



The Foothill College

Science Learning Institute

***Foothill-De Anza Community College District
Board of Trustees
August 27th, 2012***



Agenda

- Foothill's SLI Program
- What Foothill has been doing
- Identify new “relevant” programs
- Q&A



PURPOSE

The Science Learning Institute supports high quality STEM education at Foothill College through:

- Relevant curriculum
- Effective instruction
- Strategic partnerships
- *Upskilling human capital*

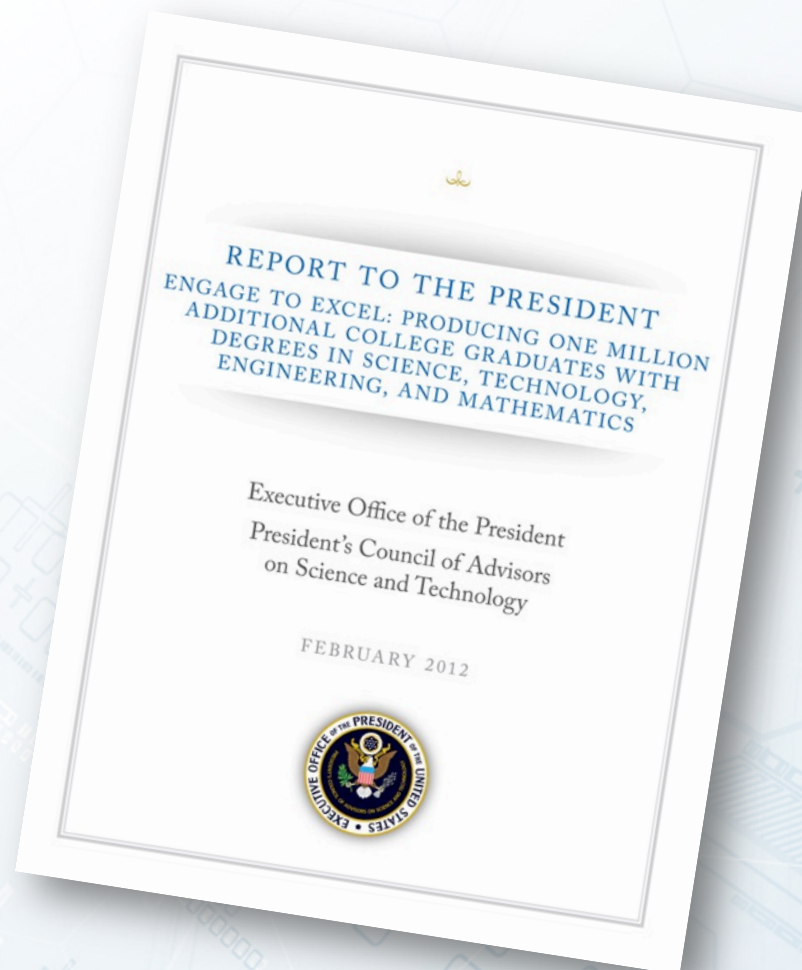


Science Learning Institute will:

- **Attract more students to STEM careers**
 - Create relevant curriculum
- **Develop Scholarships/Stipends**
 - Create Service learning, summer programs, & internships
- **Identify Strategic partnerships**
 - Find Internships at local industries/colleges
 - Industry participation in course development & teaching
- **Develop new curriculum**
 - Provide a ladder pathway for STEM students

The Foothill College Science Learning Institute

ACTION FRAMEWORK





COMMUNITY COLLEGE PEDAGOGY

- **Multiple advanced pedagogical programs**
 - **Gates Foundation**
 - **National Science Foundation (NSF)**
 - **National Academy of Science (NAS)**
 - **Carnegie Foundation**
- **SLI to formalize a professional Science, Technology, Engineering & Math (STEM) development program**
- **Potential partners such as: Khan Academy, UTech, ...**
- **Franchise the pedagogical program to other California Community Colleges**



EDUCATION

OBJECTIVES:

- Develop Service Learning to provide STEM topics to K-8.
- Develop STEM summer programs to engage grades 7-12 students using new programs.
- Develop integrated program for K-12 STEM teachers from CC to degree/credential.

