

2012 NYSETA Presentation

Integrating Design for Six-Sigma into Project-Based Learning

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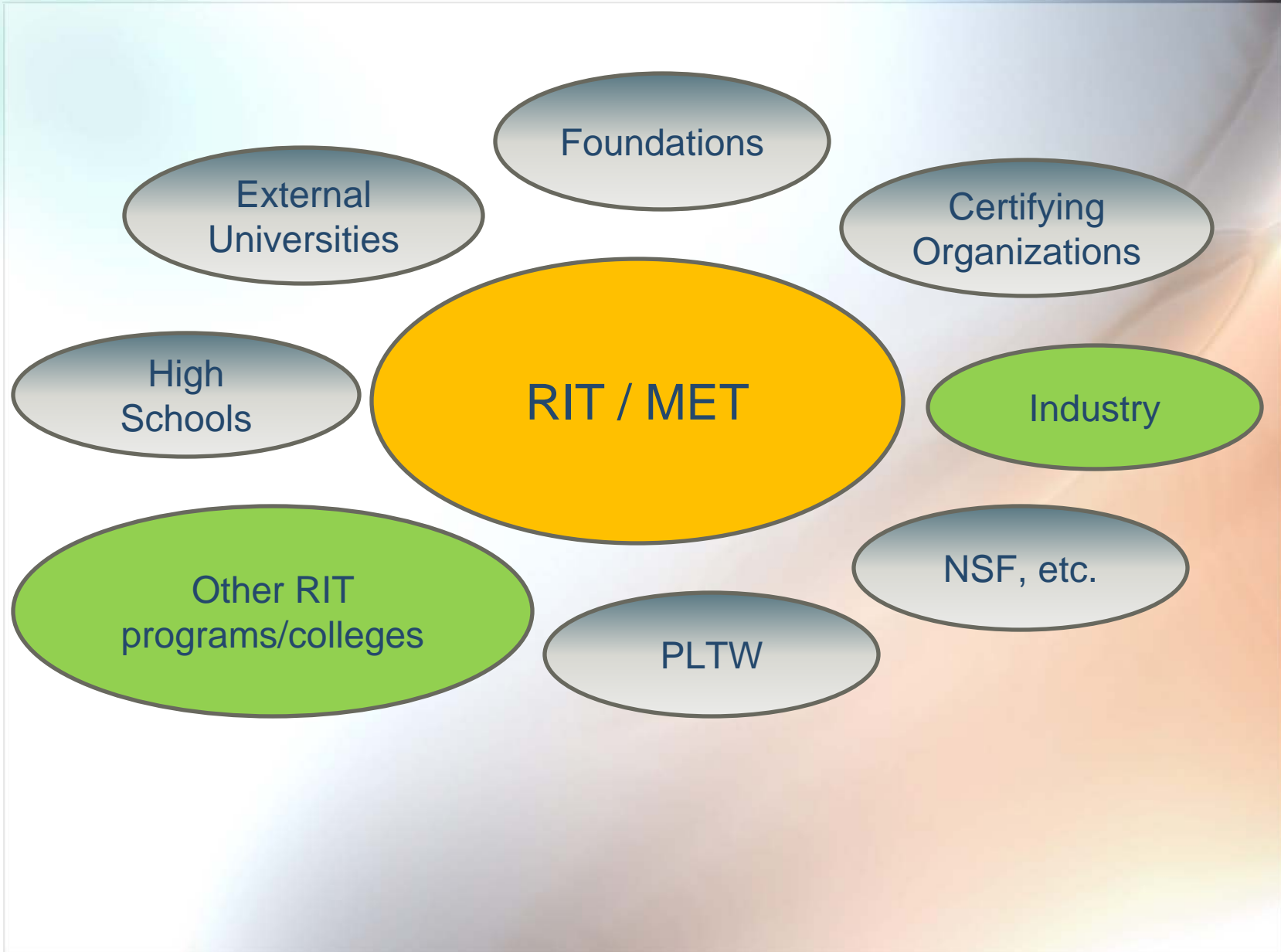
Vision

- **Students:** Provide an enhanced program that increases the student expertise thus improving their demand in industry.
- **Faculty:** Increase the quality level of faculty through continuous improvement.
- **MET Program:** To increase value and diversity of program to enhance the student experience, bringing to industry a portfolio of academics that anticipate and satisfy their desires and needs.
- **Academic / Industrial Partners:** Maximizing academic cohesiveness and providing exceptional leadership opportunities while being mindful of our overall responsibilities.

Mission

Our mission is to develop a set of principles and processes around the DMAIC and DMADV six-sigma concept that will be valued by both the academic and industrial culture.

Constituents



Quality Systems Approach

Problem-Solving Skills

**Customized Six Sigma
“Green Belt in MET”
Certificate Model**

**ANSI Accreditation under ASTM E 2569-09
For a Quality Certificate Program**

Quality Documentation System

Methodology

- Incorporate DFSS directly into courses
- DMAIC - Failure Mechanics project
- DMADV² – Machine Design

(DMAIC - Define, Measure, Analyze, Improve, Control.)

