

Industrial Automation Certificate of Achievement

Submitter's Information

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Region Central/Mother Lode
College Bakersfield College
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CTE Dean Email [ccollier@bakersfieldcollege.edu \(mailto:ccollier@bakersfieldcollege.edu\)](mailto:ccollier@bakersfieldcollege.edu)

Program Information

Program Name Industrial Automation Certificate of Achievement
Projected Start Date 2018-01-08
Program Type(s) Certificate of Achievement 12-17 Semester (or 17-27 Quarter) Units
Certificate Required Units 12
Units of Major Degree n/a
Total Units for Degree n/a
TOPs Code Electro-Mechanical Technology (093500)
Program Goals The Certificate of Achievement in Industrial Automation provides the necessary foundation for a career in the technical fields connected with today's technology. The objectives of this program are to provide students with the necessary educational base to secure employment, to meet the educational requirement for individuals pursuing professional certification in automation, and to provide a pathway into a discipline-related Baccalaureate degree program.
Program Student Learning Outcomes:
Upon completion of the Certificate of Achievement in Industrial Automation the student will:

1. Safely execute technical skills in lab environments that are required for employment in automation industries.
2. Apply problem solving skills to automation design and product development.
3. Demonstrate a deep understanding of the core material required for certification in automation programs

Program Description The Certificate of Achievement in Industrial Automation is designed to prepare students for optimal success in higher education and technical careers in an environment that will encourage a lifelong pursuit of learning. This certificate encompasses the essential skills that can be put to use as an industrial technician, automation specialist, maintenance mechanic, or field service representative. A certificate holder will also become a valuable addition to technology-focused employers. Teaching and learning strategies will include student-centered, competency-based, and hands-on instruction. In addition, the program will set in place quality customer/technician and employer/employee relationship skills to assure workplace and educational competencies have been met.

Program Requirements Requirements:
Students must complete the core courses listed below for the Certificate of Achievement in Industrial Automation. Students must also obtain a minimum grade point average of 2.0 with a grade of C or higher in all courses required for the major. A "P" (Pass) grade is not an acceptable grade for courses in this major.
Required Core Classes:
ELET B1 Basic Electronics Direct Current 3
ELET B3 Programmable Logic Controllers 3
ELET B4 Computer Integrated Manufacturing 3
ELET B58 Advanced Programmable Logic Controllers 3
Total Required Units in area of Major 12
Program Course Sequence: List the program courses along with the GE and pre-requisite courses. This will match your program student education plan (SEP). The first line is an example.
Semester One (6 units)
Requirements Dept. Name/#
Name
Units CSU-GE
IGETC Local GE
Sequence
Required Core (6 units) ELET B1
Basic Electronics
3
Yr 1, Fall
ELET B3 Programmable Logic Controllers 3 Yr 1, Fall
Semester Two (6 units)
Requirements Dept. Name/#
Name
Units CSU-GE
IGETC Local GE
Sequence
Required Core (6 units) ELET B4 Computer Integrated Manufacturing 3 Yr 1, Spring
ELET B58 Adv PLCs 3 Yr 1, Spring

Program Projections 24

Labor Market Information [Download Occupation_Overview7677.docx \(/storage/lmi/85-71-Occupation_Overview7677.docx\)](#)

Created At 11/09/17 - 09:11 PM

Status Recommended

Central/Mother Lode Region Specific Questions

Advisory Minutes [Download BDP INDA Advisory Meeting Minutes.docx \(/storage/Central/Mother Lode/85-71-111-BDP INDA Advisory Meeting Minutes.docx\)](#)

Occupation Overview

Emsi Q3 2017 Data Set

October 2017

Bakersfield College



1801 Panorama Drive
Bakersfield, California 93305
661.395.4921

Parameters

Occupations

12 items selected. See Appendix A for details.

