RCCD | RIVERSIDE COMMUNITY COLLEGE DISTRICT

MORENO VALLEY COLLEGE | NORCO COLLEGE | RIVERSIDE CITY COLLEGE

District Curriculum Committee

Meeting Agenda

Tuesday, June 3, 2025 **4:00-5:00pm** **CAADO 209/Zoom**

Committee Members	Guests
☐ Brian Johnson (Chair, MAT, NOR)	☐ Lijuan Zhai (AVC ES&IE, RCCD)
☐ Eric Bishop (Co-Chair, Int. VC Ed. Services)	☐ Steven Schmidt (MUS, RCC)
☐ Kelly Douglass (ENG, RIV)	☐ Bryan Medina (Staff, RCCD)
☐ Nick Sinigaglia (PHI, MOV)	☐ Nicole Banerjee (AO, RCC)
	☐ Nick Franco (AO, NOR)
	☐ Deanna Murrell (AO, MVC)
	☐ Sabina Fernandez (Staff, MVC)
	☐ Casandra Greene (Staff, RCC)
	☐ Nicole Brown (Staff, NOR)
Additional Guests:	

Zoom Information
https://rccd-edu.zoom.us/j/86555446612?pwd=R0dDakVkSzNZQitZZEN0Zm1TTlYvQT09
+1 669 900 6833 US
Meeting ID: 865 5544 6612
Passcode: 627472

Call to Order:

Agenda and Minutes

1. Approval of Agenda
   The agenda will be reviewed, discussed, and considered for approval.

2. Approval of Minutes – May 20, 2025
   The minutes will be reviewed, discussed, and considered for approval.

Reports from Colleges

1. Moreno Valley
2. Norco
3. Riverside

Action Items

1. Curriculum Proposals
   Curriculum proposals will be reviewed, discussed, and considered for forwarding to the Board of Trustees.

Discussion Items and Public Comment

1. Approved Items and Next Board Meeting – Bryan Medina
2. Open Forum
3. Public Comment for all items on or not otherwise on the agenda.

Adjournment:

District Curriculum Committee

Proposals for Review for Meeting: 06/03/2025

Courses

Course Exclusions

M N R Discussion

MUS 36 **Instrumental Chamber Music Ensembles** ☑ ☐ ☐

Rationale: This course has only been offered five times at MVC (between the years 2014-2020). Of those five sections, only the first offering in 2014 reached double digits with regard to student enrollment. The music program does not have the infrastructure to adequately support a traditional chamber music ensemble (string and wind instruments), nor does it seem to have the student interest. For these reasons, this course should be excluded and removed from the Music degrees.

MOV: Approved, 5/27/2025 **NOR:** Info Item, 5/27/2025 **RIV:** Info Item, 5/27/2025

Course Major Modifications

M N R Discussion

ELE 10 **Survey of Electronics** ☐ ☑ ☐

Rationale:

MOV: Info Item, 5/27/2025 **NOR:** Approved, 5/27/2025 **RIV:** Info Item, 5/27/2025

ELE 810 **Survey of Electronics** ☐ ☑ ☐

Rationale: Update the book

MOV: Info Item, 5/27/2025 **NOR:** Approved, 5/27/2025 **RIV:** Info Item, 5/27/2025

SPA 2H **Honors Spanish 2** ☑ ☐ ☐

Rationale: Remove reference to Spanish 1H in requisites

MOV: Approved, 5/27/2025 **NOR:** Info Item, 5/27/2025 **RIV:** Info Item, 5/27/2025

Course Minor Modifications

M N R Discussion

COS 60A1 **Cosmetology Concepts Level A1** ☐ ☐ ☑

Rationale: Textbook update

MOV: Info Item, 5/27/2025 **NOR:** Info Item, 5/27/2025 **RIV:** Info Item, 5/27/2025

COS 60A2 **Cosmetology Concepts Level A2** ☐ ☐ ☑

Rationale: Textbook update

MOV: Info Item, 5/27/2025 **NOR:** Info Item, 5/27/2025 **RIV:** Info Item, 5/27/2025

COS 60B1 **Cosmetology Concepts Level B1** ☐ ☐ ☑

Rationale: Update course materials

MOV: Info Item, 5/27/2025 **NOR:** Info Item, 5/27/2025 **RIV:** Info Item, 5/27/2025

