



Bachelor of Applied Science Industrial Automation Graduating Class 2018

Proposal to Participate California Community Colleges Baccalaureate Degree Pilot Program

December 19, 2014

“It is extremely evident that there is a need for a technically well trained mid management workforce; a workforce that can implement engineering designs and manipulate advanced technology to benefit various manufacturing processes while seamlessly communicating the technology processes to the team. We support Bakersfield College’s BAS degree program due to the extreme need for employees with these advanced skills.”

*Bakersfield College
Industrial Automation Advisory Board*

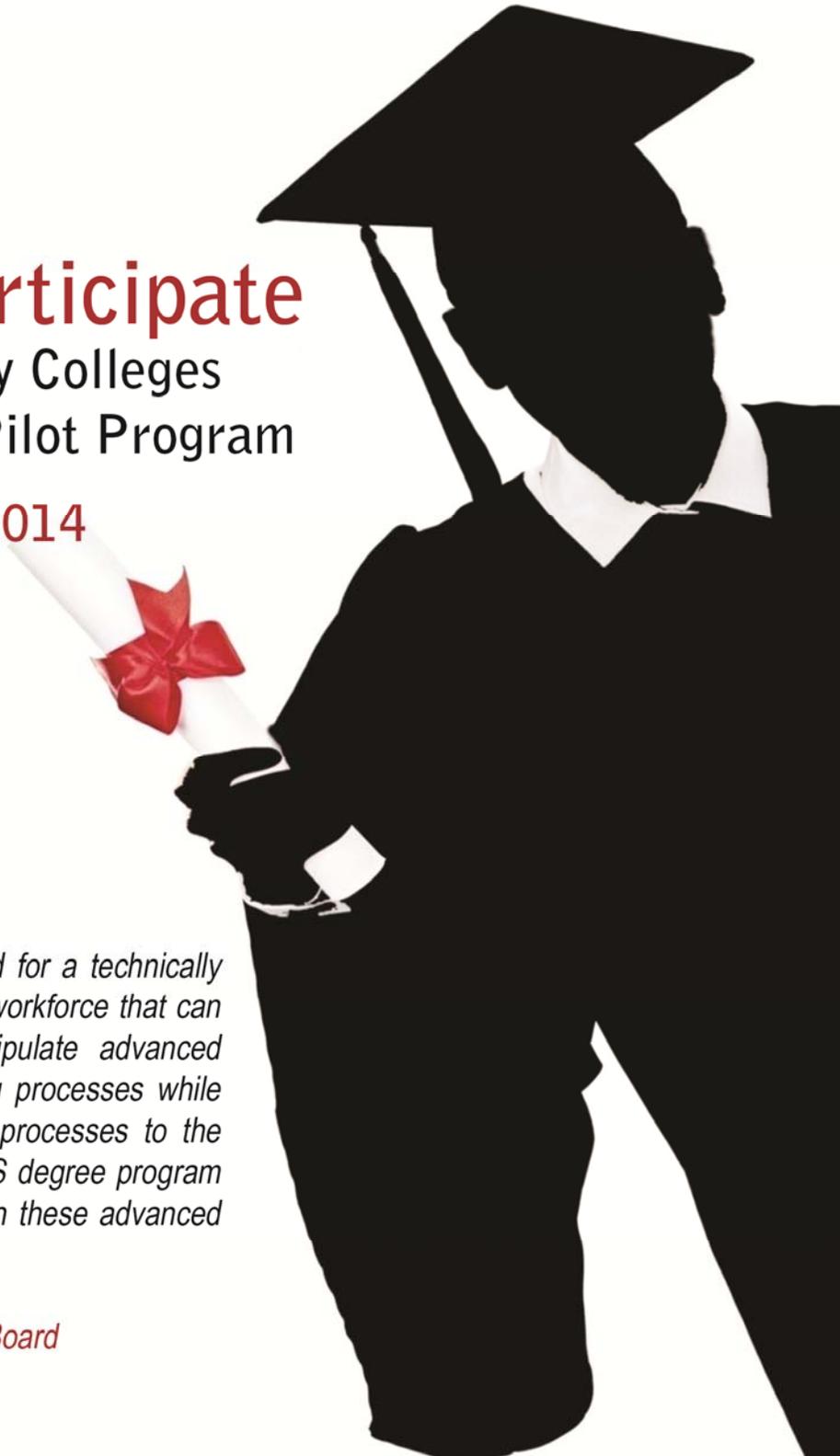


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Need (Statement of Problem)

The southern San Joaquin Valley needs Bakersfield College's proposed baccalaureate degree program. The area's current and future business and industry sector's acute unmet workforce needs, staggering levels of poverty (22% live below poverty level) and dismal educational attainment levels (15% hold a baccalaureate degree) create conditions ripe for the intervention of an applied baccalaureate program. Workforce data, industry and community support and a guaranteed student pipeline ensure the success and vibrancy of the Applied Baccalaureate in Industrial Automation.