(DMADV² - Define, Measure, Analyze, Design, Verify & Validate.)

Concerns

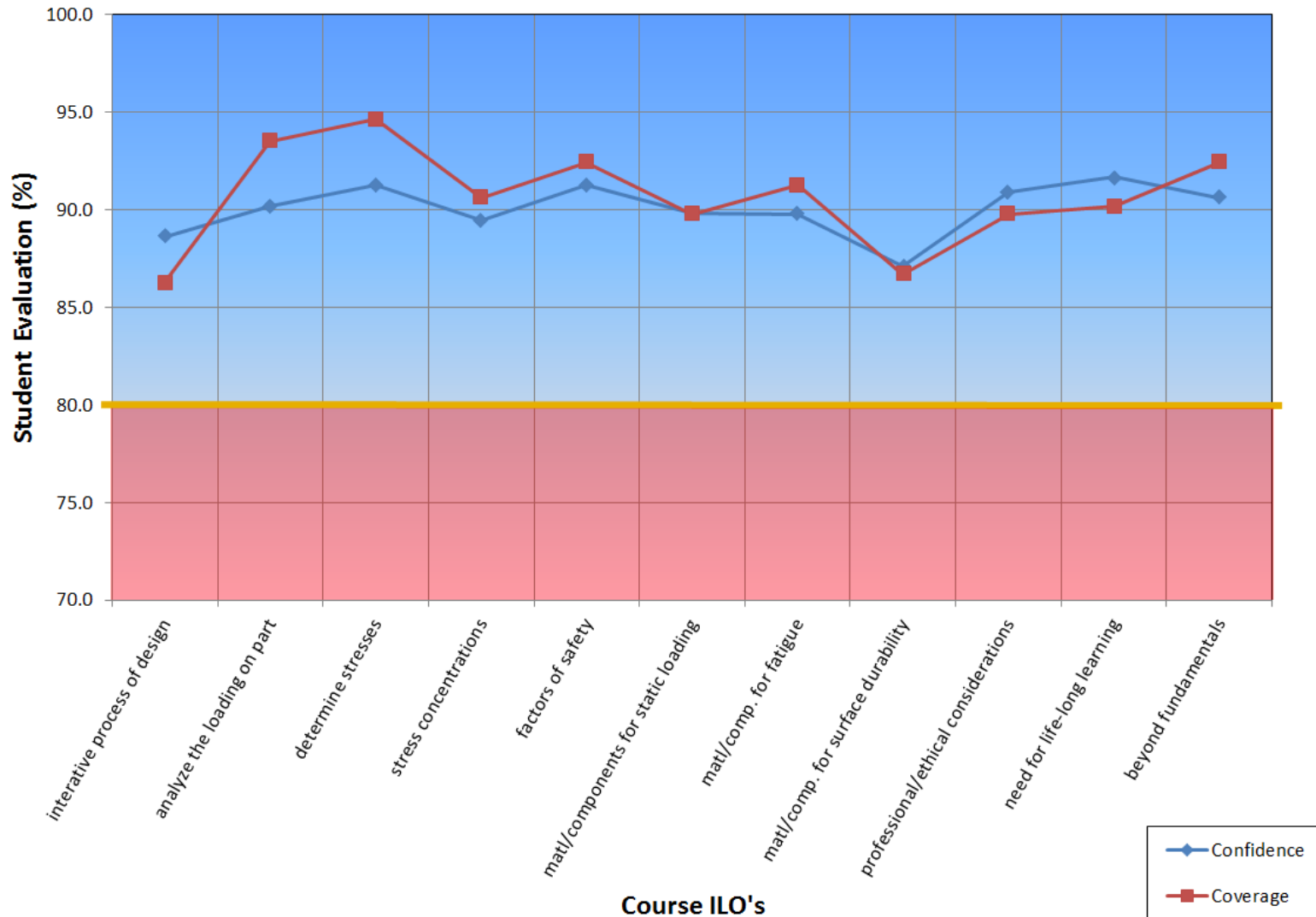
- Course Impact
 - Loss of content
 - Student interest
 - Student confusion