COS 60B2 **Cosmetology Concepts Level B2** ☐ ☐ ☑

Rationale: Update course materials

MOV: Info Item, 5/27/2025 **NOR:** Info Item, 5/27/2025 **RIV:** Info Item, 5/27/2025

COS 60C1 **Cosmetology Concepts Level C1** ☐ ☐ ☑

Rationale: Update course materials

MOV: Info Item, 5/27/2025 **NOR:** Info Item, 5/27/2025 **RIV:** Info Item, 5/27/2025

COS 60C2 **Cosmetology Concepts Level C2** ☐ ☐ ☑

Rationale: Update course materials

MOV: Info Item, 5/27/2025 **NOR:** Info Item, 5/27/2025 **RIV:** Info Item, 5/27/2025

COS 60D1 **Cosmetology Concepts Level D1** ☐ ☐ ☑

Rationale: Update course materials

MOV: Info Item, 5/27/2025 **NOR:** Info Item, 5/27/2025 **RIV:** Info Item, 5/27/2025

Courses

Course Minor Modifications

M N R Discussion

COS 60D2 **Cosmetology Concepts Level D2** ☐ ☐ ☑

Rationale: Update course materials

MOV: Info Item, 5/27/2025 **NOR:** Info Item, 5/27/2025 **RIV:** Info Item, 5/27/2025

ELC 77 **Electrical Theory for Electricians** ☐ ☑ ☐

Rationale: Updating textbook.

MOV: Info Item, 5/27/2025 **NOR:** Approved, 5/27/2025 **RIV:** Info Item, 5/27/2025

ELE 77 **Electrical Theory for Electricians** ☐ ☑ ☐

Rationale: Add new book.

MOV: Info Item, 5/27/2025 **NOR:** Approved, 5/27/2025 **RIV:** Info Item, 5/27/2025

GEG 30A **Field Studies in Geography** ☑ ☑ ☑

Rationale: Ensuring COR is up-to-date, less than 4 years old, and has relevant materials updated.

MOV: Approved, 5/27/2025 **NOR:** Approved, 5/27/2025 **RIV:** Info Item, 5/27/2025

MAN 77 **Electrical Theory for Electricians** ☐ ☑ ☐

Rationale: Add new book

MOV: Info Item, 5/27/2025 **NOR:** Approved, 5/27/2025 **RIV:** Info Item, 5/27/2025

Distance Education

M N R Discussion

COMM C1000HDE **Introduction to Public Speaking Honors** ☑ ☑ ☑

Rationale:

MOV: Approved, 5/27/2025 **NOR:** Approved, 5/27/2025 **RIV:** Approved, 5/27/2025

ELE 826DE **Microcontrollers** ☐ ☑ ☐

Rationale:

MOV: Info Item, 5/27/2025 **NOR:** Approved, 5/27/2025 **RIV:** Info Item, 5/27/2025

New Courses

M N R Discussion

ELE 41 **Introduction to Biomedical Equipment** ☐ ☑ ☐

Rationale: For students and new healthcare professionals, an introduction to medical equipment is an essential part of their education and training. It lays the foundation for more advanced learning and specialization in specific areas of medicine and medical technology.

MOV: Info Item, 5/27/2025 **NOR:** Approved, 5/27/2025 **RIV:** Info Item, 5/27/2025

ELE 42 **Troubleshooting Theory and Methodology** ☐ ☑ ☐

Rationale: For students and new healthcare professionals, an introduction to medical equipment is an essential part of their education and training. It lays the foundation for more advanced learning and specialization in specific areas of medicine and medical technology.

MOV: Info Item, 5/27/2025 **NOR:** Approved, 5/27/2025 **RIV:** Info Item, 5/27/2025

ELE 43 **Biomedical Life Support Equipment Troubleshooting and Repair** ☐ ☑ ☐

Rationale: For students and new healthcare professionals, an introduction to medical equipment is an essential part of their education and training. It lays the foundation for more advanced learning and specialization in specific areas of medicine and medical technology.

MOV: Info Item, 5/27/2025 **NOR:** Approved, 5/27/2025 **RIV:** Info Item, 5/27/2025

ELE 44 **Network Troubleshooting and Methodology in Biomedical Equipment** ☐ ☑ ☐

Rationale: For students and new healthcare professionals, an introduction to medical equipment is an essential part of their education and training. It lays the foundation for more advanced learning and specialization in specific areas of medicine and medical technology.

