

BACCALAUREATE OF APPLIED SCIENCE IN INDUSTRIAL AUTOMATION AND DESIGN

Building upon more than 100 years of excellence, Bakersfield College continues to contribute to the intellectual, cultural, and economic vitality of the communities it serves.

Presentation to College Council
October 17, 2014

Jason Dixon, Liz Rozell, Michele Bresso, Cindy Collier, Sue Vaughn, Mindy Wilmot, Anthony Culpepper, Sonya Christian

**BAKERSFIELD
COLLEGE**
1913 – 2013

BC CELEBRATING 100 YEARS: **1936 ON THE HIGH SCHOOL CAMPUS**



THE BAS TEAM



Sonya Christian
President, BC

Liz Rozell
Dean, STEM, BC



Anthony Culpepper
Vice President, Finance &
Administrative Services, BC

Michele Bresso
Assoc. Dean of Instruction, BC
Vice Chancellor, Government
Relations, KCCD



Jason Dixon
Department Chair,
Engineering Industrial
Technology, BC

Cindy Collier
Dean of Instruction, Nursing
and Allied Health, BC



New Members:
Sue Vaughn
Mindy Wilmot

CALIFORNIA HIGHER EDUCATION MASTER PLAN

A MASTER PLAN
for
HIGHER EDUCATION
IN CALIFORNIA
1960-1975

"...It was the first time in the history of any state in the United States, or any nation in the world, where such a commitment was made -- that a state or a nation would promise there would be a place ready for every high school graduate or person otherwise qualified."

—
Clark Kerr 1999

SB 850

APPROVED

NEWS RELEASE

Sept. 28, 2014

Governor Signs Bill Enabling 15 California Community Colleges to Award Four-Year Degrees

California joins 21 other states that offer community college baccalaureates in workforce and technical fields

Governor Jerry Brown today signed into law a historic measure that for the first time enables a limited number of California community colleges to offer four-year degrees.

Senate Bill (SB) 850, authored by State Senator Marty Block (D-San Diego), drew overwhelming bipartisan and business support because it addresses a growing need for the state to become more competitive in areas of high workforce demand.

The pilot program authorized under SB 850 allows up to 15 different community college districts to offer one baccalaureate degree each in select workforce majors starting on Jan. 1, 2015 and ending on July 1, 2023.

*****Senate Bill 850 allows up to 15 different colleges in 15 different community college districts to offer one baccalaureate degree.**

CHOOSE BC AS A PILOT COLLEGE

VIDEO COMMUNICATION TO CHANCELLOR HARRIS

Office of the President

Baccalaureate Degree

Campus-Wide Meetings

Communications

Past Presidents

President Awards 100 Stars

President's Circle

Projects

Work Plans & Accomplishments

Baccalaureate Degree



For More

- [President's Blog](#)
- [BC Committees](#)
- [Accreditation](#)

On February 1, 2014, Bakersfield College petitioned California Community Colleges Chancellor Brice Harris to be a pilot site for a baccalaureate degree under SB 850 - Community College District Baccalaureate Degree Pilot Programs.

<http://www.bakersfieldcollege.edu/president/baccalaureate-degree>

BACCALAUREATE ATTAINMENT

BY COUNTIES IN CALIFORNIA

County	Population 25 years and over	Percent bachelor' s degree or higher	Rank	County	Population 25 years and over	Percent bachelor's degree or higher	Rank
Marin	187,610	55.8%	1	Humboldt	91,893	26.7%	21
San Francisco	644,836	53.6%	2	Butte	142,262	24.1%	22
Santa Clara	1,240,851	47.1%	3	Solano	279,393	24.1%	23
San Mateo	522,151	43.8%	4	Monterey	265,340	24.0%	24
Alameda	1,060,024	42.4%	5	Mendocino	60,606	23.4%	25
Contra Costa	728,065	39.4%	6	Riverside	1,405,232	20.5%	26
Santa Cruz	172,067	38.3%	7	San Joaquin	427,418	18.9%	27
Orange	2,037,907	37.3%	8	Fresno	560,633	18.5%	28
Yolo	119,945	37.3%	9	San Bernardino	1,254,340	18.5%	29
Placer	247,723	34.8%	10	Shasta	124,220	18.2%	30

* The US Census website did not have data to report for 18 of the 58 counties in California. Inyo and Mono are among the 18 with no data.