Regions

Code	Description
12540	Bakersfield, CA

Timeframe

2014 - 2023

Datarun

2017.3 – Employees

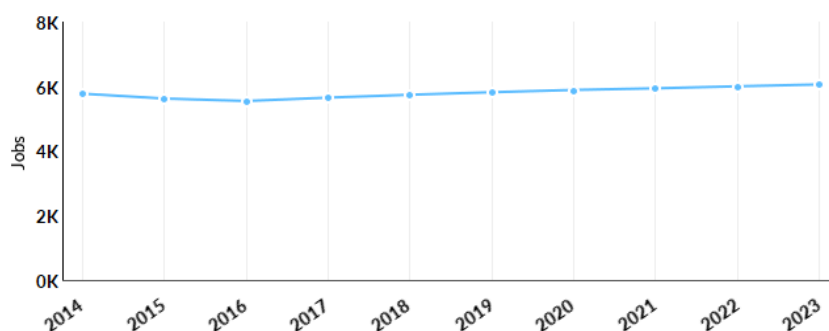
12 Occupations in Bakersfield Area

Occupation Summary for 12 Occupations

5,543 Jobs (2016) 4% above National average	5.0% % Change (2014-2023) Nation: 11.8%	\$24.37/hr Median Hourly Earnings Nation: \$20.35/hr
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Growth

5,769 2014 Jobs	6,055 2023 Jobs	286 Change (2014-2023)	5.0% % Change (2014-2023)
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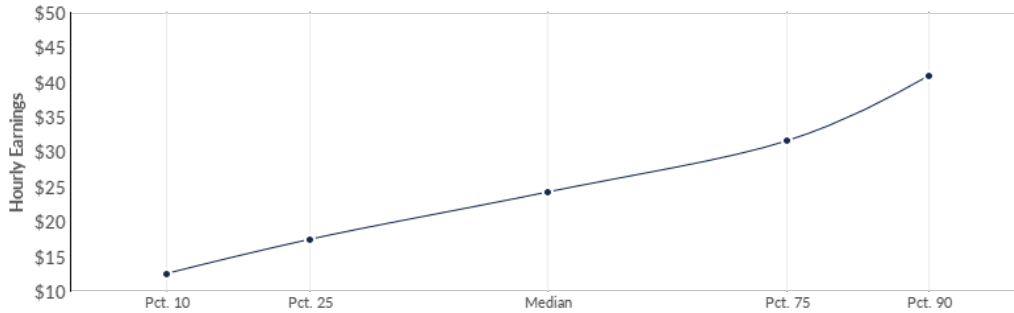


Occupation	2014 Jobs	2023 Jobs	Change	% Change
Electrical and Electronics Engineering Technicians (17-3023)	728	705	-23	-3%
Electro-Mechanical Technicians (17-3024)	49	39	-10	-20%
Sales Engineers (41-9031)	118	108	-10	-8%
Electric Motor, Power Tool, and Related Repairers (49-2092)	39	31	-8	-21%
Electrical and Electronics Repairers, Commercial and Industrial Equipment (49-2094)	176	172	-4	-2%
Electrical and Electronics Repairers, Powerhouse, Substation, and Relay (49-2095)	24	19	-5	-21%
Control and Valve Installers and Repairers, Except Mechanical Door (49-9012)	76	62	-14	-18%
Industrial Machinery Mechanics (49-9041)	1,106	1,143	37	3%
Maintenance Workers, Machinery (49-9043)	253	265	12	5%
Precision Instrument and Equipment Repairers, All Other (49-9069)	11	11	0	0%
Maintenance and Repair	2,853	3,145	292	10%

Occupation	2014 Jobs	2023 Jobs	Change	% Change
<hr/>				
Workers, General (49-9071)				
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Installation, Maintenance, and Repair Workers, All Other (49-9099)	336	354	18	5%

