Improving Student Success and Timely Graduation: Innovations and Technologies
Planning and Implementation Timeline

- September 2012: Briefing Governor’s staff on CSU’s technology strategies
- November 2012: Proposal submitted to Governor’s Office
- January 2013: Continued discussion with Governor’s staff
- February 2013: Legislation introduced
- April 2013: Further discussions with Governor’s staff. CSU gets ready for launching Bottleneck Solutions and Student Success Initiative
- July 2013: CSU launches initiative. CSU shares detailed plans with Department of Finance
- September 2013: Four programs underway producing early benefits
CSU’s Pervasive Integration of Technology For Student Success

• Road to College Outreach and Admissions

• Academic Program Delivery
  • Technology-enabled Classes
  • Est. 3,250 Fully Online Classes
  • 104 Online Degree Programs

• Teaching and Learning Support Services
Improving Student Success and Timely Graduation: $10M Augmenting Our Priorities

1. Improving Student Retention with Innovative Pedagogies and Technologies
   • Applying Innovative Course Redesign Strategies

2. Improving Access to Needed Courses
   • Fully Online Courses Across CSU campuses

3. Improving Access to STEM Lab Courses
   • Virtual Labs

4. Providing Effective and Timely Advising
   • eAdvising Services
Scaling Exemplary Practices

• CSU has innovative uses of technology producing student success.

• Transfer DEMONSTRATED exemplary teaching and technology practices

• Faculty share strategies for successful redesign of courses.

• Over 150 faculty learning to quickly and effectively scale strategies

“In a short two-and-half day period, the workshop provided a lot of information on the new course materials and implementation method and strategy as well as a forum for future support”

– Faculty Participant
# 2013 eAcademies

<table>
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<tr>
<th>Course Name/Number</th>
<th>EE098</th>
<th>PHY 131/133</th>
<th>CHEM 301A/301B</th>
<th>MATH 103/115/125/150</th>
<th>PHIL 102</th>
<th>Statway</th>
<th>Intro to Biology</th>
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<tr>
<td>Lead campus(s)</td>
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<td>Technology and pedagogy</td>
<td>edX/ Flipped Classroom</td>
<td>smartPhysics/ Inquiry-based learning</td>
<td>Online Homework Supplemental Instruction</td>
<td>Adaptive Learning Supplemental Instruction</td>
<td>Fully Online/ Student Engagement</td>
<td>Online Homework/ Structured Curriculum</td>
<td>Fully Online/ Virtual Labs</td>
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<td>10</td>
<td>9</td>
<td>13</td>
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Course Redesign Example

Blending Innovative Technologies and Pedagogies for Student Success

• San Jose State’s Engineering Circuits Course
  • Using edX Technologies
  • Flipped Classroom Pedagogy
Flipped Classroom

Outside class:
• Watch edX – MIT’s video lectures
• Do online interactive exercises

In class:
• SJSU instructor answers conceptual questions in the first 15 minutes
• Students work in groups on ‘homework’ problems (15% of course grades) with help from the professor and student assistants
Online Video Lectures

Overview

Week 1 (Jan. 24 to Jan. 30)

- Linearity and Superposition
- Lecture Sequence

Week 2 (Jan. 31 to Feb. 6)

- Static Discipline and Boolean Logic
- Lecture Sequence

Week 2 Tutorials

- Homework 2
  - Homework due February 06 10:30

- Lab 2
  - due February 06 10:30

S4V16: DEMO - CHAIN SAW

[PAUSE]
[MUSIC PLAYING]
[LAUGHTER]
[LAUGHTER]
[CHEERS]
[APPLAUSE]
[CHAIN SAW]
Again, we calculate $v_o$ (i.e. output noise) and $V_O$ (i.e. DC output voltage) for $R_L=2k\Omega$ and $R_L=4k\Omega$ for this new circuit.

Hint: Your first job here is to determine which of the three regions of the piecewise-linear characteristic of the Zener is the one containing the operating point; we suggest you sketch a load line, but be very careful about the signs. Once you have determined where the operating point is, you can model the Zener in the circuit with a series combination of an independent voltage source and a resistor.

For $R_L = 2 \text{ k}\Omega$ the value of $V_O$ (in Volts) is:
Spring 2012

High variability; high failure rate
40% = retake course

Fall 2012 (edX based)

Improved the “failing” students
9% = retake

➔ 31% fewer students retaking the course

Courtesy Dr. Ping Hsu
IMPROVED SUCCESS-TIMELY GRADUATION

- 4 campuses implementing San Jose State’s edX - Flipped Classroom strategy
- Estimated 500-650 students enrolled in 2013-14

If results are scaled across all courses...
- 30% fewer students retaking the course
- 30% more new students can take the course with the same instructional resources

REAL OUTCOME – min. 150 new seats in circuits courses and more engineering students succeeding
Blending Innovative Technologies and Pedagogies for Learning Math

• CSU Northridge’s Hybrid Lab Course Model for Math

• Low student success in Business Math
• Math courses are gateways to many majors
CSU Northridge’s Hybrid Lab Course Model for Math

- 4 campuses implementing
- Estimated 3,100 students enrolled in 2013-14

If results are scaled across all courses...