MOV: Info Item, 5/27/2025 **NOR:** Approved, 5/27/2025 **RIV:** Info Item, 5/27/2025

Courses

New Courses

M N R Discussion

ELE 45 **Capstone Project for Biomedical Equipment** ☐ ☑ ☐

Rationale: Many biomedical equipment technicians (BMETs) pursue certifications such as CBET (Certified Biomedical Equipment Technician). A capstone course can help students prepare for certification exams by reinforcing industry standards. It helps students gain practical experience before entering the workforce, improving their confidence and competence.

MOV: Info Item, 5/27/2025 **NOR:** Approved, 5/27/2025 **RIV:** Info Item, 5/27/2025

Programs

New Programs

M N R Discussion

Certificate

ELE **Biomedical Electronic Equipment Repair** ☐ ☑ ☐

Rationale: The healthcare industry is increasingly reliant on advanced medical technology, creating a strong demand for biomedical equipment technicians (BMETs) who can repair, maintain, and calibrate medical devices. According to the U.S. Bureau of Labor Statistics (BLS), employment for medical equipment repairers is projected to grow by 6% from 2022 to 2032, faster than the average for all occupations. The rise of telemedicine, wearable health devices, and AI-driven diagnostics further amplifies the need for skilled biomedical electronics technicians. A Biomedical Electronic Equipment Repair Program at Norco College would address industry demand, offer high-paying career opportunities, and expand the college's technical education offerings. The program would benefit students, the local healthcare industry, and the broader community by filling a critical workforce gap while supporting Norco College's mission of providing career-focused, hands-on education.

MOV: Info Item, 5/27/2025 **NOR:** Approved, 5/27/2025 **RIV:** Info Item, 5/27/2025

Program Modifications

M N R Discussion

Certificate

MAN **Control Systems Specialist** ☐ ☑ ☐

Rationale: Removing ELE-65 from the course requirements; MAN-33 is already required as an alternative.

MOV: Info Item, 5/27/2025 **NOR:** Approved, 5/27/2025 **RIV:** Info Item, 5/27/2025

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Program Outline of Record – Credit Degrees and Certificates

Program Outline

Title: Biomedical Electronic Equipment Repair

Originator: Khosrow Rad **Date** 3/10/2025

Department: AT&T/Electronic

College/Learning Pathway/Engagement Center: Choose an item.

☐ **Moreno Valley College** ☒ **Norco College** ☐ **Riverside City College**
(Please note: All degrees and certificates are college specific. If multiple colleges wish to adopt this degree or certificate, a separate proposal and college specific supporting documents are required.)

TOPs Code: 0934.60 **CIP Code:**

Type of Program:
☒ Certificate of Achievement only ☐ Locally approved certificate (8-units or less) only
☐ Associate Degree only ☐ Certificate of Achievement and Degree

Type of Associate Degree: ☐ Associate of Arts ☐ Associate of Science

This is a: ☒ New certificate/degree* ☐ Modification to an existing certificate/degree

***New programs that require new facilities, positions, capital outlays, or have budgetary impacts must also be approved by Academic Senate and Strategic Planning before being submitted. Has this program been appropriately approved?**
☐ Yes, minutes attached ☐ Approval Pending
☒ No Capital or Budgetary Impacts

If this is a modification to an existing certificate/degree, please specify the changes being made:
(Please be specific! Indicate any changes to title, description, learning outcomes, courses, unit value

Rationale:
(Please note: This information will be presented to the Board of Trustees.)
The healthcare industry is increasingly reliant on advanced medical technology, creating a strong demand for biomedical equipment technicians (BMETs) who can repair, maintain, and calibrate medical devices. According to the U.S. Bureau of Labor Statistics (BLS), employment for medical equipment repairers is projected to grow by 6% from 2022 to 2032, faster than the average for all occupations. The rise of telemedicine, wearable health devices, and AI-driven diagnostics further amplifies the need for skilled biomedical electronics technicians.
A Biomedical Electronic Equipment Repair Program at Norco College would address industry demand, offer high-paying career opportunities, and expand the college's technical education offerings. The program would benefit students, the local healthcare industry, and the broader community by filling a critical workforce gap while supporting Norco College's mission of providing career-focused, hands-on education.

Required Documentation

Please submit this form and the documents outlined below to your college's Instructional Program Support Coordinator (IPSC) and the District Technical Review committee via TechReview@rccd.edu. Please do not submit your proposal until all of the documentation below is complete.

