LAI Lean Academy® Series
Overview

2007

Lean Aerospace Initiative (LAI) Formed in 1993

- **Industry**
  - **Airframe, engine, avionics, missile and space companies**
- **Government**
  - **Air Force agencies, system program offices, and headquarters**
  - **NASA, Army, Navy**
  - **Department of Defense**
- **Academia**
  - **MIT - Schools of Engineering and Management**
  - **Educational Network (2003)**

A national consortium for research, implementation and diffusion of lean practices

EdNet Vision & Mission

Vision: **EdNet success means that the current and future workforces have passion and capability in lean continuous improvement.**

Mission: **EdNet will leverage member's expertise and resources through collaboration and networking to accelerate the development and deployment of curriculum for achieving enterprise excellence.**

Educate   Motivate Innovate

LAI EdNet Schools
January 2007

AFIT
AZ State U
Cal Poly SLO
Cranfield (UK)
DAU
Embry-Riddle
Georgia Tech
Indiana State Univ
Jacksonville Univ
Loyola College, MD
Loyola Marymount
Macon State Col
MIT
Old Dominion Univ
North Carolina State
Purdue Univ
St. Louis Univ, MO
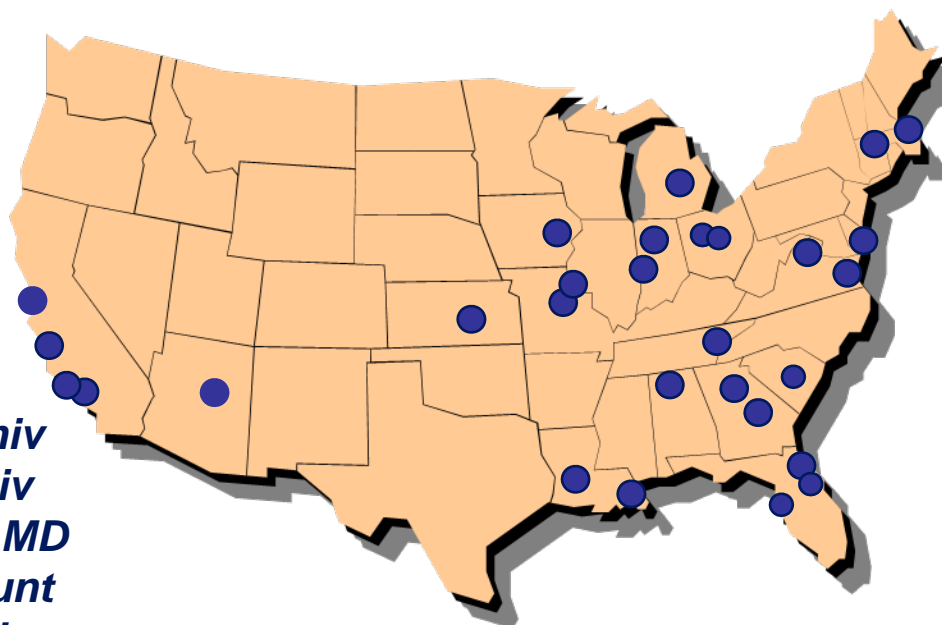
San Jose State Univ
U of AL, Huntsville
U of Iowa
U of Michigan
U MO Rolla
USC
U of Bath (UK)
U of South Florida
U of Tenn, Knoxville
U of New Orleans
U of Louisiana, Lafayette
U of Warwick (UK)
Wichita State Univ
Wright State Univ
WPI

3 UK schools ● ● ●

● 32 Member Schools

![Lean Academy logo]

LAI Lean Academy Strategy

- **Build industry-academia partnerships**

- **Educate learners new to lean principles at "point of use"**

- **Develop university faculty capability to teach lean**

- **Develop & deploy innovative curriculum**

- **Stimulate diffusion of curriculum into on-campus courses**

Short and long term value for multiple stakeholders!

LAI Lean Academy® Course

Pedagogy

- **Learner-centered philosophy**
- ***Lego*® Simulation**
- **Lean operations tour**
- **Video**
- **Hands-on activities**
- **Case study**

Curriculum

- **Lean Enterprise Fundamentals**
- **Intense one week format**
- **Before and after leaner proficiency measured**