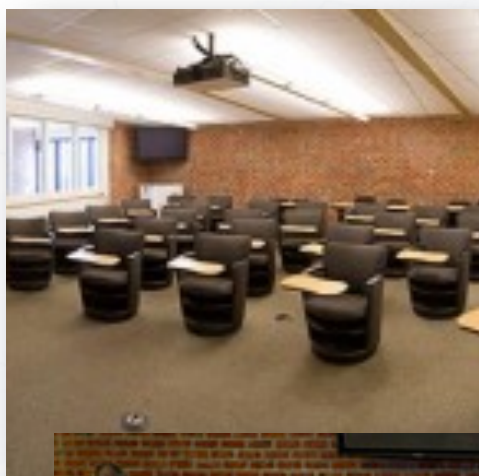
"Only 14 percent of middle-school science teachers practice what researchers consider high-quality science teaching."





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LIVING LABORATORY: EDUCATION



KCI



Virtualization



Tablet computers



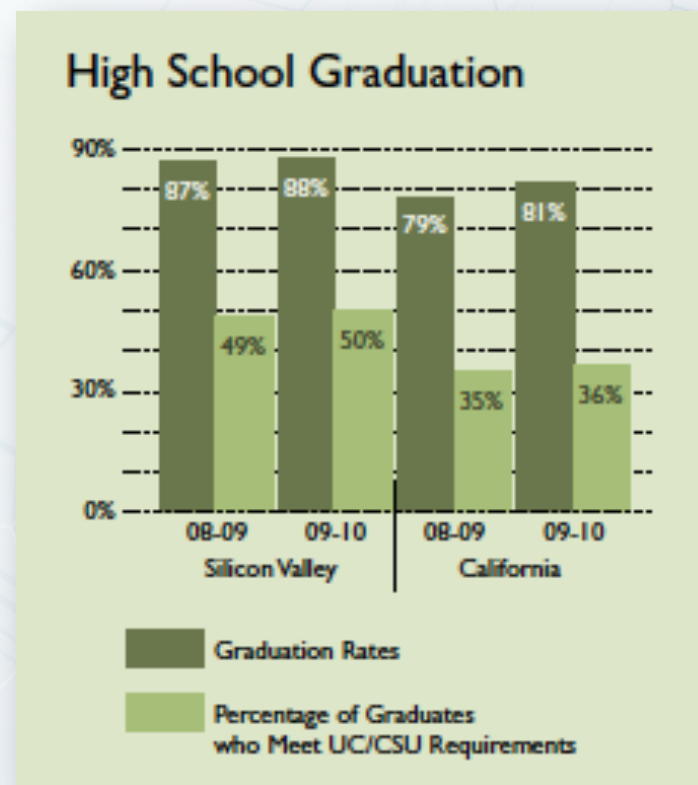
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BASIC SKILLS

OBJECTIVES:

- Increase precollegiate math pathways (Foothill's 76.6% completion rate, highest in peer group)
 - MathMyWay
 - STATway
 - Quantway
- Comprehensive Assessment
- Summer Bridge Program
- Tie to Transfer & Workforce





NEW “RELEVANT” PROGRAMS

- **Sustainability**
- **(New) Computer Science**
- **Nanoscience (Small materials)**
- **Energy**
- **Medical Devices**