All Degrees and Certificates

☒ Evidence of district-wide discipline communication
☒ Department minutes showing approval
☐ Narrative *(see following page)*
☐ Transfer preparation documentation *(only if applicable)*

Degrees and Certificates of 8 Units or More with Vocational TOPs Codes

In addition to the above, all degrees and certificates of 8 units or more with a vocational TOPs code must include the following to be submitted to the State Chancellor's Office for approval.*

☒ Labor Market Information and Analysis *(Required for new programs and modifications.)*
☒ Advisory Committee Recommendation *(Required for new programs and may be required for modifications. Check with the curriculum coordinator at your college to determine if a new recommendation is necessary.)*
☐ Regional Consortium Recommendation *(Required for new programs only.)*

**Certificates between 8 and less than 16 units can be approved locally or can be submitted to the State Chancellor's Office for approval. Certificates of less than 8 units can only be approved locally. However, locally approved certificates will not appear on student transcripts.*

Program Narrative

Item 1. Program Goals and Objectives

For programs with a vocational TOPs code, must address a valid workforce preparation purpose. For programs with a non-vocational TOPs code, must address a valid workforce preparation, basic skills, civic education, or local purpose. May address transfer preparation if applicable.

Item 2. Catalog Description

Includes program requirements, prerequisite skills or enrollment limitations, program learning outcomes, and information relevant to program goal.

Item 3. Program Requirements

Includes course requirements and sequencing that reflect program goals. For degrees, the GE pattern and calculations used to reach the degree total must be shown following the program requirements table. Course titles and unit values must be exact.

The Biomedical Electronic Equipment Repair program prepares students for entry-level careers in the installation, maintenance, and repair of medical and biomedical electronic equipment used in healthcare settings. The program combines foundational electronics theory with hands-on training in medical instrumentation, emphasizing safety standards, troubleshooting techniques, and compliance with regulatory guidelines such as those set by the FDA and Joint Commission.

Program Requirements:

- Completion of core electronics courses (DC/AC Circuits, Digital Electronics, and Microprocessors)
- Specialized courses in biomedical systems (Medical Instrumentation, Safety & Calibration, and Imaging Systems)
- Hands-on lab experience and an optional industry internship or clinical practicum
- Minimum grade of “C” in all technical courses to progress

Prerequisite Skills or Enrollment Limitations:

- Basic proficiency in mathematics and reading comprehension
- Prior completion of introductory electronics coursework (or instructor approval)
- Physical ability to safely handle tools and sensitive equipment in lab environments
- Enrollment may be limited based on lab space and availability of clinical partners

Student Learning Outcomes:Upon successful completion of the program, students will be able to:

1. Diagnose and repair faults in electronic medical devices using schematics and test equipment.
2. Apply safety and regulatory standards in the servicing of biomedical equipment.
3. Demonstrate proficiency in preventive maintenance and calibration procedures.
4. Communicate effectively with healthcare staff and technical personnel.

5. Maintain accurate service documentation in compliance with industry standards.

Program Goal:To equip students with the technical skills and professional knowledge necessary to become competent biomedical equipment technicians (BMETs), ready to support healthcare technology in hospitals, clinics, and medical equipment manufacturers.

Required Courses: 33___ units

Course	Title	Units	Sequencing
ELE 10	Survey of Electronics	4	Fall 1,
ELE 11 or ELC 11	DC Electronics	4	Spring 1
ELE 13 Or ELC 13	AC Electronics	4	Spring 1
ELE 25	Digital Techniques	4	Spring1
ELE 23	Electronic Devices and Circuits	4	Summer 1
ELE 30	Introduction to Biomedical equipment	3	Fall 2
ELE 31	Troubleshooting Theory and Methodology	3	Fall 2
ELE 35	Biomedical life Support equipment troubleshooting and Repair	3	Spring 2
ELE 33	Network Troubleshooting and Methodology	2	Spring 2
ELE 34	Capstone project for Biomedical Equipment	2	Spring 2

Total Program Units: 33 units

Item 4. Master Planning

Must address how the certificate/degree fits in the mission, curriculum, and master planning of the college and higher education in California.

Considering the mission of the college, the Biomedical Electronic Equipment Repair and the Digital Electronic certificate serve the college well by creating more opportunities for student success, such as the "application of emerging technologies" technologies that the community desperately needs so that students can get a head start on their careers. These certificates "provide foundational skills and pathways to technical educational certificates."