LAI Lean Academy®
Expanded Audiences

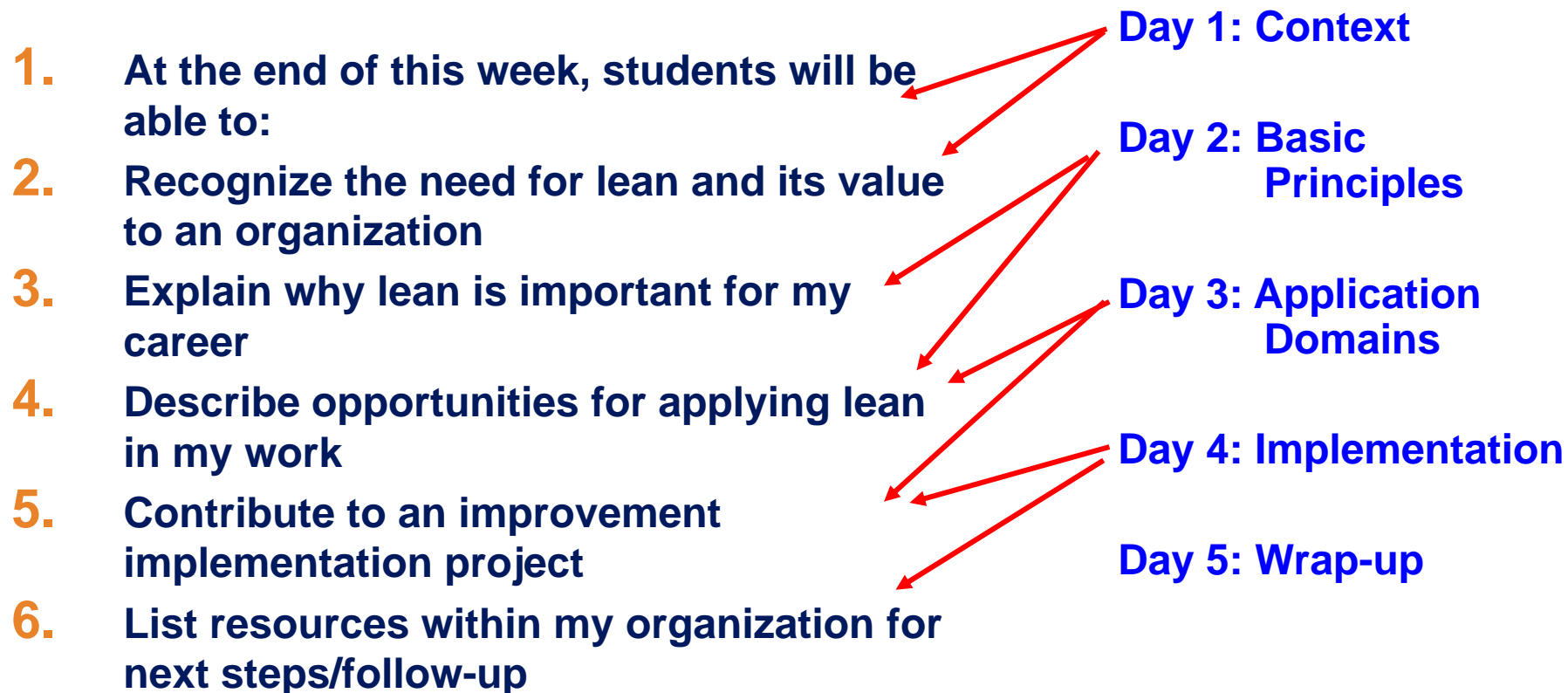**28 Successful Courses Delivered to:**

- **Summer interns, coops, new hires**
- **On campus undergrads and graduate students**
- **Industry employees with little lean knowledge**
- **Experienced industry employees, suppliers**
- **USAF enlisted and officer personnel**
- **Evening MBA students**
- **USC senior capstone ISE design subject**
- **Industry and government professionals in open classes**

Robust course adaptable to varied audiences

2007 Class Schedule

Time	Day 1	Day 2	Day 3	Time
8:00	Contiential breakfast and opener - 45 min	Icebreaker & Day 1 Recap	Icebreaker & Day 2 Recap	8:00
8:30		Enterprise Simulation Segment I - 90 min	Accounts Payable II: VSM - 60 min	8:30
9:00	Break - 15 min			9:00
	Why Am I Here? - 60 min		Break - 15 min	
9:30			Variability Simulation - 45 min	9:30
10:00	Break - 15 min	Break 15 min		10:00
10:30	Enterprise Leaders' Talk - 45 min	Lean Supply Chain Basics - 45 min	Break - 15 min	10:30
			Quality Tools Part 1 - 45 min	
11:00	Break - 15 min	Enterprise Simulation Segment II - Lean Thinking Refresh and Change Planning - 75 min		11:00
11:30	Lean Thinking - 60 min		Break - 15 min	11:30
			Quality Tools Part 2 - 45 min	
12:00		Lunch - 45 min		12:00
12:30	Lunch - 45 min		Lunch - 45 min	12:30
1:00	Office Lean AMA Video - 30 min	Enterprise Simulation Segment II - 60 min	Host talk on Lean Eng'g or Office application - 30	1:00
1:30	Break - 15 min		Break - 15 min	1:30
2:00	Value Stream Mapping (VSM) Fundamentals - 45 min	Lean Engineering Basics - 45 min	People - 75 min	2:00
2:30	Break - 15 min	Break 15 min		2:30
3:00	Plant Tour & Debrief (includes travel time) - 120 min	Enterprise Simulation Segment III - Refresh and Change Planning - 60 min	Break - 15 min	3:00
3:30			Lean Implementation - 90 min	3:30
4:00		Enterprise Simulation Segment III - 45 min		4:00
4:30		Accounts Payable I - 15 min		4:30
5:00	Wrap up - 15 min	Wrap up - 15 min	Wrap up - 15 min	5:00
	Social TBD	Case Study Homework	Graduation celebration	