Bakersfield College has a proven track record of supporting underrepresented students and providing affordable, accessible quality instruction that will help educate tomorrow's leaders. The Bakersfield College's proposed baccalaureate degree gets our vote.

Patrick Jackson, Jr., President, NAACP

Bachelor of Applied Science (BAS) in Industrial Automation: Industrial automation represents the technology-driven business model of the 21st century. In today's industry, an engineering team is involved in developing new products or systems. This team is typically composed of engineers, technologists and technicians. Engineers apply their knowledge of mathematics and science to develop ways to economically utilize natural resources for the benefit of mankind through a wide spectrum of activities including the conception, design, development and formulation of new systems and products. Technologists are typically graduates of baccalaureate-level programs that emphasize the *application* of scientific and technical knowledge; they participate in activities surrounding applied design, manufacturing, product assurance, sales and project management. Technicians work with equipment, assembling, repairing and testing devices or systems based on technical skills rather than scientific knowledge used in the original design.

Bakersfield College (BC) proposes an applied baccalaureate degree in Industrial Automation that targets occupations designed for the skill set of the technologist described above. According to the Automation Federation:

Automation involves a very broad range of technologies including robotics and expert systems, telemetry and communications, electro-optics, cyber security, process measurement and control, sensors, wireless applications, systems integration, test measurement, and many, many more.

Across the country there are a few programs similar to the Industrial Automation BAS degree, but **there are no Industrial Automation programs in California**. The two programs in other states similar to the BC BAS are a B.S. in Instrumentation at Great Basin College in Nevada and a B.S. in Instrumentation at Oklahoma State University Institute of Technology.

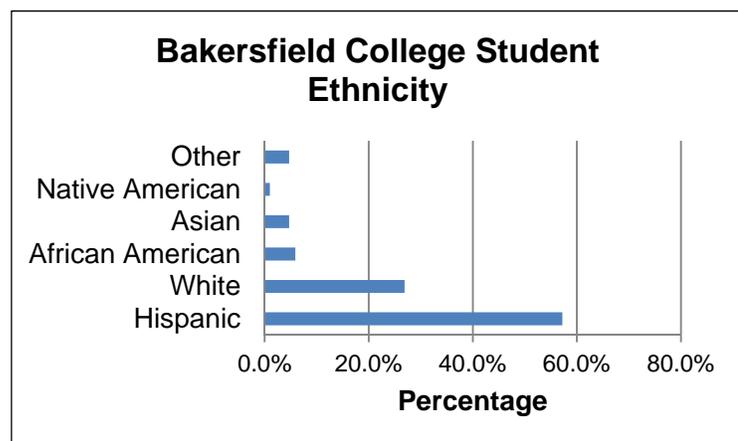
For the first two years of the program, students will be expected to satisfy the general education requirements outlined in the California State University General Education Breadth course list in addition to the existing electronics courses that comprise the technical core (basic electronics, computer integrated manufacturing, programmable

logic controllers, electric motors and controls, instrumentation and process control, and mechanical systems) to prepare for upper division coursework.

Sixty units of upper division coursework will include technical topics specifically targeting automation and its implementation in the industry sectors driving the economics of the Bakersfield College service area. Courses will cover a broad range of industrial topics including automation networks and systems, automation measurement and motion control, and automation applications in manufacturing and production processes, but will also include courses in project management, leadership and entrepreneurship, quality assurance and facilities planning and operations.

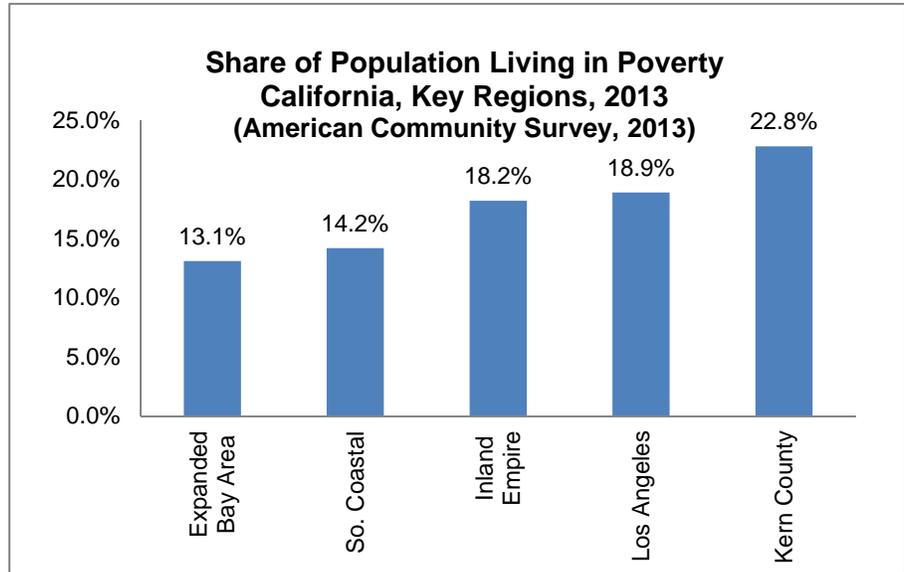
Bakersfield College and Kern Community College District: Bakersfield College (BC), founded in 1913, is the largest of three colleges in the Kern Community College District (KCCD). Geographically, KCCD, one of the biggest community college districts in the United States, covers nearly 25,000 square miles, spanning the bulk of California’s southern San Joaquin Valley. This area is primarily a rural region whose employment is powered by agriculture, oil and gas, and manufacturing and logistics industries. In the past ten years, the region’s population has grown 16% to about 2.27 million people. The communities offer expanding economies coupled with high poverty and unemployment, representing some of the highest such rates in California. Educational opportunity in this rural frontier, then, is paramount, and Bakersfield College has historically served much of the rural communities’ educational needs with excellence.