Percentile Earnings

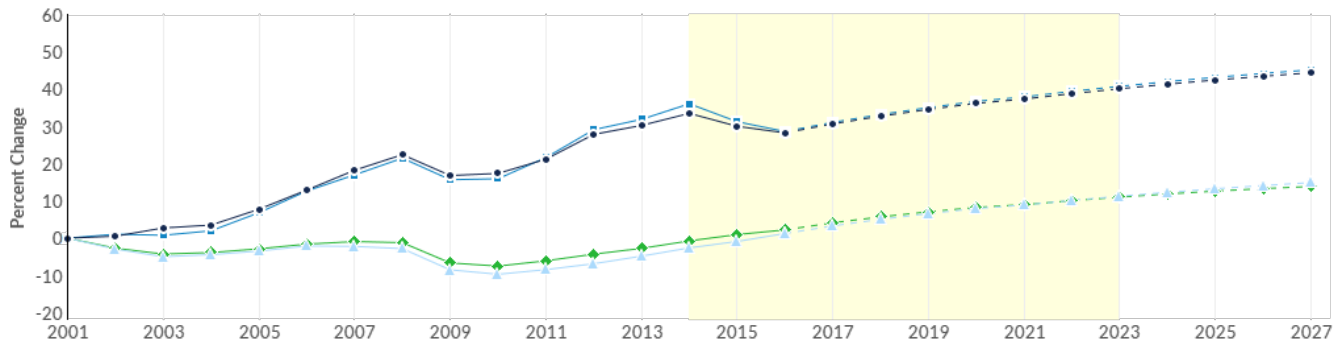
\$17.44/hr 25th Percentile Earnings	\$24.25/hr Median Earnings	\$31.57/hr 75th Percentile Earnings
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Occupation	25th Percentile Earnings	Median Earnings	75th Percentile Earnings
Electrical and Electronics Engineering Technicians (17-3023)	\$31.96	\$38.52	\$46.90
Electro-Mechanical Technicians (17-3024)	\$28.37	\$33.97	\$40.50
Sales Engineers (41-9031)	\$35.75	\$53.03	\$70.04
Electric Motor, Power Tool, and Related Repairers (49-2092)	\$19.94	\$25.54	\$36.29
Electrical and Electronics Repairers, Commercial and Industrial Equipment (49-2094)	\$27.12	\$31.38	\$34.35
Electrical and Electronics Repairers, Powerhouse, Substation, and Relay (49-2095)	\$37.84	\$44.10	\$50.70
Control and Valve Installers and Repairers, Except Mechanical Door (49-9012)	\$15.16	\$33.67	\$42.65
Industrial Machinery Mechanics (49-9041)	\$23.67	\$29.01	\$35.93
Maintenance Workers, Machinery (49-9043)	\$19.12	\$23.46	\$28.04
Precision Instrument and Equipment Repairers, All Other (49-9069)	\$27.19	\$33.64	\$41.20
Maintenance and Repair Workers, General (49-9071)	\$14.89	\$19.66	\$25.89
Installation, Maintenance, and Repair Workers, All Other (49-	\$13.35	\$16.31	\$20.40

Occupation	25th Percentile Earnings	Median Earnings	75th Percentile Earnings
9099)			

Regional Trends




	Region	2014 Jobs	2023 Jobs	Change	% Change
●	Region	5,769	6,055	286	5.0%
●	BC Service Area DEMOGRAPHIC	4,093	4,235	142	3.5%
●	California	235,728	269,292	33,564	14.2%
●	United States	2,363,848	2,643,450	279,602	11.8%

Regional Breakdown



County	2023 Jobs
Kern County, CA	6,055

Job Postings Summary

<p>9,718 Unique Postings (Jan 2014 - Sep 2017)</p> <p>45,732 Total Postings</p>	<p>5 : 1 Posting Intensity (Jan 2014 - Sep 2017)</p> <p>Regional Average: 6 : 1</p> 
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There were **45,732** total job postings for your selection from January 2014 to September 2017, of which **9,718** were unique. These numbers give us a Posting Intensity of **5-to-1**, meaning that for every 5 postings there is 1 unique job posting. This is lower than the Posting Intensity for all other occupations and companies in the region (6-to-1), indicating that they may not be trying as hard to hire for this position.

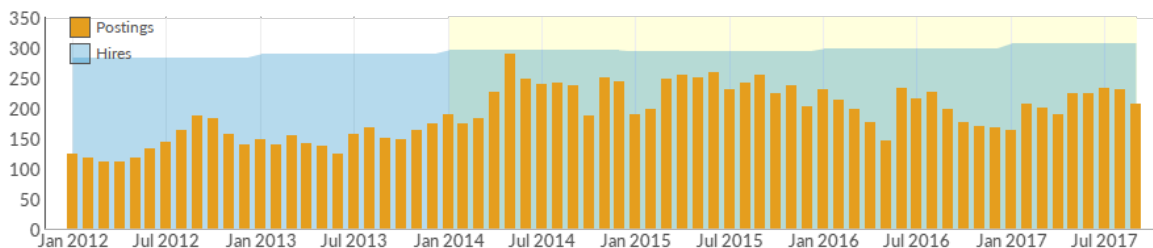
Job Postings vs. Hires

216

Avg. Monthly Postings (Jan 2014 - Sep 2017)