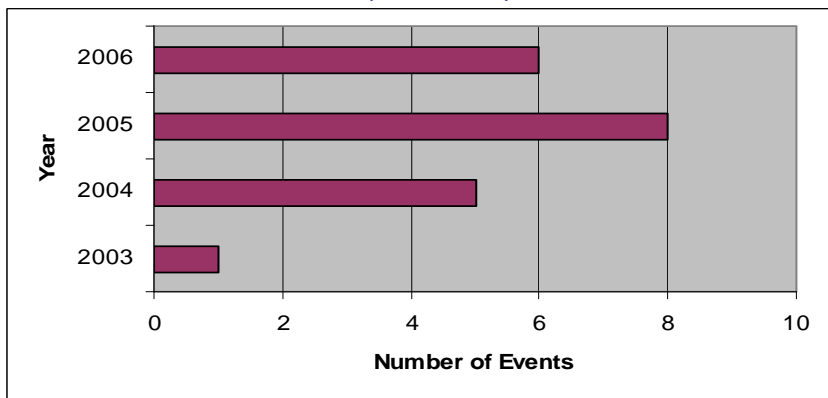# Linkage of Learning Objectives To Academy Content

1. At the end of this week, students will be able to:

2. Recognize the need for lean and its value to an organization

3. Explain why lean is important for my career

4. Describe opportunities for applying lean in my work

5. Contribute to an improvement implementation project

6. List resources within my organization for next steps/follow-up

Day 1: Context

Day 2: Basic Principles

Day 3: Application Domains

Day 4: Implementation

Day 5: Wrap-up

Results
LAI Lean Academy® Course

Number of Academies
(26 Total)

Number of EdNet Facilitators
(84 Instructors & Hosts)

2003	2004	2005	2006
4	30	20	30

Number of Graduates
(350 Total)
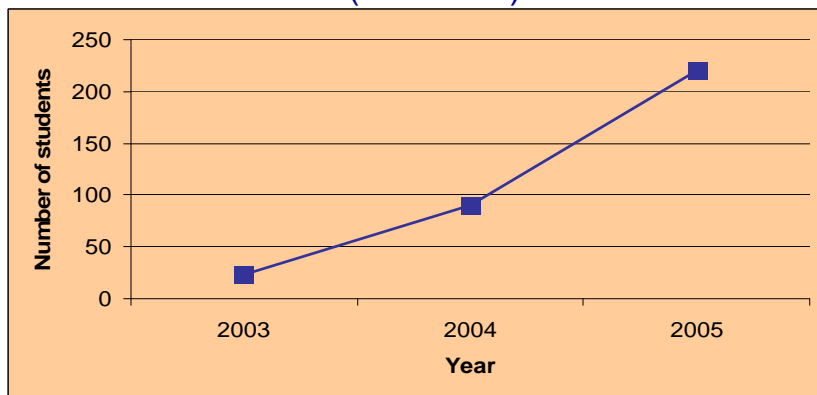
Before/After Student Proficiency

2005 VALUE Scores

Lean Academy
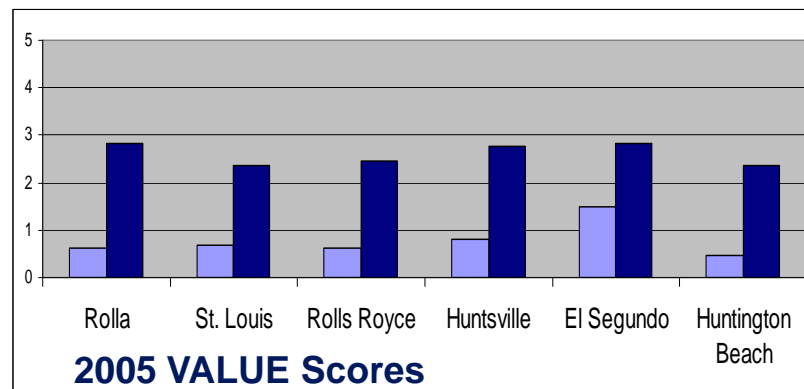
"The game segments were awesome. It definitely helped to clarify the idea of LEAN."

