.	Capability	10s
	eli² Interns and Student Committee	This group supports eli² activities and provides an opportunity for students to enhance their creativity, innovation, collaboration and accountability skills through direct applications and projects.	Capability	10s
Own a Well-Balanced Life	Community Engagement: Hope & Proud Breakfast	A community building event to gather students to help encourage planning for success (Hope breakfast at the start of the semester) and celebrate learnings and success (Proud breakfast at the end of the semester).	Awareness	100s
	Professional Development Workshops	Provide additional skills and insights for our students related to creativity, innovation, collaboration, accountability, and career management.	Capability	10s

We are Providing a Balanced Portfolio of Community Building, Awareness, Understanding, and Capability Experiences.

eli² is having a significant impact.

We think of our experiences based on two factors:

- Number of Students Impacted Each Year through the Experience

- Intent of the Experience.

This balance of experiences gives us the ability to live our focus of "All Get Some, Some Get All". We expose all students to a base level of awareness and understanding. The "Some Get All" students self select to enhance their capabilities to a deeper level.

We are providing a balanced portfolio of community building, awareness, understanding, and capability experiences.

The intent (awareness, understanding, and capability) concept is from taken from Kolb.

		Build Community	Enhance Awareness	Enhance Understanding	Enhance Capability
Number of Students Impacted Each Year through the Experience	**1000s**	• Harris Gathering Lab	• Inspire Students to Join the Engineering Journey (via motivational presentation to EGS 1006 Introduction to Engineering course) • Inspire Students to Own their Academic Journey & Provide a Career Roadmap (via motivational presentation to EGS 1007 Introduction to Engineering course)		• Senior Design Boot Camp • Maker Spaces
	100s			• NAE Grand Challenges Competition (in EGS 3030) • Course: Leaders Up Close Seminar Series (EGS 3030/3031)	• Course: Engineering Leadership & Innovation (EGS 4624) • Professional Development Workshops • Development Circles
	10s	• Hope & Proud Breakfasts			• Engineering Leadership Minor/Certificate • Course: Engineering Leadership Capstone (EGS 4950) • Course: Engineering Entrepreneurship (EGS 4641) • Student Leaders/Interns
		Build Community	**Enhance Awareness**	**Enhance Understanding**	**Enhance Capability**
			Intent of the Experience		

Maker Spaces

Each element in the program has a specific role in the overall "All Get Some, Some Get All" program.

We deploy specific learning strategies and resources to meet the specific role.

In some cases we provide support tools to both our students and the industry partners participating in the experience.

The UCF Maker Spaces are an integral part of the program.

The UCF Maker Spaces includes:

1) **The Harris Gathering Lab**: a space for students to collaborate and forge relationships

2) **The Idea Lab**: a space for students to ideate and collaborate on projects

3) **The Texas Instruments Innovation Lab**: a space for students to collaborate in creating and innovating to build prototypes

4) **The Manufacturing Lab**: a space for students to convert their prototypes to the next higher level of fidelity.

Program Element	Description	Objective	Intent	Magnitude	Assessment Approach
Maker Spaces	Four labs make up the Maker Spaces: • Harris Gathering Lab—a space for students to collaborate with each other • Idea Lab—a space for students to work in a creative space • TI Innovation Lab—a space for students to build prototypes • Manufacturing Lab—a space for students to convert their prototypes to the next higher level of fidelity.	C-I-C-A	Capability	100s	End of Semester Survey

Implementation Details

Student & Industry Support Tools

Engineering Leadership Minor/Certificate

Each element in the program has a specific role in the overall "All Get Some, Some Get All" program.

We deploy specific learning strategies and resources to meet the specific role.

In some cases, we provide support tools to both our students and the industry partners participating in the experience.

Program Element	Description	Objective	Intent	Magnitude	Assessment Approach
Engineering Leadership Minor/Certificate	Series of courses to help students develop their Engineering Leadership skills and capabilities.	C-I-C-A	Capability	10s	Each course

Implementation Details : Catalog year starting Summer 2018

Focus Area	Courses	
Required Courses	**MINOR** • Discipline specific design course in Engineering or Computer Science or CAP 4102 for Information Technology majors • LDR 2001 Foundations of Leadership (2 hrs) • LDR 2002 Intermediate Foundations of Leadership (2 hrs) • EGS 3030 Leadership in Engineering I (0 hrs) • EGS 3031 Leadership in Engineering II (0hrs) • EGS 4950 Engineering Leadership Capstone (3 hrs)	**CERTIFICATE** • Discipline specific design course in Engineering or Computer Science or CAP 4102 for Information Technology majors • EGS 3030 Leadership in Engineering I (0 hrs) • EGS 3031 Leadership in Engineering II (0hrs) • EGS 4950 Engineering Leadership Capstone (3 hrs)
Electives Minor: Pick 3 electives Certificate: Pick 2 electives	• EGS 4624 Engineering Innovation and Leadership (3 hrs) • MAN 3025 Management of Organizations (3 hrs) • MAR 3391 Professional Selling (3 hrs) • PHI 3638 Ethical Issues in the 21st Century (3 hrs) OR PHI 3266 Advanced Ethics in Science and Technology (3 hrs) • ENT 4183 Technological Entrepreneurship (3 hrs) OR EGN 4641C Engineering Entrepreneurship (3 hrs)	

Student & Industry Support Tools

Course: Leaders Up Close Seminar Series (EGS 3030 and 3031)

Each element in the program has a specific role in the overall "All Get Some, Some Get All" program.

We deploy specific learning strategies and resources to meet the specific role.

In some cases, we provide support tools to both our students and the industry partners participating in the experience.

Program Element	Description	Objective	Intent	Magnitude	Assessment Approach
Course: Leaders Up Close (3030/3031)	This seminar series course focuses on helping students build their creativity, innovation, and ethics skills. It includes • Leaders from industry and the university sharing their leadership story and lessons learned • Professional development workshops • NAE Grand Challenges competition • Development Circles.	C-I-C-A	Understanding	100s	Post-Course Survey

Implementation Details

Focus Area	3030	3031
Leaders Up Close	• 5-6 leaders from industry and the university share their personal journey and lessons learned	• 5-6 leaders from industry and the university share their personal journey and lessons learned
Creative, Innovative, Collaborative, Accountable	• Session on Accountability • NAE Grand Challenges & Google Sprint Competition • Session on Technical Writing	• Session on Vulnerability in Engineering • Sessions on Sales Engineering concepts
Owners of the Academic Career	• Career Services	• Session on Professional Mission Statement • Session on "1 Page Personal Strategic Plan"
Owners of a Well-Balanced Life	• Counseling and Psychological Services (CAPS)	• Counseling and Psychological Services (CAPS)

Student & Industry Support Tools

Course: Engineering Leadership & Innovation (EGS 4624)

Each element in the program has a specific role in the overall "All Get Some, Some Get All" program.

We deploy specific learning strategies and resources to meet the specific role.

In some cases, we provide support tools to both our students and the industry partners participating in the experience.
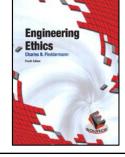
Program Element	Description	Objective	Intent	Magnitude	Assessment Approach
Course: Engineering Leadership & Innovation (EGS 4624)	This courses focuses on helping students build their creativity, innovation, and ethics skills. The course has 3 major foci with approximately 5 weeks for each.	C-I-C-A	Capability	100s	

Implementation Details

Engineering ethics	Creativity	Leadership	Corporate Environment
• Classical ethics	• Definitions	• Why me	• Corporate structure
• Utilitarianism	• Importance of creativity to engineering	• The myth of "born leaders"	• Who owns a corporation
• Kant and Virtue ethics	• The science of creativity	• Steps to improve leadership skills	• Who does the CEO work for
• Steps in the ethical decision process	• Steps to improve creativity and innovation	• Bringing teams together	• Depression – what it is and how to deal with a team mate with depression
• Confidentiality Agreements	• The cyclical process of creative engineering	• Learning to lead like MLK	• What is a patent good for and how do you get one
• Trade secrets	• Failing forward…		
• The ethics and liability related to safe product design			

Student & Industry Support Tools

Course: Engineering Leadership Capstone (EGS 4950)

Each element in the program has a specific role in the overall "All Get Some, Some Get All" program.

We deploy specific learning strategies and resources to meet the specific role.

In some cases, we provide support tools to both our students and the industry partners participating in the experience.

Program Element	Description	Objective	Intent	Magnitude	Assessment Approach
Course: Engineering Leadership Capstone (EGS 4950)	Final course in the Engineering Leadership Certificate/Minor in which students reflect on their academic career, develop a roadmap to their future, and build their approach for delivering solutions in their workplace. The course is highly interactive and student driven.	C-I-C-A	Capability	10s	Post-Course Survey

Implementation Details

Student & Industry Support Tools

Course: Engineering Entrepreneurship (EGS 4641)

Each element in the program has a specific role in the overall "All Get Some, Some Get All" program.

We deploy specific learning strategies and resources to meet the specific role.

In some cases, we provide support tools to both our students and the industry partners participating in the experience.