BACCALAUREATE ATTAINMENT

BY COUNTIES IN CALIFORNIA

County	Population 25 years and over	Percent bachelor' s degree or higher	Rank	County	Population 25 years and over	Percent bachelor's degree or higher	Rank
San Diego	2,079,795	34.8%	11	Sutter	59,373	17.7%	31
San Luis Obispo	180,650	33.5%	12	Lake	46,706	17.1%	32
Nevada	73,598	32.4%	13	Stanislaus	321,347	16.1%	33
El Dorado	126,734	32.0%	14	Yuba	44,292	15.8%	34
Sonoma	339,841	31.8%	15	Kern	503,688	15.3%	35
Ventura	542,924	31.6%	16	Tulare	257,393	14.7%	36
Napa	94,818	30.3%	17	Imperial	106,011	13.0%	37
Santa Barbara	266,202	30.2%	18	Merced	149,009	12.8%	38
Los Angeles	6,525,066	30.0%	19	Madera	93,341	12.5%	39
Sacramento	943,594	28.0%	20	Kings	93,536	12.1%	40

* The US Census website did not have data to report for 18 of the 58 counties in California. Inyo and Mono are among the 18 with no data.

BACCALAUREATE ATTAINMENT BY POVERTY

USA-CA-KERN

Baccalaureate Attainment by Poverty	2010	2011	2012
United States			
Individual Income in past 12 months below poverty level	1.2%	1.3%	1.3%
Individual Income in past 12 months at or above poverty level	27.3%	27.6%	28.1%

BACCALAUREATE ATTAINMENT BY POVERTY

USA-CA-KERN

Baccalaureate Attainment by Poverty	2010	2011	2012
California			
Individual Income in past 12 months below poverty level	1.5%	1.6%	1.7%
Individual Income in past 12 months at or above poverty level	28.9%	29.1%	29.5%

BACCALAUREATE ATTAINMENT BY POVERTY

USA-CA-KERN

Baccalaureate Attainment by Poverty	2010	2011	2012
Kern County			
Individual Income in past 12 months below poverty level	0.6%	0.8%	0.7%
Individual Income in past 12 months at or above poverty level	15.1%	14.6%	15.1%

BACCALAUREATE ATTAINMENT BY ETHNICITY

USA-CA-KERN

Baccalaureate Attainment by Ethnicity	2010	2011	2012
United States			
Black/African American	17.9%	18.4%	18.7%
Asian	49.9%	50.0%	50.5%
Hispanic/ Latino	13.0%	13.2%	13.8%
White	31.4%	31.9%	32.5%

BACCALAUREATE ATTAINMENT BY ETHNICITY

USA-CA-KERN

Baccalaureate Attainment by Ethnicity	2010	2011	2012
California			
Black/African American	21.7%	22.2%	21.8%
Asian	48.1%	48.7%	49.0%
Hispanic/ Latino	10.5%	10.5%	11.0%
White	38.9%	39.4%	40.3%

BACCALAUREATE ATTAINMENT BY ETHNICITY

USA-CA-KERN

Baccalaureate Attainment by Ethnicity	2010	2011	2012
Kern County			
Black/African American	8.1%	17.5%	13.1%
Asian	38.1%	37.7%	37.9%
Hispanic/ Latino	5.2%	5.5%	5.1%
White	22.1%	20.5%	22.6%

**WHAT IS HAPPENING IN
OTHER STATES?**

COMMUNITY COLLEGES OFFERING BACCALAUREATE DEGREES



BC'S RESPONSE TO SB 850

The BAS Team is on the move:

1. The substantive change application: Anthony
2. Curriculum Development: Jason and Liz
3. Gaining community support: Michele, Liz, Sonya
4. Budget analysis: Anthony in collaboration with Tom Burke, KCCD
5. Board work session: The BAS Team will be doing a board work session either in November or December.
6. Tracking how other community colleges are positioning themselves: Cindy

SUSTAINABILITY

- Existing Infrastructure
 - Facilities & Equipment
 - Lower Division Technical Curriculum
 - Lower Division General Education
 - Faculty
 - Support Services

BC'S RESPONSE TO **SB 850**

- Constituency Support Strategy: approach potential supporters in the following categories:
 - Expert Advisory Consultation Committee
 - Potential Industry Partners
 - Educational Institutions & Districts
 - Nonprofit Organizations
 - Business Support Organizations
 - Legislators
 - BC Faculty & Students

