

COE CST Third Annual Technical Meeting:

Commercial Spaceflight Operations Curriculum Development (Task 257)

George Born

October 29th 2013



Center of Excellence for
Commercial Space Transportation



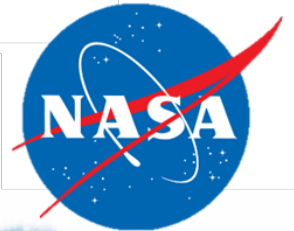
Overview

- Team Members
- Purpose of Task
- Research Methodology
- Results or Schedule & Milestones
- Next Steps
- Contact Information

Team Members

- **George H. Born** – Director Emeritus, Colorado Center for Astrodynamics Research
- **Bradley Cheetham** – Graduate Research Assistant, CU Boulder, Aerospace Engineering Sciences
- **Juliana Feldhacker** – Graduate Research Assistant, CU Boulder, Aerospace Engineering Sciences
- **Jon Herman** – Graduate Research Assistant, CU Boulder, Aerospace Engineering Sciences

Industry Partners



Recently Added Industry Partners



Lab software/operations insight



Industry guest lecture



Lecture content & best practices



Industry guest lecture

Purpose of the Task

To develop graduate level curriculum that will serve as a bridge between academic theory and commercial applications and to prepare students to become real-world problem solvers.

COE Objectives

Research

- Student research projects investigate current constraints and explore potential solutions

Training

- Preparing students to enter industry with commercial perspective

Outreach

- Educating academia about developments in commercial space

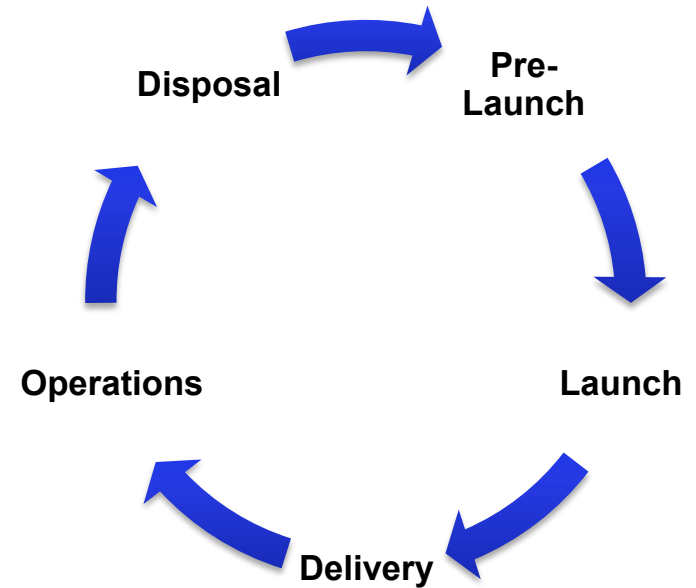
Approach

Objectives:

- Develop one-semester course
- Develop one-semester lab
- Refine content based on student and industry feedback
- Standardize and establish Graduate Certificate
- Increase collaboration between academia and industry

Curriculum Scope

- Full mission lifetime
- Transfer knowledge
 - Industry ↔ Academia
 - Established ↔ Emerging
- Provide context



Operations Lab

Guiding principles:

- Push the state-of-the-art for education
- Extensively involve industry
- Apply theories to real-world challenges
- Assist research
- Enable other courses
- Exhibit research

Entirely constructed with University cost-share

Lab Complete

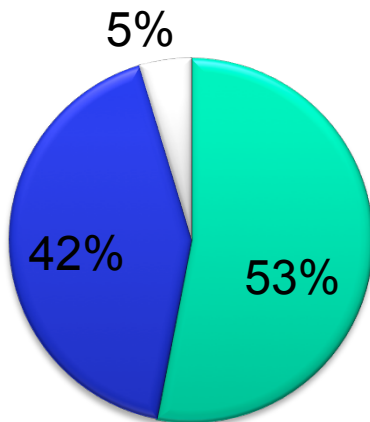


COE CST Third Annual Technical Meeting (ATM3)
October 28-30, 2013

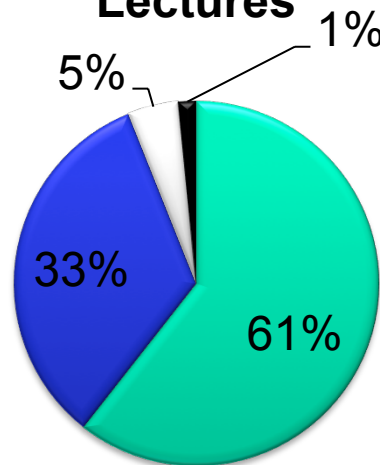
Results or Schedule/Milestones

- Lecture offered: fall 2011, 2012, 2013
- Lab offered: spring 2013, spring 2014
- Total students registered: 81
- Student feedback

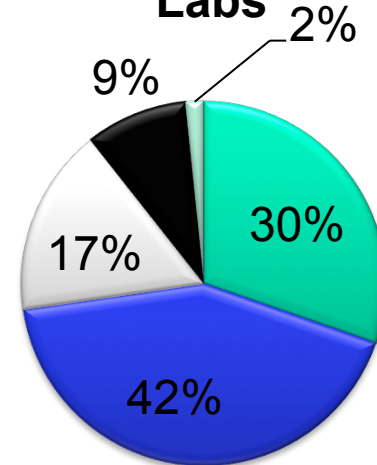
Overall Course



Lectures

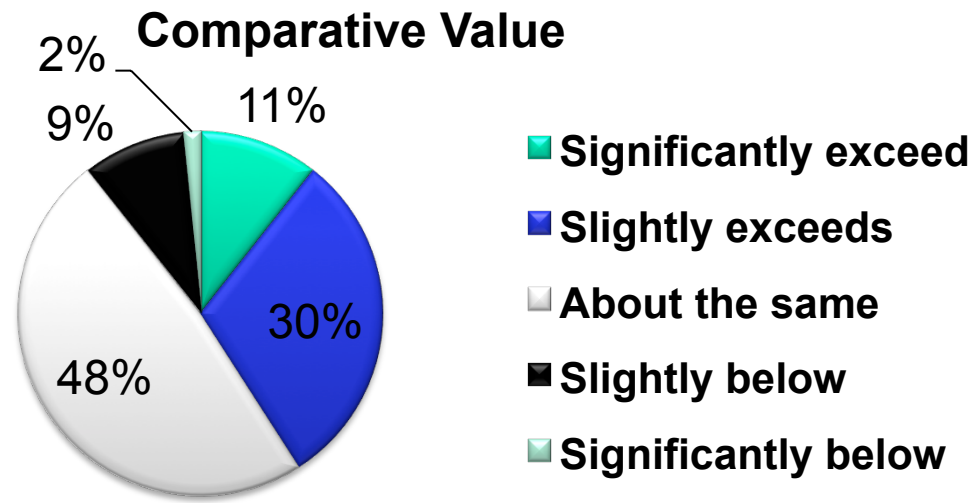


Labs



Results

- Industry feedback incorporated into all content
- Student feedback incorporated where possible
 - Changes to course lay-out
 - Changes to lab assignments
- Value proposition to students



Next Steps

- Spring 2014 – Lab offered
- Certificate Development
- Broaden impact via distance learning and collaboration
 - Currently engaged with Kansas University and University of Southern California

Contact Information

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