- 15% fewer students retaking the course
- 15% more new students can take the course with the same instructional resources

REAL OUTCOME – min. 465 new seats in Math courses and more Math students succeeding
Promising Innovations For Student Success

• Campuses know where they need to improve
  • Need to put innovations and technology into practice
  • Collect evidence that redesign will result in student success

• $2,700,000 was awarded to 19 campuses
  • 77 courses will be redesigned using technology to enhance instruction
  • 19 of the 77 will be taught fully-online after redesign
#2: Access to Online Courses

More Pathways to Graduation: Cross Campus Enrollment in Fully Online Classes

- Scaled existing policies with technologies
- Launched for Fall 2013
  - 33 fully online courses offered by 11 campuses
  - GE Courses are articulated
  - Courses selected with comparable student success

**EARLY OUTCOME:** 197 students from 15 campuses registered for courses
More Access to More CSU Courses!
Enroll in Fully Online Courses Offered by Other CSU Campuses.

Full time CSU students enrolled at any CSU campus have access to fully online courses at other CSU campuses through the Intrasystem Concurrent Enrollment (ICE) program. Credit earned at the CSU campus offering the online course is automatically reported to your home campus and included in your academic record.

Before enrolling in an online course at another CSU, you should consult with your academic advisor to determine how the course may apply to your degree requirements. The online course schedule provides information regarding general education requirements satisfied by available online courses.

All courses taken at another CSU campus will transfer to your “home” CSU campus as at least elective credit.

1. Search the Schedule of Online Courses by the type of term at your campus.
   - Term Type: [ ] Quarter
   [ ] Semester
   - [Search]

2. Check if you have met the eligibility requirements and enrollment conditions.
   - [Check]

3. Fill Out the Intrasystem Concurrent Enrollment Application.
   - [Apply]

Expanding Access to Fully Online Courses

- Increase number of Winter and Spring courses
- Improving outreach to students
- Improving information about host campus services
- Increasing approved articulation of courses
STEM Lab Courses On Pathway to CSU Providing More STEM Professionals

• Access to General Ed and Major STEM lab courses is constrained by campus facilities.

• Our Strategy: Use virtual labs to deliver hybrid laboratory courses

• If 50% of the lab course can be online, we could double the number of students using the lab facilities
Virtual Lab Simulations

Biology Labs Online offers a series of interactive, inquiry-based biology simulations and exercises designed for college and AP high school biology students.

**FIRST TIME USER?**
Click below to purchase access.

- **BUY NOW**

Want to try it out? Click below to get a free 1-day trial.

- **FREE TRIAL**

Register here with your existing Access Code to establish your Login Name and Password.

- **REGISTER**

**ESTABLISHED USER?**
Select a lab below and log in.

- **FLY LAB**
- **MITOCHONDRIA LAB**
- **EVOLUTION LAB**
- **LEAF LAB**
- **TRANSLATION LAB**
- **CARDIO LAB**
- **DEMOGRAPHY LAB**
- **ENZYME LAB**
- **HEMOGLOBIN LAB**
- **POP GEN LAB**
- **PEDIGREE LAB**
- **POP ECO LAB**

**INSTRUCTOR RESOURCES**

- **View Your Account Summary**
- **Forgot Your Login/Password**

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**How to Get Help:**
- Technical Requirements
- Tech Support
- Free Trial Information

**How to Order:**
- General Ordering Information
- How to Renew Your Subscription
- Ordering Outside the United States

Biology Labs Online is a collaboration between the California State University system and Pearson, Inc.
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Think | Hypothesize | Explore | Reflect | Explain | Extend

Your Hypothesis: Increasing pollutants improves seed germination.

Pick Experiment: Contaminant | Acid(HCl) | Concentration | Med(0.003M)

How pollutants affect seed germination

Click on each newly germinated seed if you see any.

Press Space or Click:

www.smartscience.net
eAdvising: Roadmaps to Timely Graduation

• Helping students make better choices and campuses provide better services.

• All campuses submitted 4-year plans to improve advising
  • Degree audit tools
  • Electronic academic program planners
  • Early warning tools
  • Scheduling tools
Academic & Student Success $7.2 Million

• Supporting the CSU Graduation Initiative
• Funded 30 projects across 15 campuses
• Projects implement and scale high-impact practices:
  • Learning communities, collaborative learning, and peer mentoring
  • Community service learning and civic engagement
  • Undergraduate research
Assessment

• Each project has outcome measures that will be collected

• Campuses’ institutional research offices and Chancellor’s Office Analytic Studies department will
  • Track and report findings
  • Inform campus and Chancellor’s Office planning and implementation of next phases of Reducing Bottleneck and Improving Student Success
Thank You