Further, in the years to come, we will develop apprenticeships in the two programs which will meet objective 6.1 "expand access to registered apprenticeships, work experience classes and work-based learning opportunities" and Goal 8 "become the regional college of choice by offering a comprehensive range of programs that prepare students for the future and meet employer workforce needs."

Item 5. Enrollment and Completer Projections

Projection of number of students to earn certificate/degree annually.

- . **San Diego Miramar College (CA)**: Their Biomedical Equipment Technology program sees **30-50 graduates annually**.
- **Community Colleges in Other States**: Programs at **Dallas College (TX) and Milwaukee Area Technical College (WI)** report **graduation rates of 25-40 students per year**.

Considering Norco College's existing **electronics and engineering technology programs** and the **demand for skilled BMETs**, we assume:

- **Initial Year Enrollment**: 30-40 students (pilot phase)
- **Growth Over 5 Years**: With awareness, industry partnerships, and strong job demand, enrollment could grow to **60+ students per year**.

- **Certificate Track (1-year program)**: 60-70% completion rate
- **Associate Degree Track (2-year program)**: 50-60% completion rate

Projected Student Completion Per Year

Year	Certificate Completers	Associate Degree Completers	Total Graduates
Year 1	20-25 students	10-15 students	30-40 students
Year 2	25-30 students	15-20 students	40-50 students
Year 3	30-35 students	20-25 students	50-60 students
Year 4	35-40 students	25-30 students	60-70 students
Year 5	40+ students	30+ students	70+ students

Factors Affecting Enrollment & Completion

Job Market Demand: With a growing need for BMETs, students will be motivated to complete the program for strong career opportunities.
Industry Partnerships: Collaborations with local hospitals and medical companies could boost enrollment through internships and job placement guarantees.
Student Interest & Marketing: Outreach to high school STEM programs and current Norco College students in **electronics, engineering, and health sciences** could increase participation

In the first year, Norco College could expect 30-40 graduates, potentially growing to 70+ students annually within five years. This would significantly impact the **local healthcare technology workforce** and the **college's technical program offerings**.

Item 6. Place of Program in Curriculum/Similar Programs

Must address how the certificate/degree fits in college's existing inventory.

The Biomedical Electronic Equipment repair-focused certificate or degree is a strategic addition to the college's inventory. It enhances program offerings, meets workforce demands,

utilizes current resources, and aligns with institutional goals. By adopting this program, the college will better serve students and the community, ensuring graduates are well-prepared for the evolving Madical landscape.

Item 7. Similar Programs at Other Colleges in Service Area
Justification of need for certificate/degree in the region.

The demand for **biomedical equipment technicians (BMETs)** is rising due to the increased reliance on advanced medical technology. The **U.S. Bureau of Labor Statistics (BLS)** projects a **6% job growth from 2022-2032** for medical equipment repairers, faster than the average for other occupations.

- Hospitals, clinics, and medical device manufacturers need trained professionals to **install, maintain, and repair life-saving equipment**, such as ventilators, MRI machines, and defibrillators.
- **An aging workforce** in the field means new technicians are urgently needed to replace retiring professionals.

Item 8. Transfer Preparation Information (if applicable)
If transfer preparation is a component of the certificate/degree, please provide transfer preparation information.
The courses in this proposal are transferable as listed below.

Program Outline of Record – Credit Degrees and Certificates

Program Outline

Title: Control Systems Specialist

Originator: Paul Van Hulle **Date** 2/26/2025

Department: AT&A/Manufacturing

College/Learning Pathway/Engagement Center: Choose an item.

☐ **Moreno Valley College** ☒ **Norco College** ☐ **Riverside City College**
(Please note: All degrees and certificates are college specific. If multiple colleges wish to adopt this degree or certificate, a separate proposal and college specific supporting documents are required.)

TOPs Code: 0956.00 and 945.00 **CIP Code: 15.0405**

Type of Program:
☒ Certificate of Achievement only ☐ Locally approved certificate (8-units or less) only
☐ Associate Degree only ☐ Certificate of Achievement and Degree

Type of Associate Degree: ☐ Associate of Arts ☐ Associate of Science

This is a: ☐ New certificate/degree* ☒ Modification to an existing certificate/degree

***New programs that require new facilities, positions, capital outlays, or have budgetary impacts must also be approved by Academic Senate and Strategic Planning before being submitted. Has this program been appropriately approved?**
☐ Yes, minutes attached ☐ Approval Pending
☒ No Capital or Budgetary Impacts

If this is a modification to an existing certificate/degree, please specify the changes being made:
(Please be specific! Indicate any changes to title, description, learning outcomes, courses, unit values, etc.)