BC'S RESPONSE TO SB 850

- Constituency Support Strategy: early successes
 - Academic Senate responded in support
 - Business and Industry advisory committees responded in support
 - Students responded in support
 - Board responded in support as long as there is funding
 - Bakersfield Chamber of Commerce responded in support
 - Delano Chamber of Commerce responded in support

BC'S RESPONSE TO **SB 850**

- Senate Bill (SB)/State Chancellor's Office
Tentative Timeline
 - February 2015--projected call for applications
 - March 2015--projected month applications are due
 - Unknown--15 colleges selected
 - Up to summer 2017--ramp up BC program
 - Fall 2017--launch program at BC

ECONOMIC WORKFORCE ANALYSIS EXAMPLE

LOCAL NEED

High-technology (HT) manufacturing industries:

- Spend a large proportion of revenues on R&D and make products that contain or embody technologies developed from R&D.
- These include aircraft; communications (including semiconductors); computers and office machinery; pharmaceuticals; and testing, **measuring**, and **control instruments**.
- Employed 2 million workers and produced 2% of GDP in 2012.
- There is a greater concentration of workers in Science & Engineering occupations in HT manufacturing industries.
- Pay substantially higher wages than the private-sector average.

ECONOMIC WORKFORCE ANALYSIS EXAMPLE

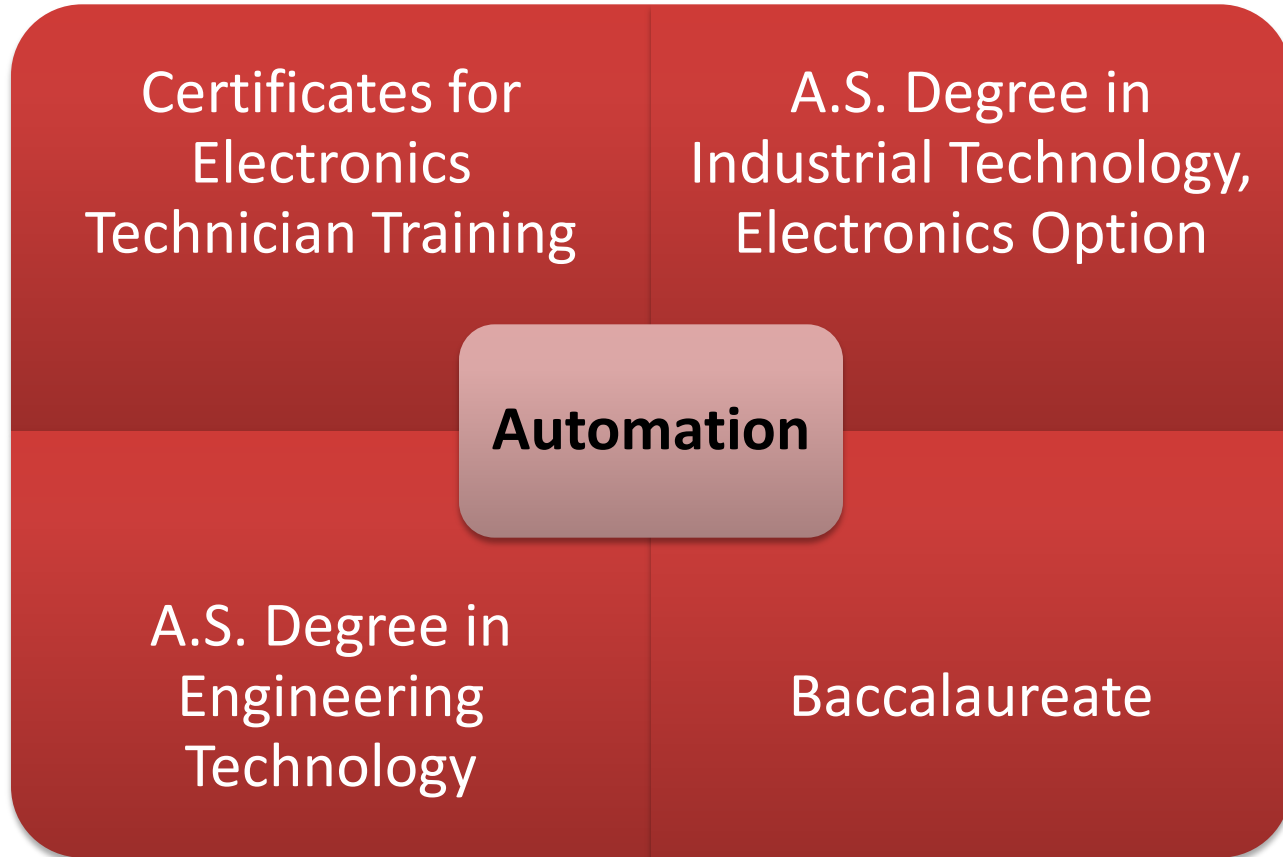
LOCAL NEED

SOC	Occupation	2014 Jobs	Annual Openings	Median Hourly Earnings*
17-xxxx	Technician and Technologist related positions	926	49	\$34
49-xxxx	Industrial Electronics Maintenance	2208	197	\$22
11-xxxx	Logistics related positions	195	11	\$37
TOTAL		3329	257	\$26

EMSI DATA

* WEIGHTED AVERAGE

EDUCATIONAL PATHWAYS TO MEET WORKFORCE NEED



INTERNATIONAL SOCIETY FOR AUTOMATION (ISA)