Living Laboratory: Rainwater harvesting tanks

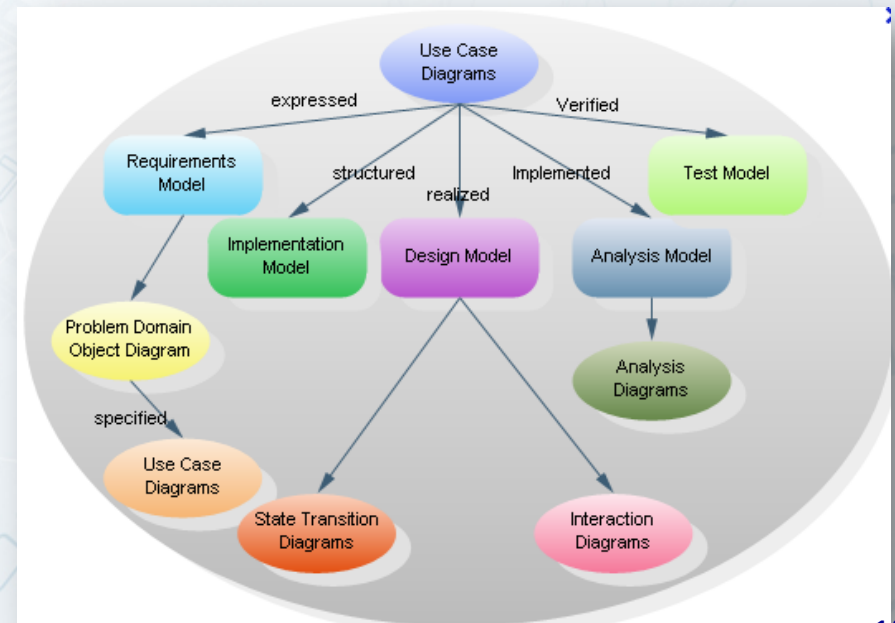


- Each tank is 2500 gallons of storage for a total of 7500 gallons
- Foothill air conditioning cooling towers preliminary investigation indicates that over a 4 day period 1900 gallons of water could be captured
- Water from PSEC building that is currently designed to drain into a retention pond.



COMPUTER SCIENCE FOR TRANSFER & WORKFORCE

- **Core Competencies: California Transfer Pattern**
 - Architecture Programming Languages
 - Object Oriented Programming
 - Networking & Security
 - Operating Systems
- **Opportunities:**
 - Databases
 - Gaming
 - Mobile computing
 - Cloud Computing
 - Scientific Programming
 - Smart Grids





LIVING LABORATORY: COMPUTER SCIENCE

Certificates:

- Cisco • Juniper • VMWare • Oracle • EMC + Foothill

Labs:

- Computer Engineering
- Architectures
- Servers (Clouds)
- Networks
- Mobile computing
- Software