Program Element	Description	Objective	Intent	Magnitude	Assessment Approach
Course: Engineering Entrepreneurship (EGS 4641)	This courses focuses on helping students build their entrepreneurship skills including the focus on understanding the customer's true needs	C-I-C-A	Capability	10s	Not applicable

Implementation Details
- Under development

Student & Industry Support Tools
- Under development
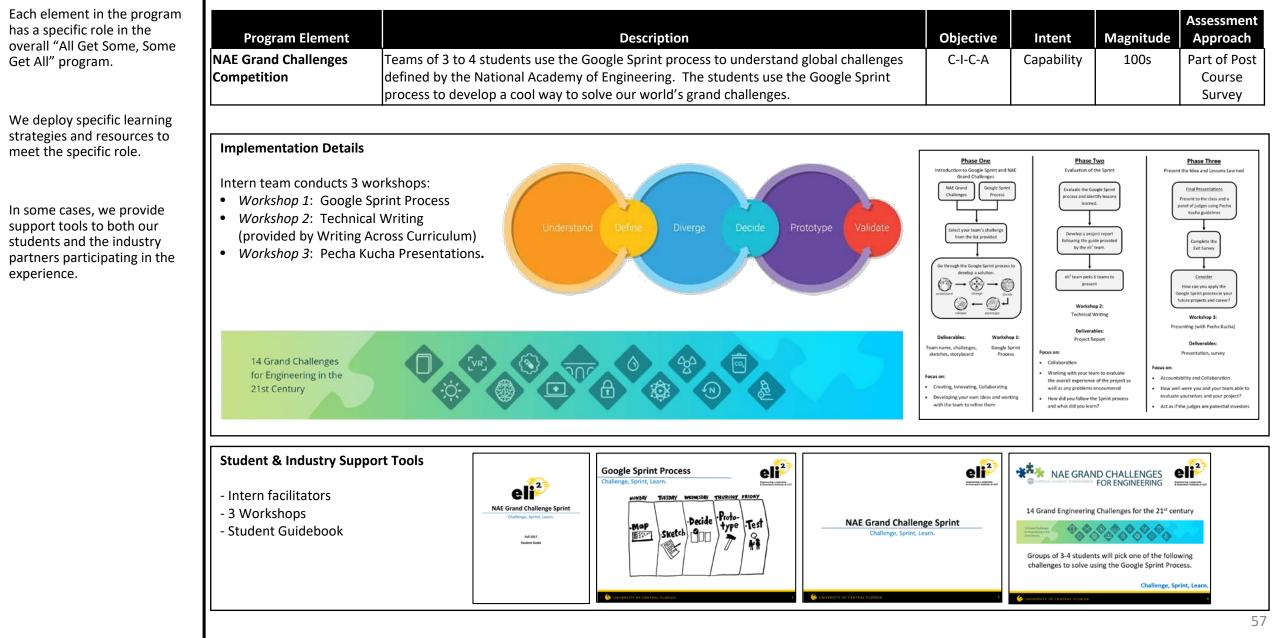
Senior Design Boot Camp

Each element in the program has a specific role in the overall "All Get Some, Some Get All" program.

We deploy specific learning strategies and resources to meet the specific role.

In some cases, we provide support tools to both our students and the industry partners participating in the experience.

Program Element	Description	Objective	Intent	Magnitude	Assessment Approach
Senior Design Boot Camp	An interactive workshop to senior designs teams that provides the teams with creativity, innovation, collaboration, and accountability tools to use on their senior design projects. We offer two experiences: a project kickoff at the start of senior design 1 and a project check-in at the start of senior design 2.	C-I-C-A	Capability	1000s	Post-Session Survey

Implementation Details

Define Success

❑ Learn from Your Experience

_____
1) Lessons Learned

Establish a Solid Team Foundation for Collaboration

❑ Define your desired outcomes
❑ Define your team's values
❑ Define enablers to team success

_____
2) Senior Design Why, Hopes, Fears
3) Team Values
4) Team Behaviors

Creative & Innovative

❑ Define the real problem you are solving
❑ Identify 100 ideas
❑ Vet the 100 ideas into the 5 to pursue

_____
5) True Problem Statement
6) 100 Ideas
7) Potential Solution

Collaborative & Accountable

❑ Define a project plan
❑ Define your team member's roles
❑ Run effective team meetings

_____
8) Project Scope
9) Project Risks
10) Team Members
11) Kick-off & Routine Meeting Agendas

Student & Industry Support Tools

NAE Grand Challenges Competition

Each element in the program has a specific role in the overall "All Get Some, Some Get All" program.

We deploy specific learning strategies and resources to meet the specific role.

In some cases, we provide support tools to both our students and the industry partners participating in the experience.

Program Element	Description	Objective	Intent	Magnitude	Assessment Approach
NAE Grand Challenges Competition	Teams of 3 to 4 students use the Google Sprint process to understand global challenges defined by the National Academy of Engineering. The students use the Google Sprint process to develop a cool way to solve our world's grand challenges.	C-I-C-A	Capability	100s	Part of Post Course Survey

Implementation Details

Intern team conducts 3 workshops:
- *Workshop 1*: Google Sprint Process
- *Workshop 2*: Technical Writing (provided by Writing Across Curriculum)
- *Workshop 3*: Pecha Kucha Presentations.

Student & Industry Support Tools

- Intern facilitators
- 3 Workshops
- Student Guidebook

Development Circles

Each element in the program has a specific role in the overall "All Get Some, Some Get All" program.

We deploy specific learning strategies and resources to meet the specific role.

In some cases, we provide support tools to both our students and the industry partners participating in the experience.

Program Element	Description	Objective	Intent	Magnitude	Assessment Approach
Development Circles	A year-long mentoring program with industry partners working with small groups of students	C-I-C-A	Capability	10s	End of Program Survey to Mentors and Students

Implementation Details

	2015-2016	2016-2017	2017-2018
Student Participation	52	35	110
Mentors	13 mentors - Disney (4) - Siemens (3) - Boeing (4) - Nielsen (2)	10 mentors - Disney (3) - Siemens (2) - Boeing (3) - Nielsen (2)	23 mentors - Disney (4) - Siemens (7) - Boeing (3) - Nielsen (1) - CECS Alumni Chapter (8)

Own Your Academic Career

1) Understand why owning your academic career is important
2) Understand the skills and experiences you need to have to be employable
3) Assess your current skills and experiences
4) Develop a plan for the upcoming year
5) Take purposeful action
6) Reflect on your accomplishments and lessons learned at the end of the year

Student & Industry Support Tools

Are	Are Not
• Industry volunteers lead small student group development circles • Open sharing forum • Exercises to build competencies • Program lasts one academic year • 2-4 meetings with industry mentor and peers each semester • 2 events each semester to gather and reflect with all involved in the program	• A guaranteed mentoring relationship outside of the development circles • A guaranteed path to an internship or permanent position

Development Circle Leader	Development Circle Participants
• Be sensitive to the group's needs • Confront problems and difficulties • Encourage and empower all participants • Continually evaluate progress • Listen to constructive criticism and make necessary changes • **Honor confidentiality**	• Listen to others and honor their experiences • Communicate needs and feedback • Be supportive • Judge the message, no the messenger • Ask questions when you have them • Challenge yourself and others respectively • Arrive on time and participate 100% of the time • Maintain the self-confidence and self-esteem of others • Share what you are comfortable sharing regarding development objectives • Maintain constructive relationships • **Honor confidentiality**

eli² Student Leaders—Interns and Committee

Each element in the program has a specific role in the overall "All Get Some, Some Get All" program.

We deploy specific learning strategies and resources to meet the specific role.

In some cases we provide support tools to both our students and the industry partners participating in the experience.

Program Element	Description	Objective	Intent	Magnitude	Assessment Approach
eli² Student Leaders—Interns and Student Committee	This group supports eli² activities and provides an opportunity for students to enhance their creativity, innovation, collaboration and accountability skills through direct applications and projects.	C-I-C-A	Capability	10s	None

Implementation Details

Aim	Activities	Impact
Inspire Students	Educational Outreach Projects	Impacted younger generation at events like STEM Day and National Engineers Week
	eli² Maker Space Tours	Provided an inside understanding of the eli² resources available to students here at UCF
Collaborate with Other Disciplines	Student Panel of Engineering and Computer Science (SPECS) Meetings	Assisted student organizations to operate meetings and encourage collaboration
	National Engineers Week at UCF	Hosted events with other engineering clubs, local schools, Orlando Science Center and NASA
	CECS Club Showcase	Organizing CECS student organizations to showcase themselves to students wanting more of an opportunity to be involved
Mentor Peers	Development Circles	Enabled networking and mentorship between industry and students
	Hope & Proud Breakfasts	Provided the opportunity for students and industry to set goals for the semester and reflect on what they've accomplished, community building, and career management
Build up Fellow Leaders	NAE Grand Challenges Program	Provided the opportunity for students to gain experience in critical thinking and bringing different disciplines together to work towards a common objective
	Leaders Up Close Seminar Series	Opportunity for students to learn from leadership insight and past experiences, connecting with industry
	Lead eli² Student Committee	Recruiting and mentoring members while continuing to grow fellow students leaders in the eli² program