Today, more than 20,000 students annually enroll in classes at Bakersfield College on its Panorama Drive campus, as well as taking classes in its centers in downtown Bakersfield and the rural community of Delano, 40 miles north on the Kern/Tulare County line. BC’s satellite sites also provide classes in other rural communities such as Wasco, McFarland and Arvin as well as a robust online enrollment. BC’s students represent the distinct and diverse microcosm of California’s central valley. Bakersfield College is a federally designated Hispanic Serving Institution (HSI). About 54% of Bakersfield College students are female. Its largest percentage of students, 37%, is aged 20-24 and nearly one-quarter of the student body is aged 19 or younger. Nearly two-thirds of its students count on financial aid to help them achieve their educational attainment goals. Vocational students represent the largest number of successful course completers at BC, with more than 77% of vocational students completing courses with a grade C or better.



US Census data indicates that Kern County, the county in which Bakersfield College resides, is ranked 35th out of 58 counties among populations having a constituency of

ages 25 years and over. Of the 503,688 constituents that are classified within that population, only 15.3% have bachelor's degrees compared to the national average of 20%. Further, using poverty level as a measure, Kern County ranks below the United States average as well as the California average when comparing Baccalaureate



attainment and those individuals classified below the poverty level, registering at a 0.7% rate. In addition, Hispanic/Latino Baccalaureate attainment also ranks below the United States and California averages at 5.1%. The only public four year university in the county is California State University, Bakersfield (CSUB). Established in 1970, CSUB serves 8,520 students with over 50 different Bachelor's and Master's degree programs but not industrial automation.

Currently, the college has a large pipeline of students interested in applying for the Baccalaureate in Industrial Automation Degree at Bakersfield College. Many have completed certificates and/or A.S. degrees in Electronics Technology and are working in industry; however, often they are denied promotional opportunities due to the lack of a B.S. degree similar to the BC proposed degree.

Community Support: Industry leaders who are looking to hire Bakersfield College BAS graduates have sent statements of support. These businesses include Aera Energy, A-C Electric, Kern Steel Fabrication, Dignity Health, Chevron and Paramount Farms. The local industrial automation community is strongly backing BC's plan through the local Central Section of the International Society for Automation. Industry and economic growth organizations such as the Greater Bakersfield Chamber of Commerce and Kern Economic Development Corporation support Bakersfield College's BAS degree because it will also encourage new businesses to open operations in the region. Educators including the Kern County Superintendent of Schools and area high school district superintendents see the degree as an avenue for students to earn an affordable four-year degree. The Taft College president is in full support, as is the president of California State University Bakersfield.

Community support for BC's BAS degree also spans non-profit organizations, affinity groups, government entities and legislators. Bakersfield College has received statements of support from the NAACP, the Hispanic Chamber of Commerce, United Way of Kern County, Kern County Tax Payers Association, the City of Shafter, the

Delano Chamber of Commerce, California Senators Fuller and Vidak, and U. S. Congressmen Kevin McCarthy and David Valadao, among others. BC has a dedicated webpage with statements of support from over 70 organizations. You can find the website by searching “Bakersfield College BAS letters of support.”

Industrial Automation Advisory Committee: The program established a preliminary industry advisory committee chaired by Blair Pruett of Kern Steel Fabrication. Committee members also represent Chevron North America, Linn Energy, Tel-Tech Security and TJ Cross Engineers. The committee will offer expertise and advice in key programmatic areas related to current business trends and needs.

Additionally, the college President, working with the Executive Director of the Bakersfield College Foundation, has initiated the fundraising for the initial \$1.1M start-up costs associated with the program and has secured \$130,000 at this point.

Employer Demand: The lower Central Valley has a large base of production and logistics facilities in the following industry sectors: agricultural products processing, materials processing, manufacturing, aerospace, energy (petroleum, cogeneration, renewables), warehousing/logistics, and infrastructure/utilities. Each industry sector has a need for technical management, industrial safety, quality assurance, and other positions requiring more than an associate degree or two-year certificate of achievement. According to Economic Modeling Specialists International (EMSI) data, these types of positions in Kern County have grown over 11% since 2009 and are predicted to grow an additional 20% over the next 9 years.