- Virtualized Servers
- 300 users

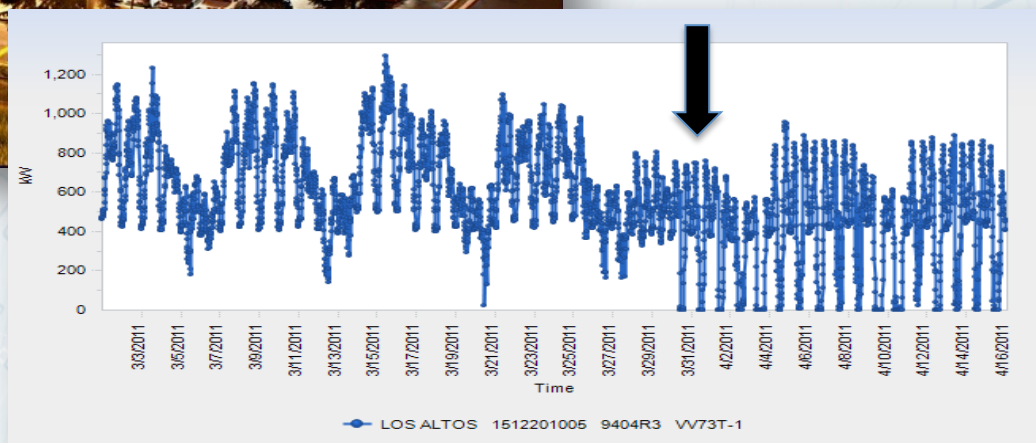




FOOTHILL'S CAMPUS AS A LAB



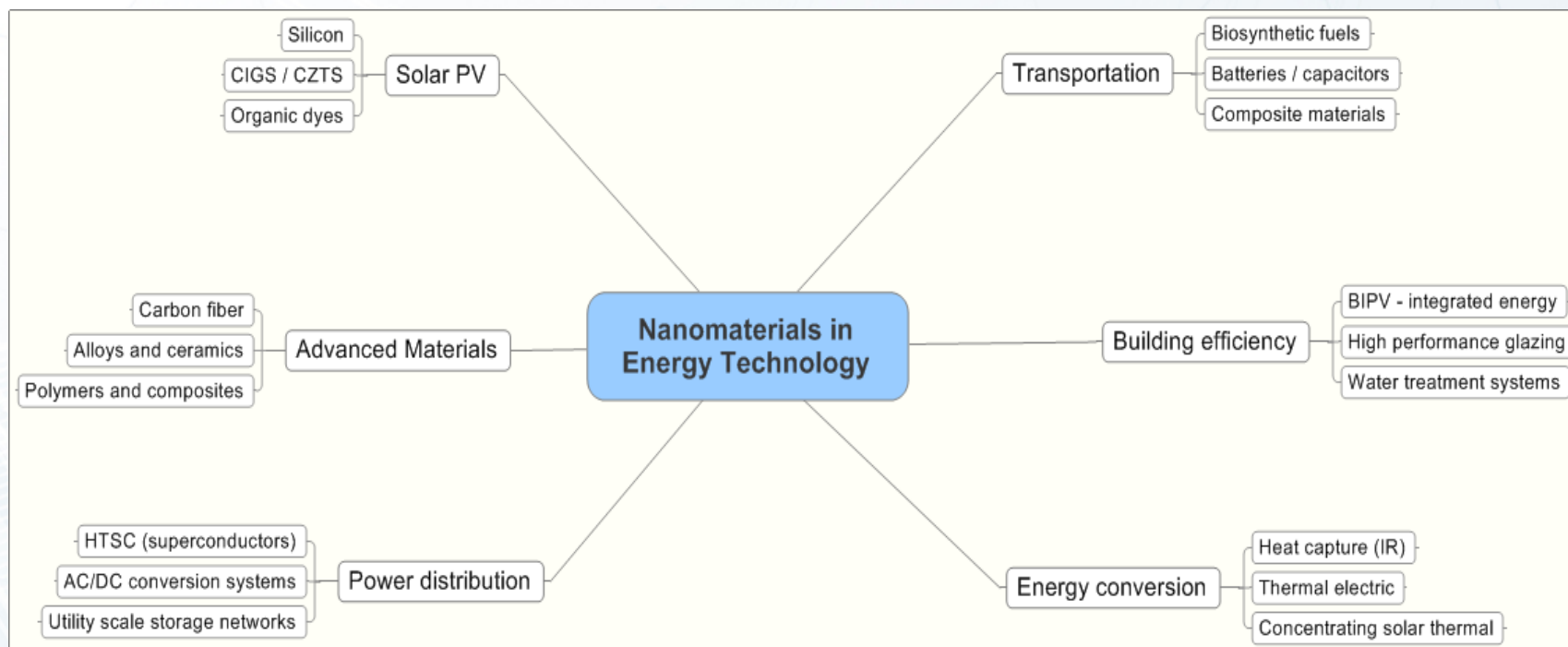
“Energy Lab”
Itron Interval Data
shows 1MW PV
connected





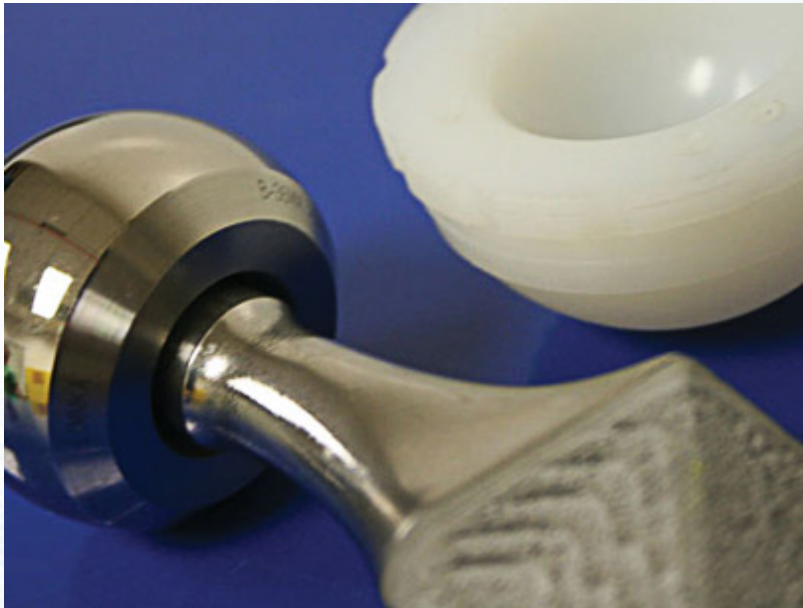
Materials Matter

- Foothill College is an 'NASA/AMES-affiliate'





Biomedical Devices



Prosthetic devices



Biomedical Stents



**PHYSICAL SCIENCES AND ENGINEERING CENTER (PSEC),
KRAUSE CENTER FOR INNOVATION (KCI)
& ONIZUKA**





Develop the Next Generation of Solution Providers

- ***Transfer students***
 - *CalTech of Community Colleges*
- ***Incumbent workers***
 - *Many with STEM degrees*
- ***Next Generation Teachers***
- ***Professional ‘technicians’***
 - *AS degree / certificate*
- ***Community at large***



‘First in family’ engineers who discover careers that will change the world



THANK YOU!
QUESTIONS?