Student & Industry Support Tools

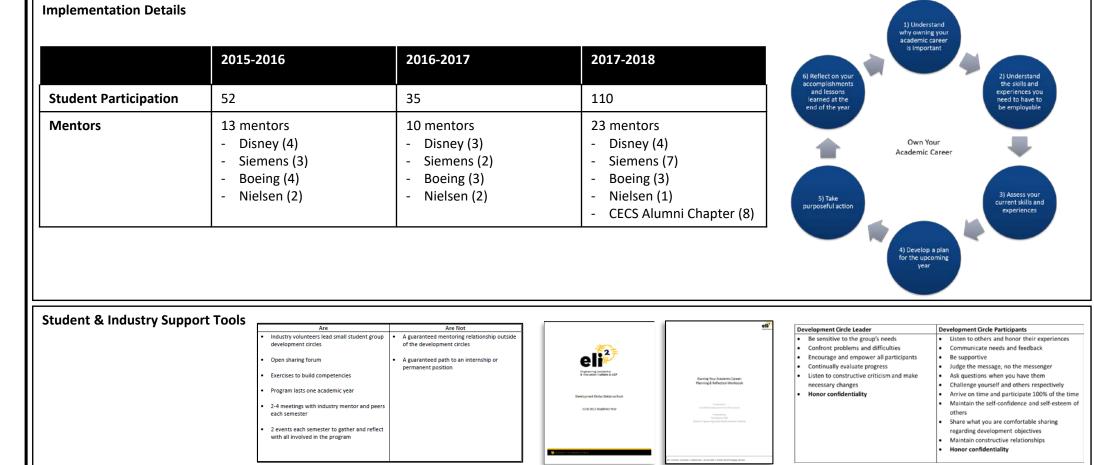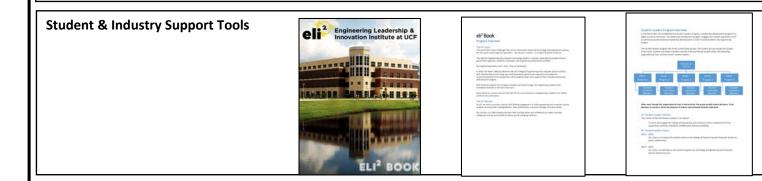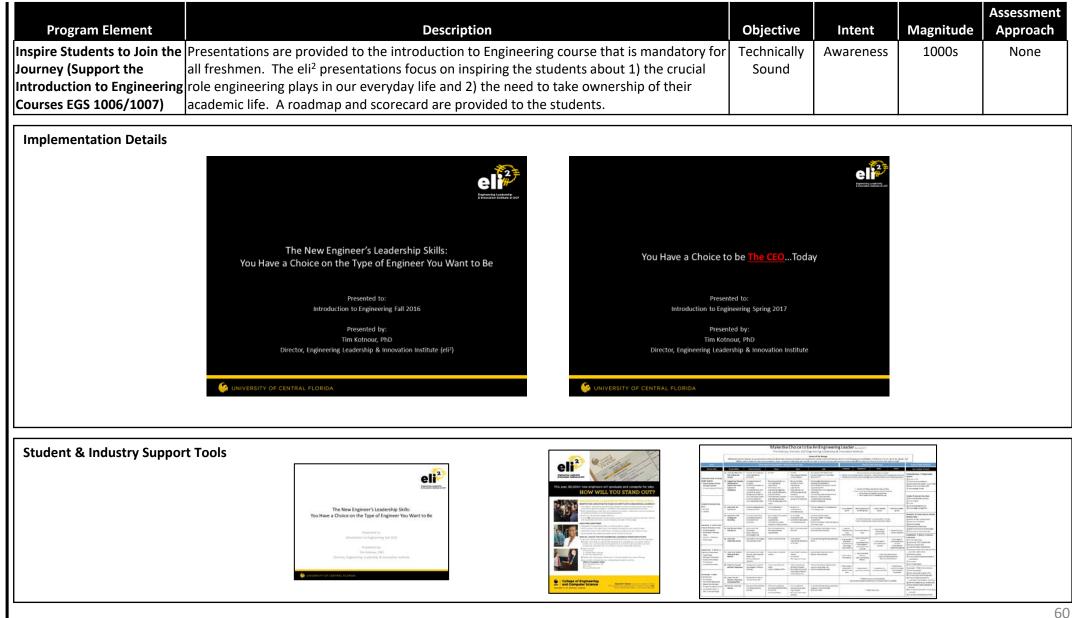# Inspire Students to Join the Journey: Support to the Introduction to Engineering Courses EGS 1006/1007

Each element in the program has a specific role in the overall "All Get Some, Some Get All" program.

We deploy specific learning strategies and resources to meet the specific role.

In some cases, we provide support tools to both our students and the industry partners participating in the experience.

Program Element	Description	Objective	Intent	Magnitude	Assessment Approach
Inspire Students to Join the Journey (Support the Introduction to Engineering Courses EGS 1006/1007)	Presentations are provided to the introduction to Engineering course that is mandatory for all freshmen. The eli² presentations focus on inspiring the students about 1) the crucial role engineering plays in our everyday life and 2) the need to take ownership of their academic life. A roadmap and scorecard are provided to the students.	Technically Sound	Awareness	1000s	None

Implementation Details

Student & Industry Support Tools

Professional Development Workshops

Each element in the program has a specific role in the overall "All Get Some, Some Get All" program.

We deploy specific learning strategies and resources to meet the specific role.

In some cases, we provide support tools to both our students and the industry partners participating in the experience.

Program Element	Description	Objective	Intent	Magnitude	Assessment Approach
Professional Development Workshops	Provide additional skills and insights for our students related to creativity, innovation, collaboration, accountability, and career management	C-I-C-A	Capability	10s	Not applicable

Implementation Details

Focus Areas	Examples
Creative, Innovative, Collaborative, Accountable	• Sales Engineering Sessions • Session on Vulnerability in Engineering • Session on Accountability
Owners of the Academic Career	• Session on Professional Mission Statement • Session on "1 Page Personal Strategic Plan" • Resume Building • Using LinkedIn
Owners of a Well-Balanced Life	• Counseling and Psychological Services (CAPS) • Emotional Intelligence

Student & Industry Support Tools

Hope & Proud Breakfasts

Each element in the program has a specific role in the overall "All Get Some, Some Get All" program.

We deploy specific learning strategies and resources to meet the specific role.

In some cases, we provide support tools to both our students and the industry partners participating in the experience.

Program Element	Description	Objective	Intent	Magnitude	Assessment Approach
Community Engagement: Hope & Proud Breakfast	A community building event to gather students to help encourage planning for success (Hope breakfast at the start of the semester) and celebrate learnings and success (Proud breakfast at the end of the semester).	Own a Well-Balanced Life	Awareness	100s	None

Implementation Details

Student & Industry Support Tools

We Are Sharing the eli^2 Undergrad Story at Multiple Levels.

This report provides a description and assessment of the undergraduate "All Get Some, Some Get All" program within UCF's Engineering Leadership and Innovation Institute (eli^2).

The report is divided into 4 sections. Each successive section provides further detail.

This current "Lessons Learned" section provides:

- The evolution of eli^2

- The set of lessons learned we are gleaning in our experience to build and deliver the program.

- The process we are using to assess and improve the program.

- The semester-by-semester implementation approach.

Welcome to Our Journey

(pages 2-7)

- Introduction

- Executive Summary—The eli^2 Undergrad Program Delivers on the Business Case

- eli^2 Mission

- Acknowledgements & Thank You to the Team

The Business Case

(pages 8-43)

- The Opportunity

- The Solution

- The Strategic Imperative

- The Results

- The Capability to Deliver

- The Financial Perspective

- The Winning Position

Detailed Description of the Program Experiences

(pages 44-62)

- Overall Program

- Maker Spaces

- Courses
  - Engineering Leadership Minor/Certificate
  - Leaders Up Close Seminar Series (EGS 3030/3031)
  - Engineering Leadership & Innovation (EGS 4624)
  - Engineering Leadership Capstone (EGS 4950)
  - Engineering Entrepreneurship (EGS 4641)
  - Senior Design Boot Camp

- Professional Development
  - NAE Grand Challenges Competition
  - Development Circles
  - eli^2 Student Leaders
  - Professional Development Workshops
  - Inspire Students to Join the Journey (Support Freshman Engineering Courses EGS 1006/1007)

- Community Engagement
  - Hope & Proud Breakfasts

Lessons Learned

(pages 63-94)

- Our Evolution

- Our Lessons Learned

- Our Impact Assessment Process

- Our Semester-by-Semester Execution

We Continue to Evolve with Our Partners Based on Our Strengths & Learnings.
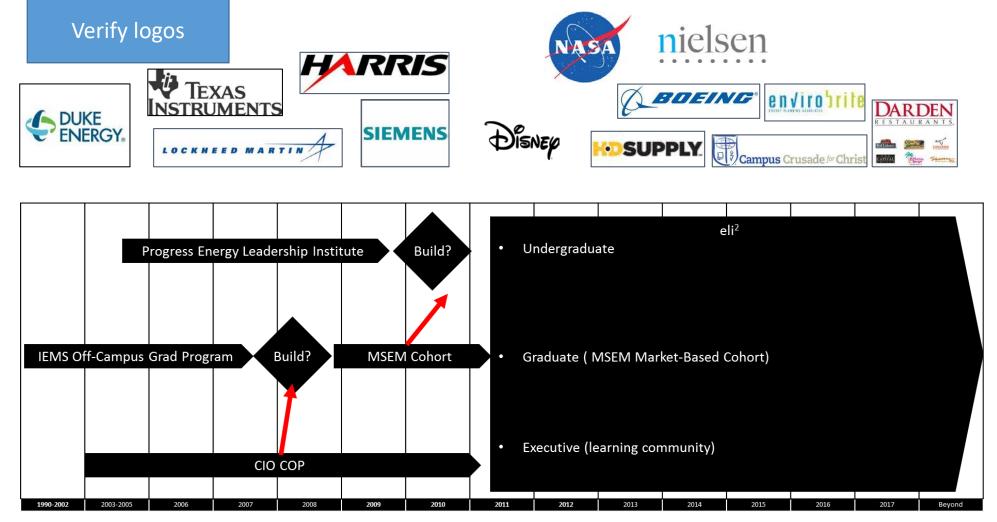
eli² was built from the partners and learnings of previous efforts.

We integrated these learnings and partnerships to provide an integrated and focused life-long learning environment.

Our partners in the CIO Learning Community helped identify the need for a graduate program in solution delivery. We built this program from our experiences on the learning community.

The execution of the graduate program provided the foundation to take the learnings into the undergraduate program.

Verify logos

Progress Energy Leadership Institute	Build?	eli²
		• Undergraduate
IEMS Off-Campus Grad Program	Build?	MSEM Cohort
		• Graduate (MSEM Market-Based Cohort)
CIO COP		• Executive (learning community)

| 1990-2002 | 2003-2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | Beyond |

We Continue to Learn and Develop Lessons Learned.