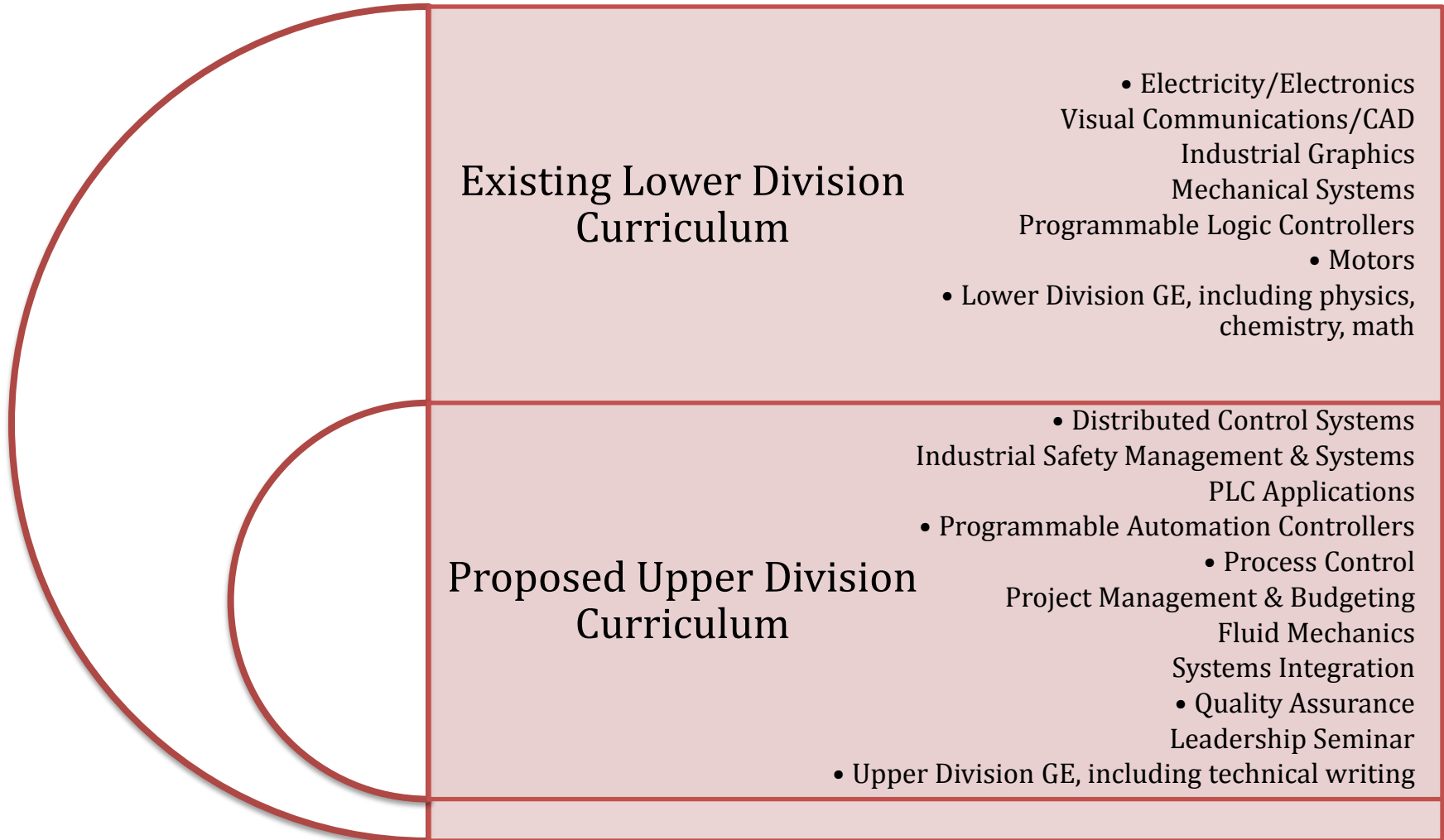
CERTIFIED AUTOMATION PROFESSIONAL CRITERIA

- Identify, scope, and justify automation projects.
- Identify customer requirements and determine solutions to meet those requirements.
- Perform a complete conceptual design of the control, information, and hardware systems.
- Development of software solutions for automation applications.
- Installation, checkout, and startup of systems
- Operations & maintenance in long-term support of the system.

CURRICULUM DESIGN EXAMPLE

INDUSTRIAL AUTOMATION

CURRICULAR SCOPE



BAS INDUSTRIAL AUTOMATION LOWER DIVISION COURSEWORK (DRAFT)

<u>Year 1 Fall</u>	17.0	<u>Year 1 Spring</u>	16.0
POLS B1 (GE D)	3.0	ENGL B1A (GE A2)	3.0
MATH B1B (GE B4)	4.0	CHEM B1A OR B2A	4.0
PHYS B2A (GE B1)	4.0	HIST BXX (GE D)	3.0
ELET B1 AC/DC Circuits	4.0	ELET B55A Motors	3.0
INDR B12 Drafting & CAD	2.0	INDR B20A AutoCAD	3.0