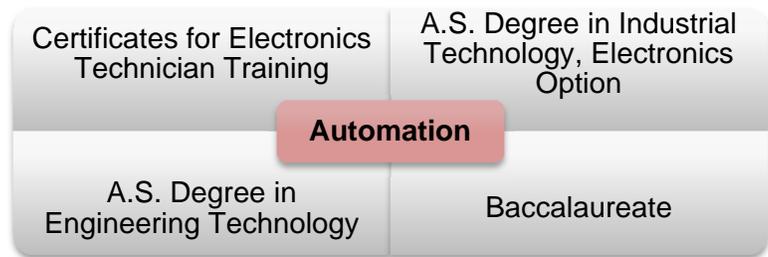
Students receiving the Baccalaureate of Industrial Automation at BC are qualified for managerial track occupations which require technical training in the automation field, as well as project management, systems implementation, sales, quality control, and manufacturing operations. There are over 4400 jobs in the Bakersfield service area that could be staffed with BAS graduates, with expected annual openings of 200 and median earnings of \$47/hour (EMSI).

According to local industry leaders, there is a shortage of qualified technical mid-management workforce in Kern County. This is supported by Occupational Employment Statistics (OES) findings in which there is a projected 12.4% increase in demand for general and operations managers from 2012-2022. Many companies hire from out-of-state with poor retention rates. Members from the newly established Industrial Automation Advisory Board stated that:

It is extremely evident that there is a need for a technically well trained mid management workforce; a workforce that can implement engineering designs and manipulate advanced technology to benefit various manufacturing processes while seamlessly communicating the technology processes to the team. We support Bakersfield College's BAS degree program due to the extreme need for employees with these advanced skills.

Response to the Need

BC is uniquely situated, possessing an academic infrastructure for technical education that includes exemplary facilities and current technologies. One of the strongest technical areas within the college is the electronics technology program, which prepares technicians in the areas of instrumentation, automation, process control and telecommunications. Providing a baccalaureate of applied science degree in Industrial Automation will fill the employment gap between the technician and engineer by preparing individuals to be employed in positions that require project management skills but not the extensive design skills of engineers.



Existing Degrees and Certificates:

The current Electronics Technology program, which is the foundation of the Industrial Automation Baccalaureate Degree program, provides four job skills certificate options to students (Manufacturing Automation, Industrial Maintenance, Industrial Automation, and Industrial Communications); an Electronics Certificate of Achievement; and an Electronics Technology A.S. degree. There are eleven courses within the Electronics Technology program that comprise the curricular requirements of these certificates and degrees.

In 2013-2014 the Electronics Technology program enrolled 273 students, 95% of whom were male, 68% Hispanic, and 53% between the ages of 20-29. The Engineering and Industrial Technology Department offered 26 sections of Electronics with 86% retention and 72% success rates. There were 57 certificates and degrees awarded during this academic year, over four times the number awarded the previous year. The other two community colleges in KCCD, Porterville and Cerro Coso Community Colleges, offer one electronics course comparable to the BC courses.

Pedagogical goals of the EIT faculty include the modularization of the curriculum and expansion of active learning by providing increased sections of hybrid courses in which lecture material is provided online and labs are conducted face-to-face. These particular pedagogies will be integrated in much of the upper division coursework offered for the baccalaureate, providing accessibility to the program for workers who wish to advance in their current companies.

Proposed BAS in Industrial Automation: Potential applicants for the upper division program will need to complete the CSU GE Breadth Course pattern, including specific GE courses required for this program: pre-calculus, trigonometry-based physics, general biology, economics, expository composition, public speaking or small group communications, and American government. In addition, the lower division core electronics courses will need to be completed: basic electronics, computer integrated manufacturing, programmable logic controllers, electric motors and controls, instrumentation and process control, and mechanical systems.

A detailed semester-by-semester educational plan has been developed for incoming freshmen, sophomores, juniors and seniors. BC will partner with regional educational institutions to provide a pathway for graduating high school students and community college students who may have partially fulfilled the lower division requirements. We expect to admit approximately 40 incoming freshmen/sophomore students in the fall of 2015 and then **begin the first junior class in fall of 2016** with an average enrollment of 55 per year (at the junior level) for the duration of the pilot timeline. The table lists the expected number of students in the program during the first five years of the pilot.

Engineering and Industrial Technology (EIT) faculty developed a model of estimated persistence rates based on the retention/success rates of the courses offered in the Electronics

Technology program to predict the numbers of students in the program: 80% from freshmen to sophomore year, 85% from sophomore to junior year and 90% from junior to senior year.