Based on our experience, we have identified a set of lessons learned for developing and executing an engineering leadership institute within a large, research driven, public university.
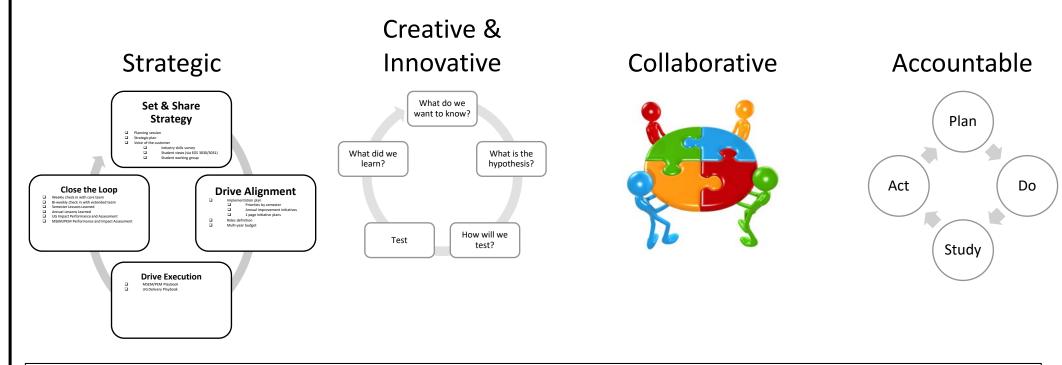
- The primary lesson learned is to practice what we preach:
  - Be strategic, be creative, be innovative, be collaborative, be accountable, and continuously learn to enhance as we grow on impact.

- The lessons learned within this primary lesson learned include
  - Be strategic—Use our strategic intent as our filter for decisions and actions
    - Stay focused on core mission as we evolve
    - Start with the right problem—right curriculum
    - Stay true to the right problem and mission as you evolve

  - Be creative, be innovative—Continuously run and learn from experiments
    - Build from strengths
    - Learn from other's experiences
    - Measure impacts for continuous improvement

  - Be collaborative—Partnerships are the key
    - Find 1-2 key players willing to invest in the program
    - Involve and thank the partners in a meaningful way
    - Faculty and staff team are the foundation

  - Be accountable
    - Project manage the delivery (Roles and playbooks)

The primary lesson learned is to practice what we preach: Be strategic, be creative, be innovative, be collaborative, be accountable, and continuously learn to enhance as we grow on impact.

We developed and followed a set of processes to help us deliver the program. These processes are consistent with what we are asking our students to do:

- We follow an annual strategic management process.

- We run experiments or pilots to convert our "creative" ideas into useful experiences. We innovate by converting the ideas into pilot experiences.

- We collaborate in all we do. We don't have unlimited resources and must rely on others to join the journey. Our partners join the journey because they believe in our mission.

- We drive accountability through annual and semester execution plans. We also drive accountability through routine reviews.

- At the foundation is the belief in a continuous assessment, learning, and adjustment process.

Strategic

Set & Share Strategy
- Planning session
- Strategic plan
- Voice of the customer
  - Industry skills survey
  - Student views (via EGS 3030/3031)
  - Student working group

Drive Alignment
- Implementation plan
  - Priorities by semester
  - Annual improvement initiatives
  - 1 page initiative plans
- Roles definition
- Multi-year budget

Drive Execution
- MSEM/PEM Playbook
- UG Delivery Playbook

Close the Loop
- Weekly check in with core team
- Bi-weekly check in with extended team
- Semester Lessons Learned
- Annual Lessons Learned
- UG Impact Performance and Assessment
- MSEM/PEM Performance and Impact Assessment

Creative & Innovative

- What do we want to know?
- What is the hypothesis?
- How will we test?
- Test
- What did we learn?

Collaborative

Accountable

- Plan
- Do
- Study
- Act

Continuous Assessment, Learning, and Adjustment

Be Strategic—Use Our Strategic Intent as Our Filter for Decisions and Actions.

In eli^2 we took a strategic approach. We held a series of conversations to define:

- What we believe
- Mission
- Goals
- Vision
- Values.

We used these products to help make decisions on what we will and will not do.

What We Believe

Our fundamental beliefs provide the foundation for our decisions and actions. Our beliefs include:

- Engineering is a noble profession—a profession that makes the world better.
- We can change the world one student, one interaction at a time. We create the opportunities for student learning experiences.
- Our students and industry need this program to
    - Awaken the leader and creativity that lies in each of us, we just need to be shown the way
    - Help students be better prepared professional and personally—Help transition students into adulthood.
- Theory and application must live together. We need to apply theory to action and see theory in action.
- Our daily actions have long-term impacts. We will do what is right knowing the long-term outcomes are important.
- We can always improve.

Mission

Our mission is to: Help students discover their burning desire and confidence to deliver world-changing solutions by

- Being technically competent, creative, innovative, collaborative, and accountable (UG)
- Leading the delivery of innovative solutions (Grad)
- Leading organizations to be relevant, responsive, ready, and resilient (Executives).

We define student as anyone interested in learning about engineering leadership. A student is an undergraduate, graduate, or working executive.

Goals

Our goals define the global outcomes we are pursuing. Our goals and associated programs are:

1) Transform the undergrad engineer into a working professional who can hit the ground running on day one→"All Get Some, Some Get All" UG program
2) Transform the working professional into a project/technical manager→"Leading Innovative Solution Delivery" MSEM/PEM Graduate Cohort program
3) Enable the transformation of the project/technical manager into an executive→Communities of Practice and Reunion with Content
4) Share knowledge about engineering leadership and innovation
5) Create a sustainable community of leaders influencing the discipline.

Vision

Our vision is to have UCF engineers leading the positive change in the world, solving the toughest challenges. We achieve our vision when

- We make a difference.
- Our graduates are: Making a difference, Connected with each other, Giving back to others, Starting new companies, Creating patents, Life-long learners.
- We have national prominence for developing engineers and computer scientists in leadership roles.
- We have national prominence for developing a curriculum which consistently creates leaders.
- We are the go to place for engineering leadership—organizations hire our students and companies actively participate with us to deliver the curriculum.

Values

Our values provide the basis for how we act every day as individuals and as a team. Our values include:

- Creativity, innovation, collaboration, and accountability
- Operating with respect
- Thinking, choosing, and acting strategically
- Striving for excellence within a spirit of learning, flexibility, and "we'll figure it out"

Stay Focused on Core Mission As We Evolve.
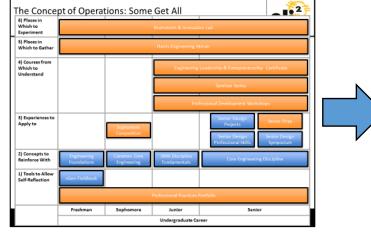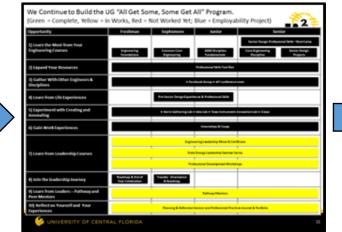
Throughout the journey we stayed true to our mission:

- Create the burning desire and confidence to deliver world-changing solutions.

Through our experimentation and learning process we adjusted each element and how we communicated the program. However, we stayed true to the mission. The mission provides the "compass" to guide what we focus on.

Be Creative, Be Innovative—Continuously Run and Learn from Experiments.

We have built a robust, sustainable capability.

We have built over 41 products/processes across 11 organizational outcomes.

Our approach continues to be one of iterative development:

- Paint the vision
- Experiment with an element
- Learn from the experiment
- Improve the element
- Add a new element.

We used this philosophy to grow both the number of and maturity of the experiences.

Objective	Program Element	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012	Spring 2013	Fall 2013	Spring 2014	Fall 2014	Spring 2015	Fall 2015	Spring 2016	Fall 2016	Spring 2017	Fall 2017
Technically Sound	Inspire Students to Join the Journey (Support 1006/1007)			Blue	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Creative, Innovative, Collaborative, Accountable	Maker Spaces									Blue	Green	Green	Green	Green	Green	Green
	Senior Design Boot Camp									Blue	Green	Green	Green	Green	Green	Green
	NAE Grand Challenges Competition										Blue			Blue	Green	Green
	Minor/Certificate									Blue	Green	Green	Green	Green	Green	Green
	Leaders Up Close (3030/3031)	Blue	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
	Engineering Leadership & Innovation (EGS 4624)		Blue	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
	Engineering Leadership Capstone (EGS 4950)													Blue	Green	Green
	Engineering Entrepreneurship (EGS 4641)															
Own Your Career	Professional Development Workshops									Blue	Green	Green	Green	Green	Green	Green
	Development Circles											Blue	Blue	Green	Green	Green
	eli² Student Leaders						Blue	Green	Green	Green	Green	Green	Green	Green	Green	Green
Own a Well-Balanced Life	Community Engagement: Hope & Proud Breakfast													Blue	Green	Green

Be Collaborative: Partnerships are the Key.

eli² is a partnership story. Our partners have given us their time, energy, wisdom, encouragement, and inspiration.

We thank them for believing in our mission, students, and our team. Each partner supported our program in a way that best aligned with their organization.

We found 1-2 key players willing to invest in a specific program element. This initial support led the way for other organizations to participate.

We strive to involve and thank the partners in a meaningful way for all of their energy they have given our students.

Goal	Partners						
1) Create Professional Contributors at the Undergrad Level	TEXAS INSTRUMENTS	DUKE ENERGY	HARRIS	Disney	BOEING	nielsen	SIEMENS
2) Create Program/ Project Leaders at the Graduate Level	HARRIS	Kennedy Space Center	Disney	SIEMENS	LOCKHEED MARTIN	Raytheon	
3) Enable Organizational Leaders at the Senior Level	HARRIS	BOEING	DARDEN RESTAURANTS	HD SUPPLY	SIEMENS	Disney	Campus Crusade for Christ

Support Focus Areas Focus		Duke	Harris	KSC	LM	Siemens	TI	WDW	Individual
Guidance & Industry Connection	Dean's Advisory Board	X	X	X	X	X	X	X	X
	eli² Industry Working Group		X	X	X	X		X	
	MSEM Sponsor		X	X	X	X		X	
Direct Impact to Students	Leadership Seminar	X	X	X	X	X	X	X	X
	Professional Workshops						X	X	X
	"Industry Guru"								X
	Mentors						X		X	X
	Directed Internships & Coops								
Financial Resources	Direct	X	X				X		X
	Indirect—MSEM		X	X	X	X		X	
	Indirect—Other								

Be Collaborative—Thank Partners in a Unique and Meaningful Way.