<u>Year 2 Fall</u>	16.0	<u>Year 2 Spring</u>	15.0
BIOL B11 (GE B2)	4.0	Arts (GE C)	3.0
HUMANITIES (GE C2)	3.0	ECON (GE D)	3.0
CRIT THINKING (GE A3)	3.0	COMM B1 (GE A1)	3.0
ELET B5 Pr. Logic Ctrl (PLC)	3.0	ELET B56 Instrumentation	3.0
ELET B70 Mech Systems	3.0	ELET B4 Comp Intg Mfg	3.0

BAS INDUSTRIAL AUTOMATION UPPER DIVISION COURSEWORK (DRAFT)

<u>Year 3 Fall</u>	<u>15.0</u>	<u>Year 3 Spring</u>	<u>15.0</u>
Arts (GE C)	3.0	Ethics (GE UPPER DIV)	3.0
Automation Controllers	3.0	Process Control	3.0
Proj Mgmt & Budgeting	3.0	PLC Applications	3.0
Fluid Mechanics	3.0	Tech Writing (UDWR)	3.0
Technical Elective	3.0	Technical Elective	3.0
<u>Year 4 Fall</u>	<u>14.0</u>	<u>Year 4 Fall</u>	<u>12.0</u>
Senior Project(Part 1)	2.0	Safety Management	2.0
Technical Elective	3.0	Leadership Seminar	3.0
GE UPPER DIV	3.0	Quality Assurance	3.0
Automation Networks	3.0	GE UPPER DIV	3.0
Lifelong Learning (GE F)	3.0	Senior Project (Part 2)	1.0