Five-year enrollment projections for the proposed BAS and the number of anticipated graduates.					
Academic Year	Freshmen	Sophomore	Junior	Senior	Total # in Program
2015-2016	30	10			40
2016-2017	30	34	39		103
2017-2018	30	34	59	36	159
2018-2019	40	34	59	54	187
2019-2020	60	47	44	54	205

Non Duplication of Program within UCs and CSUs: There are no programs within the UC system similar to industrial automation. Within the CSU system, there are no programs in Industrial Automation; the most similar degree is in Industrial Technology. The majority of Industrial Technology programs in the CSUs focus on the management of technology systems and consist of a broad base of technical and management-oriented courses. The BS in Industrial Technology at Cal Poly, San Luis Obispo, CSULA and San Jose State University include introductory courses in industrial automation, but not the advanced automation courses that will be included in the BC applied baccalaureate degree. Fresno State offers a BS in Industrial Technology with an option in Control Systems. The core requirements for Fresno State's degree are broad-based technical and management courses with electives containing elements of industrial automation, four of which are computer networking; however, this degree does not include in-depth automation coursework.

Upper Division Coursework and General Education (GE): The Program Learning Outcomes developed by the faculty and industry partners are listed below:

Upon completion of this program, a student will be able to:
Apply critical and analytical thinking skills to industry-related problems in the areas of safety, quality assurance, and design of systems;
Display effective communication skills commonly used in industry, including presentation and writing skills;

Demonstrate a broad understanding of the mathematical and scientific principles utilized in industrial automation and manufacturing;
Demonstrate competency in industrial automation and instrumentation, including relevant hardware and software utilized in industry;
Manage automation and manufacturing projects applying knowledge of budgetary and scheduling principles in an ethical environment.

To meet the outlined Program Learning Outcomes (PLOs) for the BAS in Industrial Automation, the department crafted curriculum rich in advanced technical skills and GE breadth to prepare students with deep technical skills as well as critical thinking and communication for employment in various local and regional industries.

The EIT faculty identified and developed course descriptions for 17 three-unit upper division technical courses focused on applied hands-on learning. The faculty used the Automation Competency Model developed through the US Department of Labor Employment and Training Administration and the Automation Federation to determine the specific coursework that would meet the PLOs. Thirteen of the courses have a lab component and 53% of the student contact hours in the upper division coursework are spent in lab. These classes will go beyond the researching and writing found in many upper division courses to include realistic, scenario-based projects that will apply the concepts learned, while developing the skills of planning/designing, resource management, teamwork, creative thinking, and working within the parameters and limitations specific to the industries in which students may be employed upon completion. In the table below an asterisk indicates a lab.

Upper Division Courses in the Industrial Automation BAS Program	
Industrial Safety Principles and Management	Industrial Manufacturing Processes
Materials Science for the Technician*	Project Management and Budgeting*
Industrial Design Graphics I*	Leadership and Entrepreneurship*
Industrial Design Graphics II*	Quality Assurance*
Industrial Automation Networks*	Facilities Planning and Operations*
Industrial Automation Systems*	Systems Design and Integration*
Industrial Automation Measurement*	Systems Implementation*
Industrial Motion Control*	Industry Sector Seminar: Manufacturing and Production
Industry Sector Seminar: Applied Automation	

Emphasis will be on the integration of programmable logic controllers (PLCs) and programmable automation controllers (PACs), as well as Supervisory Control and Data Acquisition (SCADA) and DCS (Distributed Control Systems). These particular systems are widely used in the petroleum, food/value-added agriculture, and manufacturing industries supporting the Kern County economy. In addition, operations and management coursework are included to provide students with an understanding of operational challenges in these industries.

Here are some examples of the upper division discipline work:

<p>Industrial Automation Systems (3 credits): Advanced application of PLC's (Programmable Logic Controllers) and PAC's (Programmable Automation Controllers) in integrated automation systems, as well as HMI (Human-Machine Interface) panel and display programming. Lab activities will be provided with actual equipment and software used in industry.</p>	<p>Industry Sector Seminar: Applied Automation (3 credits): A study of the specific automation processes related to the following industry sectors: Petroleum (the application of automation and process control in oilfield operations and processes, and commodities transport processes), logistics and distribution (the application of automation in distribution centers and warehousing), cogeneration and renewable energy, as well as automation support professions.</p>
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Nine units of upper division GE coursework, one of which is technical writing, linked to PLOs will be required. Other GE courses being evaluated include an ethics course and an organizational communications course addressing specific applications to businesses supporting the identified industry sectors utilizing automation.

Timeline for Program Planning and Implementation: Program planning, including curriculum and resource development has begun. Courses will move through the college curriculum process, go to the Board of Trustees, and then to the state Chancellor's Office for approval. The table outlines the timeline for submitting the upper division courses for approval to the Curriculum Committee.

3 of 9 junior-level courses and the upper division GE courses	April 2015
Remaining 6 junior-level courses	August 2015
Senior-level courses	December 2016

The President of the College and Executive Director of the BC Foundation have already begun fund raising and have already secured \$130,000. Upon approval as a pilot program, the college will initiate the hiring process for the faculty. New faculty, with a Masters degree in electrical engineering, will be hired for the 2015-2016 academic year and in Spring 2016 for the 2017-2018 academic year. In addition, the existing Dean of Science, Technology, Engineering, Mathematics and Industrial Technology (STEM-IT) will manage the Baccalaureate Program, and a Dean or Associate Dean will be hired to assume some of the current responsibilities of the STEM-IT Dean to allow her to focus on development of the BAS. An educational advisor will also be hired.