Our partners are crucial to our success.

We strive to ensure they know how much we value their contributions to our students and team.

We offer a few unique thank you "products" to our partners:

1) We market their participation with a speaker card

2) We produce a book of student responses from the Leaders Up Close seminar series

3) We send a handwritten note to our speakers.

Our partners appreciate knowing that they are having a life-long impact on our students.

Be Accountable—Project Manage the Delivery.
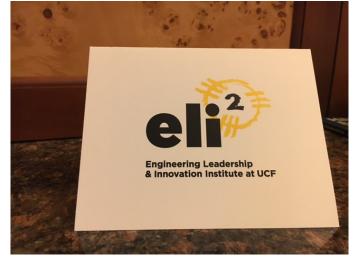
Our students and partners expect us to consistently deliver high quality experiences.

We use a set of tools to help us manage our schedule and work.

We use weekly reports and reviews to ensure we stay connected and adjust as needed.

We Deployed an Assessment Process to Understand How Well We Are Delivering Our Mission.

We've developed an assessment approach to help us:

- Learn about our experiments and delivering of outcomes

- Improve our offerings

- Share our story and lessons learned.

To be meaningful our assessment needs to help us:
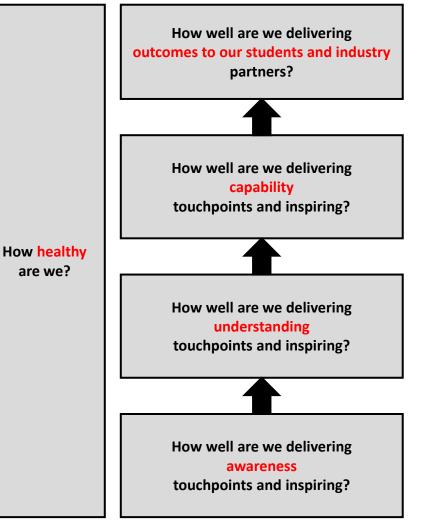
- Understand how well we are building our capability

- Understand how well we are delivering our mission

- Show the connection to industry's desired outcomes

- Answer a fundamental question:
  - How does engagement in eli[2] activities impact student performance?

The impact assessment is based on the following approach for enhancing a student's burning desire and confidence to be technically sound, creative, innovative, collaborative, and accountable to deliver world-changing solutions. By increasing a student's awareness, understanding, and capability, we will deliver outcomes that are important to the student and our industry partners:

- Provide awareness touch points to allow students to become aware of the need (e.g., **why** world-changing solutions are needed, why we need to be more professional engineers)

- Provide understanding touch points to allow students to increase their understanding of the **what** (e.g., what it means to deliver world-changing solutions, what it requires to be a professional)

- Provide capability touch points to allow students to increase their capability or their knowledge of **how** (e.g., how to deliver world-changing solutions, how to be a professional).

By increasing a student's awareness, understanding, and capability, we will deliver outcomes that are important to the student and our industry partners. For example:
- Retaining engineering students by inspiring and motivating them
- Increasing a student's burning desire and confidence to create, innovate, collaborate and deliver
- Increasing a student's employability
- Enhancing the transition of the new graduate in their job post graduation
- Enhancing a graduate's long-term career development
- Enhancing our partner's organizational performance
- Enhancing the reputation of UCF and CECS.

How healthy are we?

How well are we delivering outcomes to our students and industry partners?

How well are we delivering capability touchpoints and inspiring?

How well are we delivering understanding touchpoints and inspiring?

How well are we delivering awareness touchpoints and inspiring?
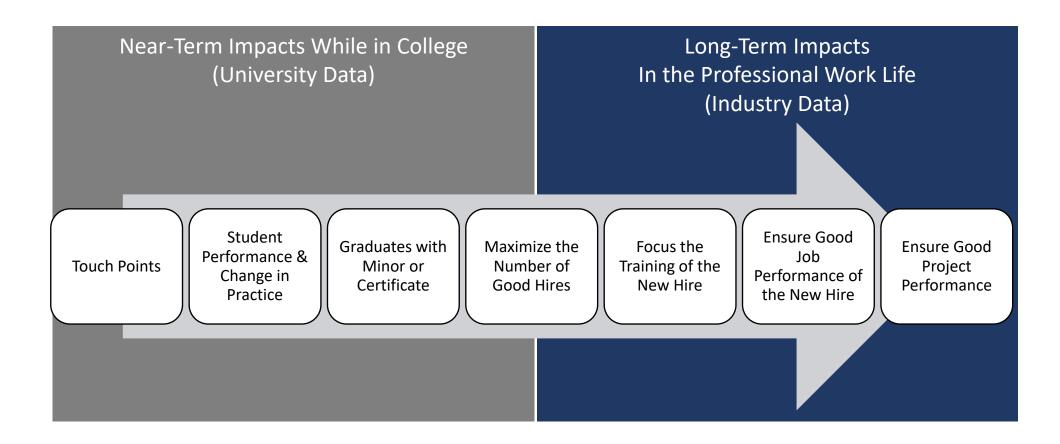
We Need to Show the Connection to Industry's Desired Outcomes.

To truly understand the impact of the program, we need to understand the impacts at two levels:

1) The near-term direct impacts on the students as they go through the experiences

2) The longer-term, life-long impacts these experiences have on their professional performance and life.

Near-Term Impacts While in College (University Data)

Long-Term Impacts In the Professional Work Life (Industry Data)

Touch Points

Student Performance & Change in Practice

Graduates with Minor or Certificate

Maximize the Number of Good Hires

Focus the Training of the New Hire

Ensure Good Job Performance of the New Hire

Ensure Good Project Performance
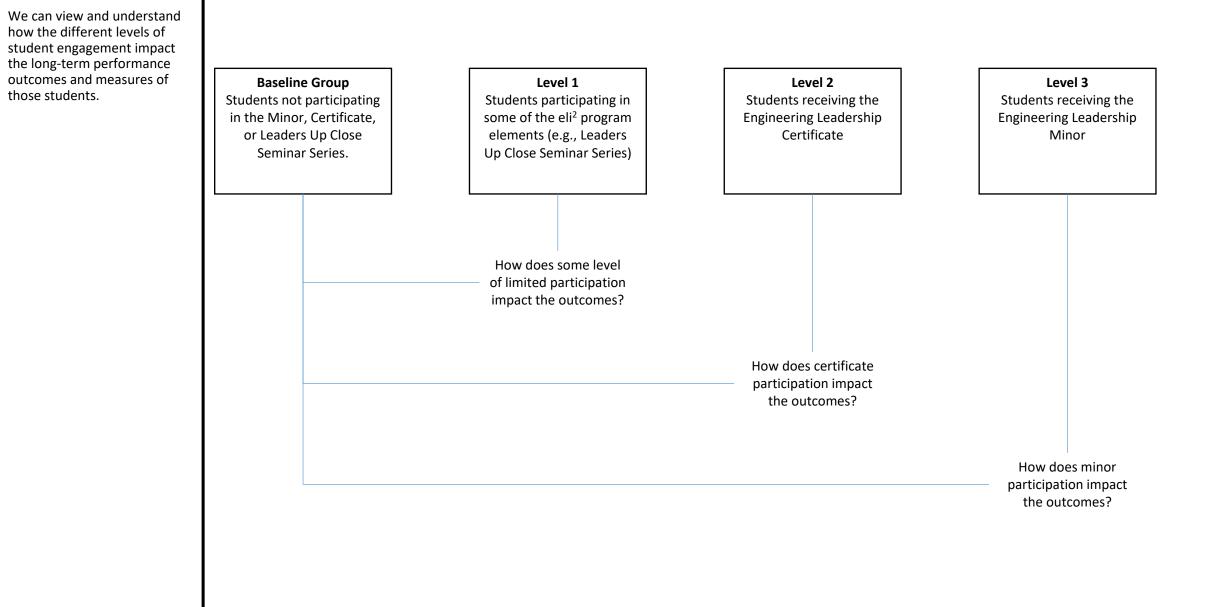
We Need to Answer a Fundamental Question.

The impact assessment can help us answer a fundamental research question and hypothesis.

We can view and understand how the different levels of student engagement impact the long-term performance outcomes and measures of those students.

Research Question: How does engagement in eli^2 activities impact employability performance?
Research Hypothesis: The greater the level of engagement the greater the performance

Groups of Students =
f(Exposure to eli^2 Activities)

- Baseline
  - Students not participating in the Minor, Certificate, or Leaders Up Close Seminar Series.

- Level 1
  - Students participating in some of the eli^2 program elements (e.g., Leaders Up Close Seminar Series)

- Level 2
  - Students receiving the Engineering Leadership Certificate

- Level 3
  - Students receiving the Engineering Leadership Minor

Long-Term Performance Measures
UCF Collective Impact Strategic Plan
- 1st year retention rate
  - We believe our "inspirational" talks in EGS 1006 & 1007 along with the Maker Spaces provide an additional source of inspiration and connectedness to help retain freshman in engineering.
  - # students in freshman eli^2 Student Leaders and their retention rates.

- 6 year graduation rate of 75%
  - We believe our focus on leadership and career development will encourage students to complete their degree in a timely manner.