Rationale:
(Please note: This information will be presented to the Board of Trustees.)

SACA certifications are industry-driven, developed for industry by industry. They are developed through a rigorous process that begins with the creation of truly international skill standards, endorsed by leading experts in Industry 4.0 technologies throughout the world. Certification examinations are created based on these standards, pilot tested, and statistically analyzed to ensure quality. Each certification includes a proctored hands-on evaluation and an online test to ensure that candidates for certification can "do" as well as "know." SACA uses an annual review process for all certifications to ensure that standards and examinations remain current and relevant in the fast-changing world of Industry 4.0.

Experts from well-known industry leaders, such as Rockwell Automation, FANUC, Ashley Furniture, Kohler, Foxconn, Boeing, and Hershey, were instrumental in making sure SACA's Industry 4.0 certifications reflect the competencies that industry needs. A list of companies that SACA and Amatrol

worked with to develop the certification is included on this website: https://www.saca.org/about-us-smart-automation-certification-alliance/acknowledgments/

SACA sits at the forefront of the effort to certify students and workers who demonstrate the required knowledge and hands-on smart automation skills employers so desperately need. SACA's certifications were developed in conjunction with industry partners who could speak from experience about their needs when it comes to workers able to work alongside a variety of advanced automation technologies.

SACA offers a wide variety of certifications in popular industrial skill areas, including certifications at the Associate, Specialist, and Professional level. For those wishing to focus on building a strong foundation of skills employers need, SACA also offers many micro-credentials that allow students and workers to add certifications as they master new areas.

For workers, SACA certifications can help market their smart automation skills to potential employers. For those employers, SACA certifications represent confirmation that a worker has the skills to hit the ground running in the workplace. To learn more about Industry 4.0 certifications and how SACA can help both future workers and industrial employers begin the task of bridging the Industry 4.0 skills gap, contact SACA for more information.

https://www.saca.org/smart-automation-certifications/#:~:text=SACA%20certifications%20are%20industry%2Ddriven,4.0%20technologies%20throughout%20the%20world.

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Program Narrative

Item 1. Program Goals and Objectives

For programs with a vocational TOPs code, must address a valid workforce preparation purpose. For programs with a non-vocational TOPs code, must address a valid workforce preparation, basic skills, civic education, or local purpose. May address transfer preparation if applicable.

Item 2. Catalog Description

Includes program requirements, prerequisite skills or enrollment limitations, program learning outcomes, and information relevant to program goal.

Upon successful completion of this program, students should be able to:
• Demonstrate knowledge of control systems used in industry and manufacturing environments.
• Apply problem-solving and analytical thinking in the maintenance, testing, troubleshooting, and repair of industrial mechanical/electrical equipment, industrial controls systems and robotics.
• Describe basic electrical circuits and PLC/VFD control theory.
• Apply technical math skills to solve problems involving electrical loads/wire sizing, gear ratios.

Item 3. Program Requirements

Includes course requirements and sequencing that reflect program goals. For degrees, the GE pattern and calculations used to reach the degree total must be shown following the program requirements table. Course titles and unit values must be exact.

Required Courses: 31 units

Course	Title	Units	Sequencing
MAN 10	Manufacturing Basic Operations	4	Fall 1
MAN/ELE 64	Programmable Logic Controllers	3	Winter 1
ELE/ELC/MAN 77	Electrical Theory for Electricians	3	Spring 1
ELE/ELC/MAN 73	Electric motors and transformers	4	Spring 1
MAN 27	Variable Frequency Drive Systems	2	Summer 1
MAN 28	Motor Control Troubleshooting 1	3	Fall 2
ELE/ELC/MAN 74	Industrial Wiring and Controls	4	Fall 2
ELE/ELC 75	Solid State Devices and Lighting Controls	3	Fall 1
MAN 15	Industry 4.0 Total Productive Maintenance	2	Winter 2
MAN 33	Programmable Controller Troubleshooting 1	3	Spring 2

Total Program Units: 31_ units

Item 4. Master Planning
Must address how the certificate/degree fits in the mission, curriculum, and master planning of the college and higher education in California.