Existing lab facilities are scheduled to be upgraded and additional equipment purchased in 2015-2016; a new lab (SE 46) has been identified in the college's Facilities Master Plan that will be renovated in 2016-2017.

The college has initiated the work related to ACCJC's Substantive Change application and is targeting the May 7, 2015, ACCJC Substantive Change meeting. The report would go to ACCJC in early spring for review, followed by a visit. This timeline has some flexibility since the first Junior level classes will be offered only in Fall 2016.

The first graduating class will receive their diplomas in May 2018.

Program Management/Institutional Commitment

Accreditation Status: Bakersfield College is accredited by the Accrediting Commission for Community and Junior Colleges (ACCJC) of the Western Association of Schools and Colleges (WASC). BC accreditation was reaffirmed in 2012 and by a follow-up visit in 2013. **There were no recommendations** from the follow-up visit. The College received a commendation on community connections:

The Team commends the College President for her enthusiasm, community spirit and speed in which she was able to bring the vast range of college services and educational programs into the conversations with local community and business leaders. As reported by one Chief Executive Officer of a local business organization, the College is now an important resource that is available to the community because the College President has taken the time to bring that message and those resources into the Bakersfield community

The college is preparing a Substantive Change proposal with a goal of meeting the May 2015 ACCJC meeting on substantive change requests.

Fiscal management and sustainability: The latest auditor's opinion, Matson and Isom, as of June 2014 concerning the KCCD states:

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the business-type activities of the District, as of June 30, 2014; the changes in financial position; and cash flows thereof, for the year then ended in accordance with accounting principles generally accepted in the United States of America.

(Kern Community College District, Bakersfield, California, *Financial Statements and Supplementary Information with Independent Auditor's Reports*, June 30, 2014)

Program Administration: The administration is organized in four categories:

Budget oversight and fiscal sustainability will be provided by the Vice President of Finance and Administrative Services, a licensed CPA, CMA, CFM, and EA, along with the Dean of STEM-IT, who is an engineer.
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Long term sustainability and responsiveness to work force need of the region will be provided by the President, who was a long time math faculty at BC, and has demonstrated a commitment to the College and to the community. In addition the current dean, who was a long time faculty member in math and Engineering and has strong ties to industry, has an exemplary reputation that garners significant confidence from internal and external communities.

State-of-the art curriculum, current instructional technologies and response to industry needs will be provided by the department chair and faculty, working closely with the Industrial Automation Advisory Committee, who have the necessary degrees and experience to provide this leadership. Here are examples of degrees currently held by faculty: PhD in Materials Engineering, M.S. in Electrical Engineering, M.S. in Engineering Technology, and M.S. in Industrial Technology.

Student success and support provided by dedicated educational advisor working with cohort of students in program ensuring that the students will graduate in 4 years with the BAS.

The Dean of STEM-IT will be reassigned to assume management of the BAS program, and the college will hire a dean or associate dean to provide oversight of the other

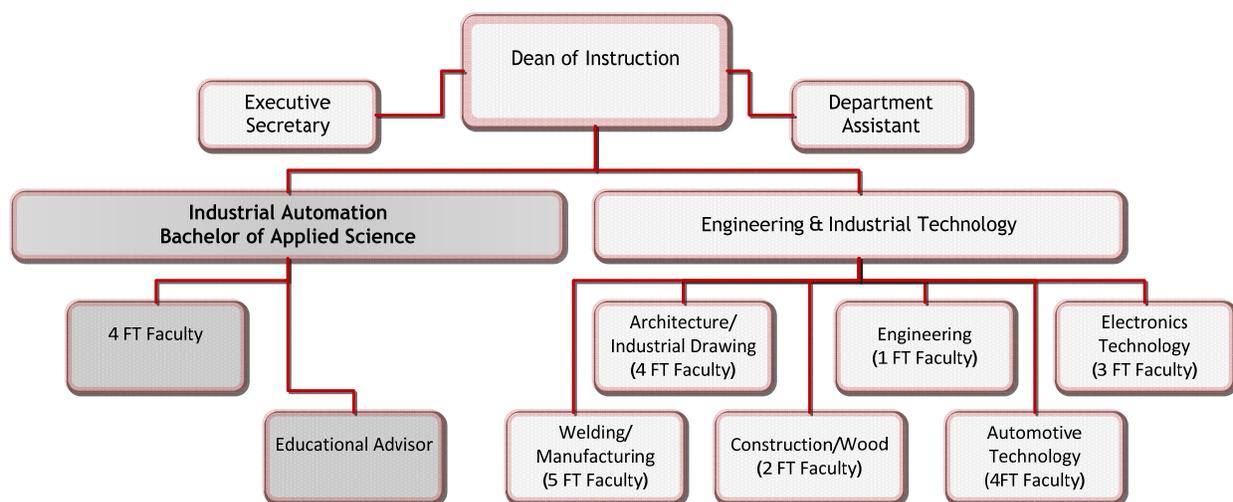
departments in STEM. An educational advisor will be hired to the Baccalaureate program to provide advising support to ensure student success and graduation in four years. The college will also provide classified clerical support staff.