"Really liked the segment on Lean Engineering"

"The interview gave us more real world exposure to the lean process and how it is actually being put to use."

"Everything was of value to my learning. I tried to absorb as much as possible so I can begin to apply lean principles to my career"

Modules from the LAI Lean Academy® Class have been incorporated into EdNet schools everywhere!

Full Course Offerings:

- **University of Missouri, Rolla**
- **University of Iowa**
- **USC (semester long version)**
- **Jacksonville University (Spring 2007)**
- **University of South Florida (Planned for 2007)**
- **MIT (summer 2007)**

Impacting Campus Curriculum: Some Examples

Lean Academy

Stanford Univ.
"The new Stanford Certificate program in systems engineering incorporates elements of Lean in its core courses and is developing a Lean Principles and Practices elective."

Saint Louis Univ.
"Ed Thoms [Boeing] to give a couple of lectures on 'what is LEAN' and 'LEAN and CAD/CAM' to junior ME students."

Purdue University
"The EdNet helped me personally with improving the pedagogy in our MBA-level Lean Enterprises course."

Embry-Riddle
"I now discuss the LAI, lean engineering, & lean manufacturing in my senior Aircraft Detail Design class"

Loyola Marymount
"30% of my graduate Lean course … is stimulated …by the LAI Work"
"Involvement has led to very unique Mission Assurance curriculum"

Arizona State Univ.
"I have used the [LAI Lean Academy] Quality module as an introduction in an MBA course in SCM that I teach."

U of Louisiana, Lafayette
"With the help of Ednet and the LAI workshop that I attended at Daytona Beach, I have started a new Lean Manufacturing and Lean Enterprise course this spring."

U of New Orleans
"Two of our team members…attended LAI Lean Academy in January and they are now …helping me to develop the curriculum for the Fall course."
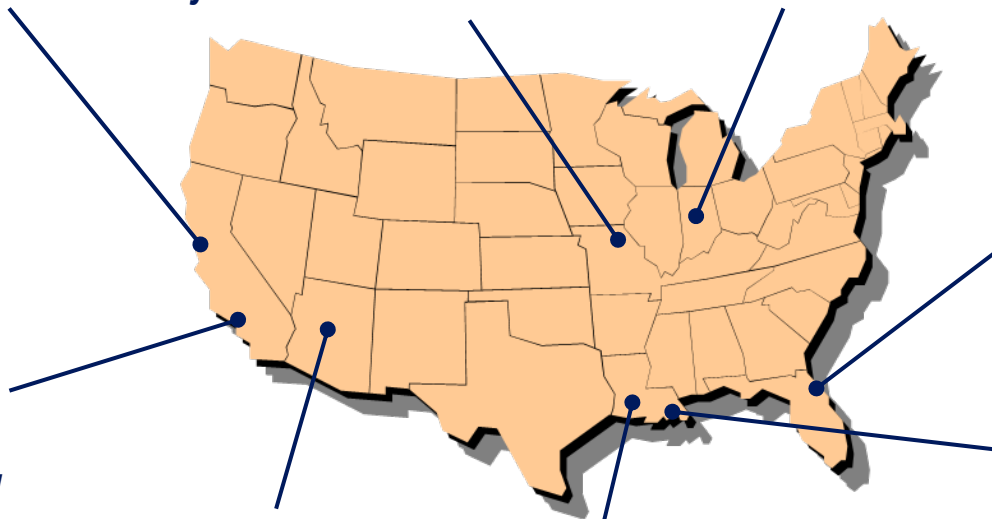
New Series of Offerings

- ## LAI Lean Academy® Course

  - **Full 5-day offering with lean facilities tours and student summary presentations**

- ## LAI Lean Academy® Short Course

  - **3-day version of the course with optional add-on modules or seminars for a full week**

- ## LAI Lean Academy® Seminars

  - **Lean Engineering, Lean SCM, Lean Accounting, Advanced VSM, A3 Project Implementation**

LAI Lean Academy®
Course Operations

LAI EdNet@MIT

- Curriculum development
- Instructor certification and selection
- Course schedule management
- Annual academy review

LAI EdNet Center@UAH

- LAI Satellite Center West at LMU/USC
- LAI Satellite Center East at MIT
  - Course administration and setup
  - Instructor kit maintenance
  - Feedback collection & summaries