- 100% of undergraduates participate in a positive, high impact student experience either on or off campus
  - We believe eli^2 offers high-impact experiences such as Senior Design Boot Camps, eli^2 Student Leaders, and Development Circles.

- Engage students in at least one service learning activity annually.
  - We believe eli^2 offers the opportunity for students to provide service activities to CECS and fellow students through the eli^2 Student Leaders.

Additional Measures
- # of students being employed within 6 months of graduation
- # of students participating in an internship
- GPA of students

College Annual Measures
- Graduating seniors views of participating in leadership activities (exit survey)
- The number of students taking EGS 3030 and EGS 3031

Immediate Performance Measures
- Impact on the student's CICA skills
- Impact on the student's ownership of their career and well-balanced life

We Need to Understand How Various Participation Levels Impact the Outcomes.

We can view and understand how the different levels of student engagement impact the long-term performance outcomes and measures of those students.

Baseline Group Students not participating in the Minor, Certificate, or Leaders Up Close Seminar Series.	**Level 1** Students participating in some of the eli^2 program elements (e.g., Leaders Up Close Seminar Series)	**Level 2** Students receiving the Engineering Leadership Certificate	**Level 3** Students receiving the Engineering Leadership Minor

How does some level of limited participation impact the outcomes?

How does certificate participation impact the outcomes?

How does minor participation impact the outcomes?

The Evaluation Data Must Answer Questions.

The impact assessment approach should collect meaningful data to help us answer multiple questions.

We can use this data to understand how to provide a more impactful experience for our students.

Focus	Questions	Data
Capability building	• What capability did we build? • How did the capability change over time?	• Courses built • Workshops built (presentations by team) • Products/workbooks built • Labs built
Program participation	• How many students participated in each of the program elements? • How did program element participation play out for each department year by year?	• Enrollment data by element/year
Impacts on an individual's creativity, innovation, collaboration, and accountability	• How did a program element impact a student's Creativity-Innovation-Collaboration-Accountability (confidence, desire, and ability)? • How did a program element impact the student in the desired way?	• Survey data by element/year
Impacts on an individual academic performance	• How did academic performance change for students in the program?	• See UCF IKM data for this
Anecdotal stories	• What stories do we have of impact?	• Individual stories
Partnership	• How does each partner provide support to the program?	• The Partnership scorecard
Financial performance	• How did eli^2 get funded?	• Dollars over the years
Our approach = strategic + experimentation + delivery + partnerships	• How did eli^2 evolve? • What was the approach? • What are the lessons learned?	• Roadmap of experiments • Roadmap of assessments

Our Assessment Approach Has 4 Phases.

To develop a robust and meaningful assessment approach, we are taking a multi-phase approach.

This approach is consistent with our overall design and learning philosophy:

- Paint the vision
- Experiment with an element
- Learn from the experiment
- Add the next new element.

Phase 1	Phase 2	Phase 3	Phase 4
- Build the program - Implement the program - Develop a consistent assessment framework across the elements - For each element measure performance	- Prepare for Integrated Assessment - Scope the concept - Gather the data - Prepare the Data - Share the data - Make sense of what we have - Verify data for each year and element—What are we missing? - Map the survey questions we have for each element and semester - What can we consistently show across the elements and year? - Map the participation data we have for each element and semester - What can we consistently show across the elements and year? - What can we explore/show relationships among variables/program elements? - How do we organize and analyze the data? - Conduct Analysis - Detailed analysis within an element - Each semester look - Across semesters - Identify emerging story threads - Summarize the Findings - Summary analysis - Refine story threads - Tell the Story - Prepare the multi-layered presentation - Prepare the more detailed "book"	- Enhance the process to make it repeatable and easy to add data to every semester - Lessons learned on assessment process - Lessons learned on assessment instruments - Lessons learned on data archiving and analysis - Improve - Clean the data up - Place all survey data into an integrated database and analysis tool - Place survey in webcourses for each course—mandatory and trackable—create a webcourse for each program element we use	Involve the team and stakeholders in the routine process

We Developed a Consistent Survey Instrument.

For the "customer assessment" surveys, we used both standard questions and experience unique questions.

Standard Overall Assessment

- How likely is it that you would recommend the "experience" to fellow students? Why?
- How would describe the impact and/or value of this course to yourself?

Standard Questions on CICA Impacts

- As a result of this element, how did your DESIRE change to be CICA
- As a result of this course, how did your KNOWLEDGE change to be CICA?
- As a result of this course, how did your CONFIDENCE change to be CICA?

Element Unique Questions

Maker Spaces
- How likely is it that you would recommend the Idea /Innovation Lab to a friend or colleague?
- What did you use the "Lab" for?

Development Circles
- How valuable were each of the circle elements to your experience?

Senior Design Boot Camp
- How was your ability to lead your team to successfully complete the senior design project impacted?
- How was your team's ability to successfully complete the senior design project impacted?

Standard Improvement Questions

- To ensure the course is successful in the future, what should we start, stop, or continue doing with the course?

- What can we do to enhance the impact on all CECS students? What is the best way for all students to participate in this type of activity?

Be Creative, Be Innovative—Continuously Run and Learn from Experiments.

We have built a robust, sustainable capability.

We have built over 41 products/processes across 11 organizational outcomes.

Our approach continues to be one of iterative development:

- Paint the vision
- Experiment with an element
- Learn from the experiment
- Improve the element
- Add a new element.

We used this philosophy to grow both the number of and maturity of the experiences.

Objective	Program Element	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012	Spring 2013	Fall 2013	Spring 2014	Fall 2014	Spring 2015	Fall 2015	Spring 2016	Fall 2016	Spring 2017	Fall 2017
Technically Sound	Inspire Students to Join the Journey (Support 1006/1007)			Blue	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Creative, Innovative, Collaborative, Accountable	Maker Spaces									Blue	Green	Green	Green	Green	Green	Green
	Senior Design Boot Camp									Blue	Green	Green	Green	Green	Green	Green
	NAE Grand Challenges Competition										Blue			Blue	Green	Green
	Minor/Certificate									Blue	Green	Green	Green	Green	Green	Green
	Leader' Up Close (3030/3031)	Blue	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
	Engineering Leadership & Innovation (EGS 4624)		Blue	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
	Engineering Leadership Capstone (EGS 4950)													Blue	Green	Green
	Engineering Entrepreneurship (EGS 4641)															
Own Your Career	Professional Development Workshops									Blue	Green	Green	Green	Green	Green	Green
	Development Circles											Blue	Blue	Green	Green	Green
	eli² Student Leaders								Blue	Green	Green	Green	Green	Green	Green	Green
Own a Well-Balanced Life	Community Engagement: Hope & Proud Breakfasts													Blue	Green	Green

Fall 2011 Semester Scorecard

The scorecard provided to the right describes the specific program activities eli² implemented for a given semester.

Consistent with our innovation approach, we focused on our mission, identified new opportunities, pilot tested the opportunity, learned from the pilot, adjusted the offering, and expanded our offerings.

Objective	Program Element	Details/Outcome	
Technically Sound	Inspire Students to Join the Journey (Support Introduction to Engineering EGS 1006/1007)		
Creative, Innovative, Collaborative, Accountable	Maker Spaces		
	Senior Design Boot Camp 1		
	Senior Design Boot Camp 2 - Check-in		
	Engineering Leadership Minor/Certificate		
	Course: Leaders Up Close (EGS 3030/3031)	• 108 students registered	• 5 Leaders Up Close Speakers • Lyndon Dupont • Oscar Rodriguez • Guilermo Novo • Michelle Markham • Patrick Toole
	Course: Engineering Leadership & Innovation (EGS 4624)		
	Course: Engineering Leadership Capstone (EGS 4950)		
	Course: Engineering Entrepreneurship (EGS 4641)		
	NAE Grand Challenges Competition		
Own Your Career	EELP - eli² Student Leaders		
	Development Circles		
Own a Well-Balanced Life	Community Engagement: Hope & Proud Breakfasts		

Spring 2012 Semester Scorecard

The scorecard provided to the right describes the specific program activities eli² implemented for a given semester.

Consistent with our innovation approach, we focused on our mission, identified new opportunities, pilot tested the opportunity, learned from the pilot, adjusted the offering, and expanded our offerings.

Objective	Program Element	Details/Outcome	
Technically Sound	Inspire Students to Join the Journey (Support Introduction to Engineering EGS 1006/1007)		
Creative, Innovative, Collaborative, Accountable	Maker Spaces		
	Senior Design Boot Camp 1		
	Senior Design Boot Camp 2 - Check-in		
	Engineering Leadership Minor/Certificate		
	Course: Leaders Up Close (EGS 3030/3031)	• 108 students registered	• 6 Leaders Up Close Speakers • Dr. James Brown • William Grimm • Ramon Lugo III • Carol Craig • Christy Woodruff • Vincent M. Dolan
	Course: Engineering Leadership & Innovation (EGS 4624)		
	Course: Engineering Leadership Capstone (EGS 4950)		
	Course: Engineering Entrepreneurship (EGS 4641)		
	NAE Grand Challenges Competition		
Own Your Career	EELP - eli² Student Leaders		
	Development Circles		
Own a Well-Balanced Life	Community Engagement: Hope & Proud Breakfasts		

Fall 2012 Semester Scorecard

The scorecard provided to the right describes the specific program activities eli^2 implemented for a given semester.

Consistent with our innovation approach, we focused on our mission, identified new opportunities, pilot tested the opportunity, learned from the pilot, adjusted the offering, and expanded our offerings.