Considering the mission of the college the robotics program and the controls certificate serves the college well by creating more opportunities for student success such as "application of emerging technologies" technologies that the community desperately needs so that students can get a head start on their careers. These certificates "provide foundational skills and pathways to technical educational certificates."

Further, in the years to come, we will develop apprenticeships in the two programs which will meet objective 6.1 "expand access to registered apprenticeships, work experience classes and work-based learning opportunities" and Goal 8 "become the regional college of choice by offering a comprehensive range of programs that prepare students for the future and meet employer workforce needs."

Item 5. Enrollment and Completer Projections
Projection of number of students to earn certificate/degree annually.

We have LMI data for two different programs including: "Industrial Maintenance and Automation" and "Industrial Automation Technology". This data is the most recent on the COE website (2-26-2025) Norco College is one of three colleges that teaches automation. According to the COE (Center of Excellence for Labor Market Research document from February 2023 Norco College had nine graduates in 0956.00 Manufacturing and Industrial Technology, Industrial Automation/Supply Chain Automation. With this proposal we hope to increase these numbers. Further, this program is highly recommended within the LMI data document. Industrial Maintenance and Automation annual job openings is 434 which represents an increase of 13%. It should also be noted from the graphics below that there is a great demand for control systems technicians in our area.

During the 2017-20 we had 24 students receive awards for manufacturing and industrial technology programs related to robotics and control systems in the Inland Empire/Desert region. By creating this certificate we are hoping to increase the number of students in the industrial automation program.

Exhibit 1. Five-year projections for the industrial maintenance and automation occupational group, Inland Empire/Desert Region, 2022-2027

Industrial Maintenance and Automation Occupational Group	2022 Jobs	2027 Jobs	5-Yr Job Change	5-Yr % Job Growth	Annual Openings (New + Replacement Jobs)	% of workers age 55+
Industrial Machinery Mechanics	3,429	3,862	433	13%	403	32%
Industrial Engineering Technologists and Technicians	155	181	26	17%	22	30%
Electro-Mechanical and Mechatronics Technologists and Technicians	70	77	7	10%	9	36%
Total	**3,654**	**4,120**	**466**	**13%**	**434**	**32%**

Source: Lightcast 2023.3

Below are two charts showing completion data for "industrial automation technology" and "industrial maintenance and automation"

Exhibit 13: Annual average community college awards for manufacturing and industrial technology programs related to industrial automation technology, Inland Empire/Desert Region, Academic Years 2019-2022

TOP 0956.00 – Manufacturing and Industrial Technology	Academic Year 2019-20	Academic Year 2020-21	Academic Year 2021-22	Total CC Annual Average Awards, Academic Years 2019-22
Norco				
Associate Degree	2	3	-	2
Certificate 16 < 30-semester units	10	4	2	5
Certificate 6 < 18-semester units	3	1	2	2
San Bernardino				
Associate Degree	1	-	2	1
Certificate 30 < 60-semester units	1	-	1	1

Industrial Maintenance and Automation in the Inland Empire/Desert Region, September 2023 10

C·O·E CENTERS OF EXCELLENCE FOR LABOR MARKET RESEARCH

TOP 0956.00 – Manufacturing and Industrial Technology	Academic Year 2019-20	Academic Year 2020-21	Academic Year 2021-22	Total CC Annual Average Awards, Academic Years 2019-22
Total	**17**	**8**	**7**	**11**

Source: COE Supply Resource, May 2023

Exhibit 14: Annual average community college awards for manufacturing and industrial technology programs related to industrial automation technology, Inland Empire/Desert Region, Academic Years 2019-2022

TOP 0956.00 – Manufacturing and Industrial Technology (Local Program Title)	Academic Year 2019-20	Academic Year 2020-21	Academic Year 2021-22	Total CC Annual Average Awards, Academic Years 2019-22
Norco (Industrial Automation/Supply Chain Automation)				**9**
Associate Degree	2	3	0	2
Certificate 16 < 30-semester units	10	4	2	5
Certificate 6 < 18-semester units	3	1	2	2
Total	**15**	**8**	**4**	**9**

Source: MIS Data Mart, COCI

Exhibit 6 displays the employers posting the most job ads for the industrial automation occupational group during the last 12 months. Showing employer names provides insight into where students may find employment after completing a program. Anheuser-Busch posted the most job ads for the industrial machinery mechanics occupation. Cushman & Wakefield, and FedEx posted the most job ads seeking industrial engineering technologists and technicians industrial engineering technologists and technicians workers.