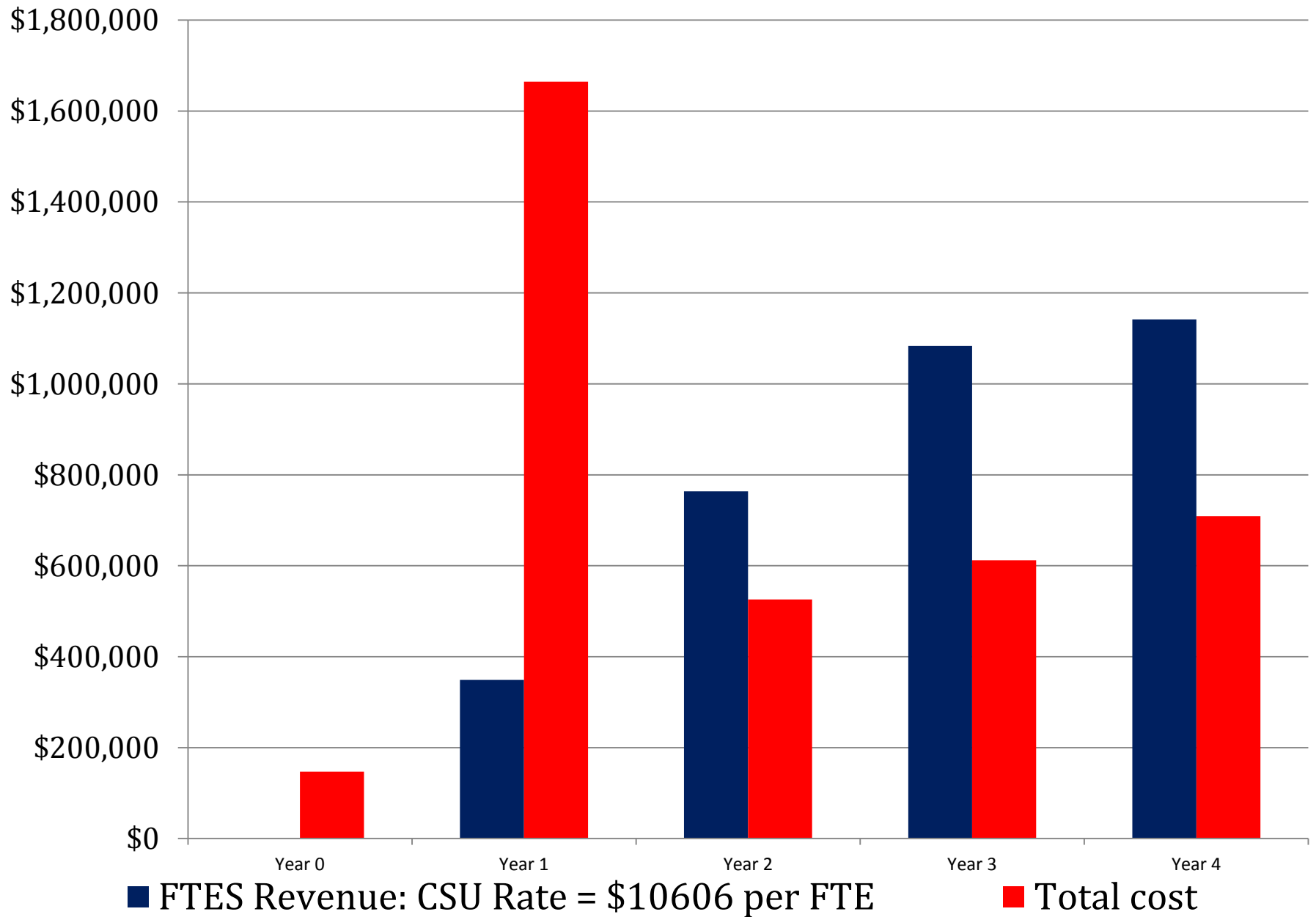
STUDENT SERVICES RESPONSE

- A new **admissions** process will be developed.
- **Evaluators** will be trained on special requirements for transfer students.
- An **Educational Advisor and a Counselor** will be identified to work with these upper division students.
- **Financial Aid** is investigating any changes that will be needed.

COST ANALYSIS EXAMPLE

INDUSTRIAL TECHNOLOGY

Industrial Technology BS					
	Year 0	Year 1	Year 2	Year 3	Year 4
FTEs Estimate	0	33	72	102	108
FTEs Revenue: CSU Rate = \$10606 per FTE		\$349,088.91	\$763,632.00	\$1,083,630.17	\$1,141,811.66
Staffing Estimates:	Year 0	Year 1	Year 2	Year 3	Year 4
<i>Faculty</i>					
Instructional Costs Total	\$ 147,300	\$ 1,664,350	\$ 525,850	\$ 612,050	\$ 709,140
Total Revenue - Expenditures	\$(147,300)	\$ (1,315,261)	\$ 237,782	\$ 471,580	\$ 432,672



Did You Know...

HOMELAND SECURITY

80% of **firefighters, law enforcement officers and EMTs** are credentialed at community colleges. **39** colleges administer **Police Officers Standards and Training (POST)** academies. **64** colleges have **fire technology programs** for training firefighters.

NURSING

70% of the **nurses** in California **received their education** from community colleges.

SCIENCE, TECHNOLOGY, ENGINEERING AND MATHEMATICS

Transfer students from community colleges to the University of California account for **48%** of UC's bachelor's degrees in **science, technology, engineering and mathematics (STEM)**.

ENROLLMENT

24% of all the community college **students nationwide** are **enrolled** in a **California community college**.

JOB RATINGS

Community colleges have the **highest combined "good/excellent" job rating, 65%**, among California's three segments of public higher education (according to the latest PPIC poll).

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