Experience with Program Development: BC has mature organizational systems that involve governance committees and administrative authority to support new program development, evaluation of program viability, as well as sun setting programs or redesigning programs when the needs of the region have shifted. Here are two examples of program additions: (i) Digital Arts a full-fledged instructional program that offers an associate’s degree (ii) Job Skills Certificate (JSC) in Manufacturing Automation.

Digital Arts: Addressing workforce demands and community interest, BC leveraged its few existing classes in Digital Arts to launch a systematic program that included a certificate of achievement and an associate’s degree. Next phases included curriculum development, hiring new faculty, establishing a new computer lab, growing enrollment by 25%, and sustaining the program through an active advisory board. The program currently has two tracks: graphic design and photography. Some of the courses can be used toward the AA-T in Studio Arts, and two new certificates have been established. The program is part of the Arts, Media, and Communication career pathway.

JSC in Manufacturing Automation: In response to skilling up adults with low levels of basic skills and get them ready for entry level jobs, BC developed the JSC in Manufacturing Automation through the Trade Adjustment Assistance Community College and Career Training (TAACCCT) grant. In addition to the technical training, these students are provided additional assistance such as academic skills workshops, a dedicated educational advisor, workshops on employment preparation, use of WorkKeys testing in math with embedded remediation, and field trips to local employers.

Organizational Chart.



Identified Resources

Funding Analysis and Other Resources: A detailed budget for the eight years of the pilot program has been developed and covers (i) start-up costs and (ii) ongoing costs.

The initial start-up expenditures of \$1.1M cover lab renovation and equipment purchases. Fundraising efforts have been initiated to cover this expenditure and \$130,000 YTD has been secured.

Summary Financial	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	Total
Revenue	0	154,980	365,148	430,416	370,944	982,240	1,192,361	1,372,978	4,869,067
Operating Expenditures	384,922	423,948	621,740	759,945	890,202	895,135	904,041	911,521	5,791,454
Capital Outlay	1,109,650	0	100,000	121,000	0	100,000	100,000	121,000	1,651,650
Net (Cost)/Contribution to Overheads	-1,494,572	-268,968	-356,592	-450,529	-519,258	-12,895	188,319	340,456	-2,574,038
Description	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	
Revenue Estimates (See Note)									
Apportionment						638,260	774,797	892,162	
Additional \$84 Fee/Unit (Junior/Seniors)	0	154,980	365,148	430,416	370,944	343,980	417,564	480,816	
Total Revenues	0	154,980	365,148	430,416	370,944	982,240	1,192,361	1,372,978	

Revenues are projected to be \$4.9 million and include—(a) state apportionment at the community college funding rate per FTES for the upper division courses, starting in year six; and (b) tuition for upper division courses at \$84 per unit. Using a conservative approach, apportionment for years 1 through 5 was not included due to the District projecting to be at the funded cap for next several years based on current operations and the anticipation of an economic downturn occurring sometime during the course of the pilot. Fund reserves will be committed to cover any funding shortfall that may occur during the course of the program. It should be noted the District currently has \$30 million (27%) in unrestricted reserves.

Expenditures are projected at—(a) maintenance of capital outlay totaling approximately \$540K following the initial \$1.1M start-up (equipment and facilities); and (b) operating expenditures totaling \$5.8M on personnel, materials and supplies, equipment maintenance, and professional development.

Faculty and Student Support Services: Current faculty who would contribute to the instructional support of this program include an Engineering assistant professor (PhD, Materials Engineering), Electronics Technology professor (M.S., Electrical Engineering), Manufacturing professor and EIT department chair (M.S., Engineering Technology), and Industrial Technology professor (M.S., Industrial Technology). BC will hire another full-time faculty for 2015-2016 in Engineering. In addition, two full-time and three adjunct Electronics Technology faculty will continue to teach the lower division electronics courses. The budget includes \$5,000 per year for student advising and outreach.

Facilities, Equipment, and Supplies: BC already has in place a number of state-of-the-art facilities that were equipped through grant funding, institutional investment, industry financial and in-kind donations, and financial support through local industry. The budget below delineates the non-personnel operating expenditures for the 8 years of the pilot.

