



**Panel Framing
Strategies for Integrating Lean
Into The Curriculum**

**Lean Educator Conference
April 25, 2008**

Apply Lean Principles

- Specify **value**: Value is defined by customer in terms of specific products and services
- Identify the **value stream**: Map out all end-to-end linked actions, processes and functions necessary for transforming inputs to outputs to identify and eliminate waste
- Make value **flow** continuously: Having eliminated waste, make remaining value-creating steps “flow”
- Let customers **pull** value: Customer’s “pull” cascades all the way back to the lowest level supplier, enabling just-in-time production
- Pursue **perfection**: Pursue continuous process of improvement striving for perfection

Value Expectations

- **Student and family - Well educated for life long career & ready for entry level employment**
- **Employer - Prepared for current workplace, including entry level lean six sigma knowledge**

LAI Lean Academy Self-Assessment Scale

| | | |
|---|---------|---|
| 0 | Unaware | To have no exposure to or knowledge of... |
| 1 | Aware | To have experienced or been exposed to... |
| 2 | Ready | To be able to participate in and contribute to... |
| 3 | Capable | To be able to understand and explain... |
| 4 | Skilled | To be skilled in the practice or implementation of... |
| 5 | Expert | To be able to lead or innovate... |

...Lean Enterprise Knowledge Areas

Undergraduate Value Stream

Notional Based on MIT Calendar



**HS
Grad**



Freshman Year



Sophomore Year



Junior Year



Senior Year

**Univ
Grad**



Where are opportunities to add Lean value?

- **Including Lean in Capstone Courses**
 - Prof. Charles Eastlake, Embry-Riddle Aeronautical Univ
- **Deploying the LAI Lean Academy as a Special Elective**
 - Prof. Annalisa Weigel, MIT
- **Linking Lean Education to Summer Internships**
 - Richard Lewis II, COO Rolls Royce Indianapolis (retired) and MIT Senior Lecturer
- **Minor in Lean For Engineering Students**
 - Prof. Juan Carlos Ituarte Zarza, Tecnologico de Monterrey Campus Querétaro

Other Examples of Curriculum Integration

- **UAH I&SE integrated lean material across their curriculum.**
- **Jacksonville developed a senior elective**
- **USC I&SE integrated LAI Lean Academy content into Senior Capstone Design class**
- **ASU Aero & Mechanical Engineering integrated material into senior elective on the Engineering Profession**
- **U of Iowa Business School revamped an existing Operations Management course which had been primarily mathematical**
- **Stanford, LMU, UI, USF, UVA and other have integrated into or developed graduate courses**

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Audience Participation

- **Fill out the survey to help defined customer value**
 - **Please fill it out no matter what your role or background.**
- **What questions do you have for the panel?**
- **Do you have additional suggestions of strategies for integrating lean six sigma knowledge into undergraduate or graduate curriculum?**