Objective	Program Element	Details/Outcome	
Technically Sound	Inspire Students to Join the Journey (Support Introduction to Engineering EGS 1006/1007)		
Creative, Innovative, Collaborative, Accountable	Maker Spaces		
	Senior Design Boot Camp 1		
	Senior Design Boot Camp 2 - Check-in		
	Engineering Leadership Minor/Certificate		
	Course: Leaders Up Close (EGS 3030/3031)	• 150 students registered	• 6 Leaders Up Close Speakers • Larry Bonner • Jeff Vahle • Joanne Puglisi • Andy Schwalb • Eric Singleton • Dr. J. Greg Hanson
	Course: Engineering Leadership & Innovation (EGS 4624)		
	Course: Engineering Leadership Capstone (EGS 4950)		
	Course: Engineering Entrepreneurship (EGS 4641)		
	NAE Grand Challenges Competition		
Own Your Career	EELP - eli^2 Student Leaders		
	Development Circles		
Own a Well-Balanced Life	Community Engagement: Hope & Proud Breakfasts		

Spring 2013 Semester Scorecard

The scorecard provided to the right describes the specific program activities eli^2 implemented for a given semester.

Consistent with our innovation approach, we focused on our mission, identified new opportunities, pilot tested the opportunity, learned from the pilot, adjusted the offering, and expanded our offerings.

Objective	Program Element	Details/Outcome	
Technically Sound	Inspire Students to Join the Journey (Support Introduction to Engineering EGS 1006/1007)		
Creative, Innovative, Collaborative, Accountable	Maker Spaces		
	Senior Design Boot Camp 1		
	Senior Design Boot Camp 2 - Check-in		
	Engineering Leadership Minor/Certificate		
	Course: Leaders Up Close (EGS 3030/3031)	• 143 students registered	• 6 Leaders Up Close Speakers • Lucas Boyce • Norm Augustine • Leila J. Nordarse • Randy Zwirn • Angel Ruiz • Fabio Gandour
	Course: Engineering Leadership & Innovation (EGS 4624)		
	Course: Engineering Leadership Capstone (EGS 4950)		
	Course: Engineering Entrepreneurship (EGS 4641)		
	NAE Grand Challenges Competition		
Own Your Career	EELP - eli^2 Student Leaders	• Group created – Bianca Garcia	
	Development Circles		
Own a Well-Balanced Life	Community Engagement: Hope & Proud Breakfasts		

Fall 2013 Semester Scorecard

The scorecard provided to the right describes the specific program activities eli^2 implemented for a given semester.

Consistent with our innovation approach, we focused on our mission, identified new opportunities, pilot tested the opportunity, learned from the pilot, adjusted the offering, and expanded our offerings.

Objective	Program Element	Details/Outcome	
Technically Sound	Inspire Students to Join the Journey (Support Introduction to Engineering EGS 1006/1007)		
Creative, Innovative, Collaborative, Accountable	Maker Spaces		
	Senior Design Boot Camp 1		
	Senior Design Boot Camp 2 - Check-in		
	Engineering Leadership Minor/Certificate		
	Course: Leaders Up Close (EGS 3030/3031)	• 100 students registered	• 5 Leaders Up Close Speakers • Michael Lewis • Todd Stansbury • Vinod Philip • Gene Frantz • Jason Dunn
	Course: Engineering Leadership & Innovation (EGS 4624)		
	Course: Engineering Leadership Capstone (EGS 4950)		
	Course: Engineering Entrepreneurship (EGS 4641)		
	NAE Grand Challenges Competition		
Own Your Career	EELP - eli^2 Student Leaders	• 4 students	
	Development Circles		
Own a Well-Balanced Life	Community Engagement: Hope & Proud Breakfasts		

Spring 2014 Semester Scorecard

The scorecard provided to the right describes the specific program activities eli^2 implemented for a given semester.

Consistent with our innovation approach, we focused on our mission, identified new opportunities, pilot tested the opportunity, learned from the pilot, adjusted the offering, and expanded our offerings.

Objective	Program Element	Details/Outcome	
Technically Sound	**Inspire Students to Join the Journey (Support Introduction to Engineering EGS 1006/1007)**		
Creative, Innovative, Collaborative, Accountable	**Maker Spaces**		
	Senior Design Boot Camp 1		
	Senior Design Boot Camp 2 - Check-in		
	Engineering Leadership Minor/Certificate		
	Course: Leaders Up Close (EGS 3030/3031)	• 80 students registered	• 5 Leaders Up Close Speakers • Jeannie Parsch • John A. White • Brian Crutcher • Ron Bennett • Col. Todd Freece
	Course: Engineering Leadership & Innovation (EGS 4624)		
	Course: Engineering Leadership Capstone (EGS 4950)		
	Course: Engineering Entrepreneurship (EGS 4641)		
	NAE Grand Challenges Competition		
Own Your Career	**EELP - eli^2 Student Leaders**	• 4 students	
	Development Circles		
Own a Well-Balanced Life	**Community Engagement: Hope & Proud Breakfasts**		

Fall 2014 Semester Scorecard

The scorecard provided to the right describes the specific program activities eli[2] implemented for a given semester.

Consistent with our innovation approach, we focused on our mission, identified new opportunities, pilot tested the opportunity, learned from the pilot, adjusted the offering, and expanded our offerings.

Objective	Program Element	Details/Outcome		
Technically Sound	**Inspire Students to Join the Journey (Support Introduction to Engineering EGS 1006/1007)**			
Creative, Innovative, Collaborative, Accountable	**Maker Spaces**	• UCF Maker Spaces Grand Opening		
	Senior Design Boot Camp 1			
	Senior Design Boot Camp 2 - Check-in			
	Engineering Leadership Minor/Certificate	• Began offering Minor and Certificate Program		
	Course: Leaders Up Close (EGS 3030/3031)	• 162 students registered	• 4 Leaders Up Close Speakers • David Bettner • Chester Kennedy • Seetha Raghavan • Dennis Lind	• 6 CICA/Career Mgt. Sessions
	Course: Engineering Leadership & Innovation (EGS 4624)			
	Course: Engineering Leadership Capstone (EGS 4950)			
	Course: Engineering Entrepreneurship (EGS 4641)			
	NAE Grand Challenges Competition			
Own Your Career	**EELP - eli[2] Student Leaders**	• 16 students		
	Development Circles			
Own a Well-Balanced Life	**Community Engagement: Hope & Proud Breakfasts**			

Spring 2015 Semester Scorecard

The scorecard provided to the right describes the specific program activities eli² implemented for a given semester.

Consistent with our innovation approach, we focused on our mission, identified new opportunities, pilot tested the opportunity, learned from the pilot, adjusted the offering, and expanded our offerings.

Objective	Program Element	Details/Outcome		
Technically Sound	Inspire Students to Join the Journey (Support Introduction to Engineering EGS 1006/1007)			
Creative, Innovative, Collaborative, Accountable	Maker Spaces			
	Senior Design Boot Camp 1	• First offering of Senior Design Boot Camp • All Departments (1/24/15) – 116 students		
	Senior Design Boot Camp 2 - Check-in			
	Engineering Leadership Minor/Certificate			
	Course: Leaders Up Close (EGS 3030/3031)	• 89 students registered	• 5 Leaders Up Close Speakers • Ed Scott • Col. David J. Martinson • Lesa Roe • John Elnitsky • Grace Bochenek	• 7 CICA/Career Mgt. Sessions
	Course: Engineering Leadership & Innovation (EGS 4624)			
	Course: Engineering Leadership Capstone (EGS 4950)			
	Course: Engineering Entrepreneurship (EGS 4641)			
	NAE Grand Challenges Competition			
Own Your Career	EELP - eli² Student Leaders	• 16 students		
	Development Circles			
Own a Well-Balanced Life	Community Engagement: Hope & Proud Breakfasts			

Fall 2015 Semester Scorecard

The scorecard provided to the right describes the specific program activities eli² implemented for a given semester.

Consistent with our innovation approach, we focused on our mission, identified new opportunities, pilot tested the opportunity, learned from the pilot, adjusted the offering, and expanded our offerings.

Objective	Program Element	Details/Outcome		
Technically Sound	Inspire Students to Join the Journey (Support Introduction to Engineering EGS 1006/1007)			
Creative, Innovative, Collaborative, Accountable	Maker Spaces			
	Senior Design Boot Camp 1	• All Departments (9/12) • 318 students		
	Senior Design Boot Camp 2 - Check-in	• First offering (9/12) • 30 students		
	Engineering Leadership Minor/Certificate			
	Course: Leaders Up Close (EGS 3030/3031)	• 88 students registered	• 5 Leaders Up Close Speakers • Ben Patz • Beverly Seay • Ian Ippolito • Pat Simpkins • Tom O'Neal	• # CICA/Career Mgt. Sessions?
	Course: Engineering Leadership & Innovation (EGS 4624)			
	Course: Engineering Leadership Capstone (EGS 4950)			
	Course: Engineering Entrepreneurship (EGS 4641)			
	NAE Grand Challenges Competition			
Own Your Career	EELP - eli² Student Leaders	• 12 Students		
	Development Circles	• Initial Development of Program	• 50/50 students	• 10 Industry Mentors
Own a Well-Balanced Life	Community Engagement: Hope & Proud Breakfasts	• First Proud Breakfast (12/4) • 40 students		

Spring 2016 Semester Scorecard

The scorecard provided to the right describes the specific program activities eli² implemented for a given semester.

Consistent with our innovation approach, we focused on our mission, identified new opportunities, pilot tested the opportunity, learned from the pilot, adjusted the offering, and expanded our offerings.