Other Operating Expenditures	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023
Materials and Supplies (20% of current EIT department materials budget)	12,000	12,120	12,241	12,364	12,487	12,612	12,738	12,866
Maintenance (20% of current EIT department maintenance budget)	2,400	2,424	2,448	2,473	2,497	2,522	2,548	2,573
Equipment Replacement		4,500	4,500	6,000	7,500	7,500	9,000	9,000
New Faculty Office Cost (office furniture, computer technology, etc.)	2,400	0	2,400	2,400	2,400	0	0	0
Curriculum Development								
17 new IT courses @ 136 hours/course and \$33.57/hr	77,614	0	0	0	0	0	0	0
3 new upper division GE courses @ 105 hours/course and \$33.57/hr	10,575	0	0	0	0	0	0	0
Professional Development	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
Student Advising and Outreach	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
Sub-Total	114,988	29,044	31,589	33,236	34,885	32,635	34,286	34,439

All Electronics and Automation facilities have sufficient computers, software, and information technology resources. Current facilities include:

Two fully-equipped Electronics lab rooms, containing test and instructional equipment that was purchased or built within the last ten years, including motors and controls workstations and equipment, instrumentation and process control equipment, pneumatics, fluid power, mechanical systems, industrial control, radio and telecommunications training equipment, instructor-created training equipment developed through industry collaboration.

A fully-equipped Computer Integrated Manufacturing lab, containing Programmable Controller workstations, interfaced equipment to control and monitor, automation training modules, two functional Computer Integrated Manufacturing “cells” that include materials handling, automated storage and retrieval, supervisory control, and vision inspection systems.

Two fully-equipped Industrial Drawing labs with current technology: AutoCAD and SolidWorks.

Additional facilities that will provide resources and equipment for coursework and projects include: a manufacturing lab with computer numerical controlled lathes and milling machines for project fabrication, welding and woodworking labs for fabrication, a materials science lab for testing purposes, and a “design center” with laser cutting and rapid prototyping capabilities.

The Grace Van Dyke Bird Library has over 89,000 books, access to over 100,000 E-book titles and six online periodical and newspaper indexes (with access to over 7,000 full-text periodicals), and subscription to over 100 periodicals, many within science and technology. New resources—databases, technical reference books, and industry-specific periodicals—will be procured once identified by the faculty.

Conclusion: The KCCD Chancellor, BC President, faculty, staff, students and advisory committee members are fully confident that with the careful thinking and focused planning that has resulted in the allocation of resources for the BAS in Industrial Automation, the southern San Joaquin Valley will, with enthusiasm and assurance, welcome the first graduating class in May 2018.

APPENDIX A

By submission of their application, the District/College agrees to abide by the terms and conditions set forth in the Application to Participate in the California Community Colleges Baccalaureate Degree Pilot Program and the District/College application.

District: Kern Community College District

College: Bakersfield College

Address: 1801 Panorama Drive

City: Bakersfield

State: CA

Zip+4: 93305-1219

District Superintendent/President (or authorized Designee)	
Name: Sandra Serrano _____	Title: Chancellor, KCCD _____
Phone: (661) 336-5104 _____	Date: <u>December 18, 2014</u>
Signature: <u>Sandra Serrano</u>	E-Mail Address: sserrano@kccd.edu
College President	
Name: Sonya Christian _____	Title: President _____
Phone: (661) 395-4211 _____	Date: <u>Dec 18, 2014</u>
Signature: <u>Sonya Christian</u>	E-Mail Address: sonya.christian@bakersfieldcollege.edu
Chief Business Officer	
Name: Tom Burke _____	Title: Chief Financial Officer, KCCD _____
Phone: (661) 336-5117 _____	Date: <u>12-18-14</u>
Signature: <u>Tom Burke</u>	E-Mail Address: tburke@kccd.edu
Name: Anthony Culpepper _____	Title: VP, Finance & Administrative Services, Bakersfield College
Phone: (661) 395-4203 _____	Date: <u>12/17/14</u>
Signature: <u>Anthony Culpepper</u>	E-Mail Address: anthony.culpepper@bakersfieldcollege.edu
Chief Instructional Officer	
Name: Nan Gomez-Heitzberg _____	Title: Vice-President, Academic Affairs _____
Phone: (661) 395-4305 _____	Date: <u>12-17-14</u>
Signature: <u>Nan Gomez-Heitzberg</u>	E-Mail Address: ngomez@bakersfieldcollege.edu
Chief Student Services Officer	
Name: Zav Dadabhoy _____	Title: Vice President, Student Affairs _____
Phone: (661) 395-4204 _____	Date: <u>12-17-14</u>
Signature: <u>Zav Dadabhoy</u>	E-Mail Address: zav.dadabhoy@bakersfieldcollege.edu
Academic Senate President	
Name: Steven Holmes _____	Title: Academic Senate President _____
Phone: (661) 395-4289 _____	Date: <u>12-17-14</u>
Signature: <u>Steven Holmes</u>	E-Mail Address: sholmes@bakersfieldcollege.edu

APPENDIX B

BOG Fee Waiver Verification Form

The District has a written policy that requires all potential students who wish to apply for a Board of Governors Fee Waiver pursuant to Section 76300 to complete and submit either a Free Application for Federal Student Aid or a California Dream Act application in lieu of completing the Board of Governors Fee Waiver application.

**It should be noted that the college contacted the California Community Colleges Chancellor's Office regarding Appendix B- the BOG Fee Waiver Verification Form. The CCCCCO instructed the college not to complete this appendix (*California Community Colleges Baccalaureate Degree Frequently Asked Questions*).