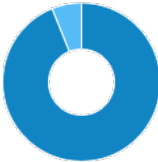
297

Avg. Monthly Hires (Jan 2014 - Sep 2017)



Occupation	Avg Monthly Postings (Jan 2014 - Sep 2017)	Avg Monthly Hires (Jan 2014 - Sep 2017)
Maintenance and Repair Workers, General	126	177
Electrical and Electronics Engineering Technicians	47	23
Industrial Machinery Mechanics	24	47
Sales Engineers	7	3
Installation, Maintenance, and Repair Workers, All Other	4	17
Electrical and Electronics Repairers, Commercial and Industrial Equipment	3	6
Electro-Mechanical Technicians	2	1
Maintenance Workers, Machinery	1	19
Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	1	1
Control and Valve Installers and Repairers, Except Mechanical Door	0	2
Precision Instrument and Equipment Repairers, All Other	0	0
Electric Motor, Power Tool, and Related Repairers	0	1

Occupation Gender Breakdown



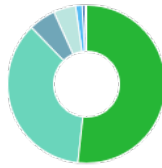
	Gender	2016 Jobs	2016 Percent
•	Males	5,204	93.9% 
•	Females	338	6.1% 

Occupation Age Breakdown



	Age	2016 Jobs	2016 Percent
●	14-18	16	0.3%
●	19-24	322	5.8% ■
●	25-34	1,020	18.4% ■■
●	35-44	1,170	21.1% ■■■
●	45-54	1,508	27.2% ■■■■
●	55-64	1,172	21.1% ■■■
●	65+	335	6.0% ■■

Occupation Race/Ethnicity Breakdown



	Race/Ethnicity	2016 Jobs	2016 Percent	
●	White	2,868	51.8%	<div style="width: 51.8%;"></div>
●	Hispanic or Latino	1,992	35.9%	<div style="width: 35.9%;"></div>
●	Asian	306	5.5%	<div style="width: 5.5%;"></div>
●	Black or African American	253	4.6%	<div style="width: 4.6%;"></div>
●	Two or More Races	74	1.3%	<div style="width: 1.3%;"></div>
●	American Indian or Alaska Native	34	0.6%	<div style="width: 0.6%;"></div>
●	Native Hawaiian or Other Pacific Islander	17	0.3%	<div style="width: 0.3%;"></div>

Occupational Programs

8		121	584
Programs (2016)		Completions (2016)	Openings (2016)
CIP Code	Program	Completions (2016)	
47.0101	Electrical/Electronics Equipment Installation and Repair, General	67	
15.9999	Engineering Technologies and Engineering-Related Fields, Other	35	
47.0104	Computer Installation and Repair Technology/Technician	11	
46.0302	Electrician	8	
15.0000	Engineering Technology, General	0	

Industries Employing 12 Occupations

Industry	Occupation Group Jobs in Industry (2016)	% of Occupation Group in Industry (2016)	% of Total Jobs in Industry (2016)
Local Government, Excluding Education and Hospitals	468	8.4%	3.5%
Federal Government, Civilian, Excluding Postal Service	323	5.8%	3.5%
Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	212	3.8%	26.5%
Crop Production	176	3.2%	1.0%
Elementary and Secondary Schools (Local Government)	164	3.0%	0.7%

Appendix A - Occupations

Code	Description
17-3023	Electrical and Electronics Engineering Technicians
17-3024	Electro-Mechanical Technicians
41-9031	Sales Engineers
49-2094	Electrical and Electronics Repairers, Commercial and Industrial Equipment
49-2095	Electrical and Electronics Repairers, Powerhouse, Substation, and Relay
49-9012	Control and Valve Installers and Repairers, Except Mechanical Door
49-2092	Electric Motor, Power Tool, and Related Repairers
49-9041	Industrial Machinery Mechanics
49-9043	Maintenance Workers, Machinery
49-9069	Precision Instrument and Equipment Repairers, All Other
49-9071	Maintenance and Repair Workers, General
49-9099	Installation, Maintenance, and Repair Workers, All Other

Appendix B - Data Sources and Calculations

Location Quotient

Location quotient (LQ) is a way of quantifying how concentrated a particular industry, cluster, occupation, or demographic group is in a region as compared to the nation. It can reveal what makes a particular region unique in comparison to the national average.