Exhibit 6. Employers posting the most job ads for the industrial maintenance and automation occupational group, Inland Empire/Desert Region, September 2022 through August 2023

Industrial Machinery Mechanics Employers	Unique Job Ads
Anheuser-Busch	22
BlueTriton Brands	8
Niagara Bottling	7
Industrial Engineering Technologists and Technicians Employers	**Unique Job Ads**
Cushman & Wakefield	21
FedEx	21
Flag Solutions	16
Burrtec	16
CalPortland	13
Harbor Freight Tools	11
Electrical and Electronics Repairers, Commercial and Industrial Equipment Employers	**Unique Job Ads**
N/A	

Source: Lightcast 2023.3

Summary of Findings & Recommendation

The knowledge, skills, and abilities trained by three industrial maintenance and automation-related community college programs leads to three middle-skill occupations. These three occupations are projected to have 434 annual job openings, increasing employment by 13% over the next five years. The median hourly earnings for these occupations are between $29.05 and $29.86, above the regional living wage standard of $21.82 per hour.

Four regional community colleges offer three TOP program codes related to industrial maintenance and automation program training: electro-mechanical technology (0935.00), industrial systems technology and maintenance (0945.00), and manufacturing and industrial technology (0956.00). Over the last three academic years (2019-2022), these programs issued an annual average of 34 awards: 11 associate degrees and 23 certificates of achievement. Other regional postsecondary education institutions have not issued any known awards in related programs over the previous three academic years.

The Centers of Excellence recommends expanding industrial maintenance and automation programs to meet the regional demand for more workers in this field. Colleges considering this program should partner with relevant employers and confirm their demand for workers and the skills students need to secure work and self-sustainable earings in this field shortly after exiting the program.

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Item 6. Place of Program in Curriculum/Similar Programs

Must address how the certificate/degree fits in college's existing inventory.

The Industrial Automation program should be shown in the Manufacturing, Electronics and Electrician programs.

Many of the courses that are in this program are also in the Supply Chain Automation, Digital Electronics, and the Electrician programs. We will also be creating a new robotics program that will have some of the courses that are in the Industrial Automation program.

Item 7. Similar Programs at Other Colleges in Service Area

Justification of need for certificate/degree in the region.

Justification of need for certificate/degree in the region.

Examining the graphic shown below from the Centers of excellence for labor market research.

Exhibit 10: Industrial maintenance and automation programs, Inland Empire/Desert Region, 2022-23 academic year

TOP Program (TOP Code)	College	Local Program Title	Award
Electro-Mechanical Technology (0935.00)	Chaffey	Mechatronics	A.S. Degree
		Mechatronics Level I	Certificate
		Mechatronics Level II	Certificate
		Electromechanical Technology	Certificate
Industrial System Technology and Maintenance (0945.00)	Barstow	Industrial Maintenance Electrical and Instrumentation	Associate Degree
		Industrial Maintenance Mechanic	Associate Degree/Certificate
		Industrial Maintenance Mechanic, Level 2	Certificate
		Industrial Maintenance Mechanic Technology, Level 3	Certificate
		Trade Technician	Noncredit
	San Bernardino Valley	Industrial Automation	Certificate
		Industrial Maintenance	Certificate
		Mechanical Hydraulics/Pneumatics	Certificate
Manufacturing and Industrial Technology (0956.00)	Norco	Industrial Automation	Associate Degree/Certificate
		Industrial Automation Non-Credit	Noncredit
		Supply Chain Automation	Associate Degree/Certificate
		Supply Chain Technology	Associate Degree/Certificate
		Manufacturing Tech-Automated Systems	Associate Degree/Certificate
	San Bernardino Valley	Computer Numerical Control - CAD & CAM	Associate Degree/Certificate

Source: COCI, 2022-23 Community College Catalogs

Exhibits 11 – 13 display student completions for electro-mechanical technology (TOP 0935.00), industrial systems technology and maintenance (0945.00), and manufacturing and industrial technology (0956.00) programs related to industrial maintenance and automation programs over the last three academic years, 2019-2022. Over the last three academic years, these programs issued an annual average of 34 awards; 11 awards were associate degrees, and 23 were certificates of achievement. Program completion and student outcome methodologies can be found in the appendix.

Item 8. Transfer Preparation Information (if applicable)
If transfer preparation is a component of the certificate/degree, please provide transfer preparation information.

None, this certificate does not transfer to any other colleges/universities currently.