Concerns

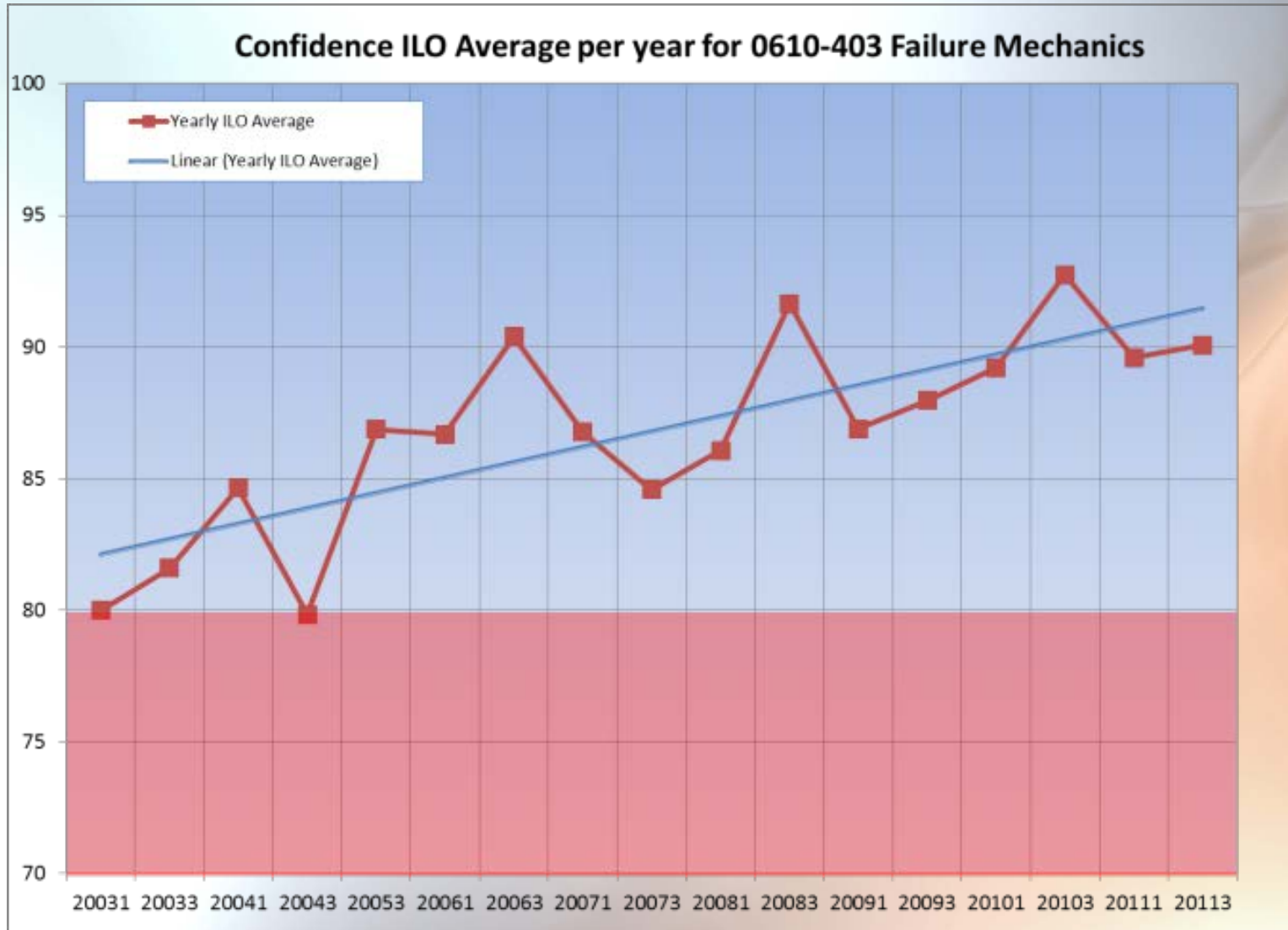
- Sustainability
 - Academic changes
 - Industry changes

Course Impact Results

20113 ILO Values for 0610-403 Failure Mechanics



Course Impact Results



Defense examples



Student's Perspective

- Application of Philosophy
- Project Example
 - Adapted to be used with Taguchi system
 - Reduction of Variation on a process
- Implemented DMAIC to other experiments
- Now Teaching DMAIC process

Testimonial

- *“... The failure report turned out to be extremely helpful when talking to a major company I was interested in.*
- *“...During my time talking with the recruiter I was asked all the routine questions that every recruiter asks.*
- *“ ... until he had seen that I took a class in failure mechanics which intrigued him.*

Testimonial, cont'd.

- *He was shocked at the quality of the report and the subject matter covered.*
- *The recruiter asked what I did for a project for the green belt and I told him that it was incorporated into the failure mechanics report.*
- *When he heard that he just could not believe it.*

Testimonial, cont'd.

- *He then scanned through my resume again and seen my graduation date and asked me if there was any way I could graduate early because I have all the skills they are looking for in an employee for some of their positions.*
- *It was after this discussion with the recruiter that I realized that the failure project was more than worth the effort. ...”*

(Unsolicited testimonial from an MET student.)

Future

- Documentation
- Sustainability
- Expansion
 - Internal
 - External

Acknowledgements

- Jill Finan – J&J Ortho-Clinical Diagnostics
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 - DFSS Green Belt
- Mike Caldwell – Graduate Student
 - DMAIC Green Belt

Questions