Occupation Data

Emsi occupation employment data are based on final Emsi industry data and final Emsi staffing patterns. Wage estimates are based on Occupational Employment Statistics (QCEW and Non-QCEW Employees classes of worker) and the American Community Survey (Self-Employed and Extended Proprietors). Occupational wage estimates also affected by county-level Emsi earnings by industry.

CareerBuilder/Emsi Job Postings

Job postings are collected from various sources and processed/enriched by Careerbuilder to provide information such as standardized company name, occupation, skills, and geography. Emsi performs additional filtering and processing to improve compatibility with Emsi data.

Completers Data

The completers data in this report is taken directly from the national IPEDS database published by the U.S. Department of Education's National Center for Education Statistics.

Institution Data

The institution data in this report is taken directly from the national IPEDS database published by the U.S. Department of Education's National Center for Education Statistics.

State Data Sources

This report uses state data from the following agencies: California Labor Market Information Department

**Bakersfield College, Baccalaureate Degree in Industrial Automation
Advisory Committee Meeting
May 5, 2017 in IT 201 – Bakersfield College**

Members Present:

Roy Allard, Bakersfield College
Nathan Bender, Tasteful Selection
Randy Cowart, Stantec Engineering
Manny Fernandez, Bakersfield College
Jonathan Geersen, Aera Energy
Shawn Hatton, Caltrol Inc.
Catherine Jones, Bakersfield College
Brian Miller, KHSD
Ed Neilands, Sierra Pacific Industries
Fred Nilson, akiet
Blair Pruett, Kern Steel Fabrication
Cynthia Quintanilla, Bakersfield College
Liz Rozell, Bakersfield College
Tom Rush, Bakersfield College
Dick Taylor, Kern County Veterans Service
Thomas Wilson, Contra Costa Electric
Dan Martin, Nestle

Guests:

Mike Blakely, Grimmway Farms
Tyler Meyer, Rio Tinto
Nora Seronello, Modesto Junior College

Welcome & Introductions:

- Meeting was called to order by Manny Fernandez 11:05 p.m. He welcomed all in attendance.

All in attendance introduced themselves.

Safety Penta minute:

- Catherine Jones spoke on the safety aspects of the work place regarding evacuation procedures. She spoke on the tours of the classrooms and the precautions that needed to be taken.

Updates and Impacts on the INDA Program:

- Dean Rozell updated the group. There are 15 colleges in the Pilot Programs accredited by ACCJC. The program had 1 recommendation regarding the Student/Program Outcomes. The change was made before the accreditation team came out.
- Please check out our web page found at [bakersfieldcollege.edu/Industrial Automation](http://bakersfieldcollege.edu/Industrial%20Automation).

**Review/Update on Baccalaureate Classes
Review/Update on Marketing and AS**

- Manny updated the group on current students in the 1st year. Please see attached power points.
- Manny spoke on Industry Connections, Program changes for lower & upper division. Some discussion was held regarding CAD.
- Associate Degree discussed and impact on transfer from neighboring community colleges.
 - Board members were in support of planned courses and scheduling.

Lower & Upper Division Cohort update:

- Cynthia Quintanilla, Counselor for the Engineering Program and Baccalaureate Program, spoke on the informational sessions that have been held. To date 5 have been held.

Committee Member Invitation/Application Process

- Roy Allard spoke Committee Member Invitation/Application Process according to the by-laws. Please see attached Power Point.

Survey Results/Curriculum Subcommittee

- Tom Rush had sent out a survey at the beginning of the semester. There was not enough responses to generate any results.
- Tom also spoke on Course ID numbering system.

By-Laws Adoption

- Blair Pruett thanked everyone for their participation. Applauded the KHS district for their active participation.
- Internships were discussed. Wonderful opportunities for students and employers alike.
- Fred Nilson spoke on their Internship programs. Gave kudos to Dean Rozell and faculty.

Web Video Volunteers

- Those in attendance were asked to volunteer to do a Web Video regarding the program.

Students in attendance were introduced, and will mingle with the Board members during lunch and will take anyone that wants to go on tours of the labs.

With no further business the meeting was adjourned at 12:20 p.m. with lunch following.

Submitted by
Roy Allard