Objective	Program Element	Details/Outcome		
Technically Sound	Inspire Students to Join the Journey (Support Introduction to Engineering EGS 1006/1007)			
Creative, Innovative, Collaborative, Accountable	Maker Spaces			
	Senior Design Boot Camp 1	• Session (2/6) • CS – 28 • IEMS – 23 • ECE – 41 • MAE – 96		
	Senior Design Boot Camp 2 - Check-in			
	Engineering Leadership Minor/Certificate			
	Course: Leaders Up Close (EGS 3030/3031)	• 80 students registered	• 4 Leaders Up Close Speakers • Arun Ramaswany • Jayanta Pandya • Gregg Melanson • Bob Hoekstra	• # # CICA/Career Mgt. Sessions?
	Course: Engineering Leadership & Innovation (EGS 4624)			
	Course: Engineering Leadership Capstone (EGS 4950)			
	Course: Engineering Entrepreneurship (EGS 4641)			
	NAE Grand Challenges Competition			
Own Your Career	EELP - eli² Student Leaders	• 12 Students		
	Development Circles	• 50/50 Students	• 10 Industry Mentors	• Continued from Fall 2015
Own a Well-Balanced Life	Community Engagement: Hope & Proud Breakfasts	• Proud Breakfast (4/29) • 33 students		

Fall 2016 Semester Scorecard

The scorecard provided to the right describes the specific program activities eli[2] implemented for a given semester.

Consistent with our innovation approach, we focused on our mission, identified new opportunities, pilot tested the opportunity, learned from the pilot, adjusted the offering, and expanded our offerings.

Objective	Program Element	Details/Outcome		
Technically Sound	**Inspire Students to Join the Journey (Support Introduction to Engineering EGS 1006/1007)**	• Career Mgt – (9/16) • 1300 students reached • Freshman Social – 52		
Creative, Innovative, Collaborative, Accountable	**Maker Spaces**	• STEM Day Lab Tours		
	Senior Design Boot Camp 1	Start (9/24) • IEMS – 47/50 • MAE – 139/283 • CS – 78/100 • ECE – 70/140	Middle • IEMS – 18/50 • MAE – 111/283 • CS – 60/100 • ECE – 33/140	End • IEMS – 2/50 • MAE – 75/283 • CS – 43/100 • ECE – 12/140
	Senior Design Boot Camp 2 - Check-in			
	Engineering Leadership Minor/Certificate	• 25 Minor • 6 Certificate		
	Course: Leaders Up Close (EGS 3030/3031)	• 69 students registered	• 5 Leaders Up Close Speakers • Dave Walsh • Bob Kilmer • Kay Stanney • Janet Petro • Todd Mazza	• 5 CICA/Career Mgt Sessions • Accountability • CAPS • David Miranda • Matt Harrison • Siemens - LinkedIn
	Course: Engineering Leadership & Innovation (EGS 4624)			
	Course: Engineering Leadership Capstone (EGS 4950)			
	Course: Engineering Entrepreneurship (EGS 4641)			
	NAE Grand Challenges Competition	• First project with EGS 3030 class • 69 students • Google Sprint Process		
Own Your Career	**EELP - eli[2] Student Leaders**	• 17 students • Engineers Week planning • NAE Grand Challenges/Google Sprint – semester project		
	Development Circles	• 35 students	• 10 Mentors • WDW – 3 • Siemens – 2 • Boeing – 3 • Nielsen – 2	• Kick off event (10/16) – 35 students and 10 mentors attended
Own a Well-Balanced Life	**Community Engagement: Hope & Proud Breakfasts**	• Hope Breakfast (9/2) – 28 students • Proud Breakfast (12/2) – 27 students		

Spring 2017 Semester Scorecard

The scorecard provided to the right describes the specific program activities eli^2 implemented for a given semester.

Consistent with our innovation approach, we focused on our mission, identified new opportunities, pilot tested the opportunity, learned from the pilot, adjusted the offering, and expanded our offerings.

Objective	Program Element	Details/Outcome		
Technically Sound	Inspire Students to Join the Journey (Support Introduction to Engineering EGS 1006/1007)	• Career Mgt – (2/24) • 1300 students reached		
Creative, Innovative, Collaborative, Accountable	Maker Spaces	• STEM Day Lab Tours (3/31)		
	Senior Design Boot Camp 1	• IEMS (2/4) – 63/70 • ECE (2/4) – 45/71 • MAE (2/4) – 93/136 • CS (2/4) – 72/85		
	Senior Design Boot Camp 2 - Check-in			
	Engineering Leadership Minor/Certificate	• 25 Minor • 6 Certificate		
	Course: Leaders Up Close (EGS 3030/3031)	• 82 students registered	• 6 Leaders Up Close Speakers • Michael Piatek • Dan Schiappa • Jeannie Parsch • Kelvin Manning • Mark Heinrich • Joel Hartman	• 5 CICA/Career Mgt Sessions • Mission Statement • Vulnerability • CAPS- Stress Mgt • Amber Scheurer – Internship • eli^2 Student internship experiences
	Course: Engineering Leadership & Innovation (EGS 4624)	• Spring Course 4264 – 150-160 students		
	Course: Engineering Leadership Capstone (EGS 4950)	• 10 students		
	Course: Engineering Entrepreneurship (EGS 4641)			
	NAE Grand Challenges Competition			
Own Your Career	EELP - eli^2 Student Leaders	• 17 students • Engineers Week planning		
	Development Circles	• 35 students	• 10 Mentors • WDW – 3 • Siemens – 2 • Boeing – 3 • Nielsen – 2	• Continued from Fall 2016 group
Own a Well-Balanced Life	Community Engagement: Hope & Proud Breakfasts	• Hope Breakfast (1/13) – 41 students • Proud Breakfast (4/21) – 44 students		

Fall 2017 Semester Scorecard

The scorecard provided to the right describes the specific program activities eli² implemented for a given semester.

Consistent with our innovation approach, we focused on our mission, identified new opportunities, pilot tested the opportunity, learned from the pilot, adjusted the offering, and expanded our offerings.

Objective	Program Element	Details/Outcome			
Technically Sound	Inspire Students to Join the Journey (Support Introduction to Engineering EGS 1006/1007)	• Career Mgt/Minor (10/20) • 1325 students reached • Freshman Social (10/25) – 60 students			
Creative, Innovative, Collaborative, Accountable	Maker Spaces	• STEM Day Lab Tours (10/27)			
	Senior Design Boot Camp 1	• IEMS (8/29) – 45/51 • ECE (8/29) – 104/117 • MAE (9/21) – 77/329 • CS (9/25) – 139/166			
	Senior Design Boot Camp 2 - Check-in	• CS session (8/30) – 73 students • ECE session – 83 students			
	Engineering Leadership Minor/Certificate	• 35 Minor • 7 Certificate			
	Course: Leaders Up Close (EGS 3030/3031)	• 65 students registered	• 5 Leaders Up Close speakers • Didier Menard • Bill Miller • Mike Sarpu • Molly Mahoney • Ron Foudray	• 4 CICA/Career Mgt Sessions • Career Services – Resume Building • Writing Across Curriculum – Technical Writing • Accountability • Development Circles	• Project experience • NAE Grand Challenges/Google Sprint
	Course: Engineering Leadership & Innovation (EGS 4624)				
	Course: Engineering Leadership Capstone (EGS 4950)	• 6 students			
	Course: Engineering Entrepreneurship (EGS 4641)				
	NAE Grand Challenges Competition	• NAE Grand Challenges/Google Sprint – semester project • 65 students			
Own Your Career	EELP - eli² Student Leaders	• 20 Students • NAE Grand Challenges/Google Sprint – semester project • Presentation at Board Meeting on NAE/Sea Turtle • Engineers Week planning			
	Development Circles	• 110 students	• 23 Mentors • WDW – 4 • Siemens – 7 • Boeing – 3 • Nielsen – 1 • CECS Alumni Chapter – 8	• Kick off event (10/11) • 70 students attended • 11 mentors attended	
Own a Well-Balanced Life	Community Engagement: Hope & Proud Breakfasts	• Hope Breakfast (9/1) - 20 students • Proud Breakfast (12/1) - 45 students			

Spring 2018 Semester Scorecard

The scorecard provided to the right describes the specific program activities eli² implemented for a given semester.

Consistent with our innovation approach, we focused on our mission, identified new opportunities, pilot tested the opportunity, learned from the pilot, adjusted the offering, and expanded our offerings.

Objective	Program Element	Details/Outcome			
Technically Sound	**Inspire Students to Join the Journey (Support Introduction to Engineering EGS 1006/1007)**	• Career Mgt/Minor (3/23) • 1325 students reached			
Creative, Innovative, Collaborative, Accountable	**Maker Spaces**	• STEM Day Lab Tours (2/16)			
	Senior Design Boot Camp 1	• IEMS (1/26) – 65/73 • ECE (1/28) – 77/84 • MAE (1/26) – 53/120 • CS (2/3) – 106/125			
	Senior Design Boot Camp 2 - Check-in				
	Engineering Leadership Minor/Certificate	• 35 Minor • 7 Certificate			
	Course: Leaders Up Close (EGS 3030/3031)	• 65 students registered	• 5 Leaders Up Close speakers • Didier Menard • Bill Miller • Mike Sarpu • Molly Mahoney • Ron Foudray	• 4 CICA/Career Mgt Sessions • Career Services – Resume • Writing Across Curriculum – Technical Writing • Accountability • Development Circles	• Project experience • NAE Grand Challenges/Google Sprint
	Course: Engineering Leadership & Innovation (EGS 4624)	• 150-160 students			
	Course: Engineering Leadership Capstone (EGS 4950)	• 2 students??			
	Course: Engineering Entrepreneurship (EGS 4641)				
	NAE Grand Challenges Competition				
Own Your Career	**EELP - eli² Student Leaders**	• 20 Students • Engineers Week planning • UCF Maker Spaces Lab Assessment project • eli² Marketing Assessment			
	Development Circles	• 110 students	• 23 Mentors • WDW – 4 • Siemens – 7 • Boeing – 3 • Nielsen – 1 • CECS Alumni Chapter – 8	• Kick off event (10/11) • 70 students attended • 11 mentors attended	
Own a Well-Balanced Life	**Community Engagement: Hope & Proud Breakfasts**	• Hope Breakfast (9/1) – 20 students • Proud Breakfast (12/1) –			