CTE Program Proposal

NAME OF COLLEGE: Modesto Junior College

CONTACT: Pedro Mendez, Dean of CTE, Community & Workforce Development

PHONE NUMBER: 209.575.6332

EMAIL ADDRESS: mendezp@mjc.edu

DATE: 2/1/2016

Division: Career Technical Education

Faculty: Adrian DeAngelis, Jim Howen,

PROGRAM NAME: Electro Mechanic

☒ New Program Proposal ☐ Program Revision Proposal

TYPE OF DEGREE:

☒ Certificate

☐ Associate of Arts

☐ Associate of Science

☐ Associate of Arts for Transfer

☐ Associate of Science for Transfer

☐ Other – Bachelor of Science

ATTACHMENTS REQUIRED:

- ✓ Labor/Job Market Data and Analysis
- ✓ Advisory Committee Meeting Minutes
- ○ Employer Survey [Does not apply]

A. Appropriateness to Mission

Statement of Program Goals and Objectives

The Modesto Junior College Electro Mechanic Certificate is part of a comprehensive MJC Electronics Technology Department Program re-design to prepare and provide comprehensive and updated student career opportunities in electrical installation and repair for the Public Utilities, Manufacturing, Facility Maintenance and Construction. Students receive the principles in electricity, wiring, common devices & components, automation, systems integration and maintenance. The **Electro Mechanic Certificate** provides foundation electrical and mechanic knowledge and skills. The certificate is consistent with and supports the college's mission of providing programs and services that are informed by the latest scholarship of teaching and learning. These programs and services fulfill a primary mission of the college, career and technical education.

Electronics Technology Programs & Curriculum						
	Skills Award	Certificate	Certificate	Skills Award	Certificate & AS Degree	Certificate & AS Degree
	Electrical Installer	Electrician (DAS #136)	Electro Mechanic	Automation Technician	Industrial Electronics	Computer Electronics
Telecommunications, Computer Support Technicians, Network Technicians,						**x**
System Integrators, Instrumentation Technician, Industrial Electricians				**x**	**x**	
Electro-Mechanics, Maintenance Electricians, Maintenance Mechanics			**x**			
Electrician Assistant, Construction Wiremen, Electricians,	**x**	**X**				

SP02: Program Award	Certificate	**Faculty Workload (1)**	2.86
Program Title	Electro Mechanic	**New Faculty Positions**	0
Program Goal	Career Technical Education	**New Equipment**	0
SP01: Pgm Top Code	0943.00	**New/Remodeled Facilities**	0
Required Unit Minimum	32.5	**Library Acquisitions**	0
Required Units Maximum	32.5	**Program Review Date (2)**	???
Annual Completers	10	**Gainful Employment**	Yes
New Annual Labor Demand (CTE Only)	???	**Apprenticeship**	No
		Distance Education (3)	5%
		CTE Regional Consortium Approved	---
		District Governing Board Approved	---
		District Governing Board Approval Date	---

(1) Faculty load based on number of sections to support program student thru put

(2) Review date within 2 years following the approval of program. CTE must be every two years.

(3) Percent of courses offered in hybrid or distance Ed.

1. Catalog Description

Certificate of Achievement: Electro-Mechanic

The Electro-Mechanic Program prepares students interested in career opportunities in Plant or Facilities Maintenance by offering electrical preparation with mechanic knowledge and skills exposure. Students receive the principles in AC/DC electricity, wiring, motor controllers, welding, machine shop, pneumatic/hydraulics and PLC .

Program Learning Outcomes:

Upon satisfactory completion of this program, the student should be prepared to:

1. Perform typical electrical maintenance or installation tasks for industrial environments.
2. Perform typical mechanical maintenance or installation tasks for industrial environments.
3. Estimate ratings for basic components of a motor circuit and build the control and power circuits.

2. Program Requirements

Display of Program Requirements

To earn a Certificate of Achievement in this major, the student must complete all courses listed in required courses category below. All required courses in the program must be completed with a C or better.

Required Courses:

PREFIX	SEQUENCE (SEMESTER)	COURSE NAME		UNITS

ELTEC 265	[NP]	Troubleshooting Techniques		1
ELTEC 322	[1]	Technical Measurements		3
ELTEC 208	[1]	Fundamentals of Electricity and Electronics		3
ELTEC 320	[1, 2]	Electrical Safety		1
WELD 200	[1, 2]	Arc & Gas Welding		3
MACH 301	[1, 2, 3]	Machine Shop 1		3
ELTEC 223	[2]	Industrial Electrical Components and Control Devices		3
WELD 206	[2, 3]	Gas Tungsten Arc Welding (G.T.A.W.)		3
ELTEC 226	[3]	Motors, Controls and Controllers		3
ELTEC 232	[3, 4]	Introduction to Programmable Logic Controllers		3
AGM 262	[3, 4]	Hydraulics/Pneumatics		3
ELTEC 229	[4]	Commercial & Industrial Wiring		3.5
Total Units				**32.5**

3. Background and Rationale

This program directly supports the Manufacturing Industry identified as a primary industry by the Central Valley Mother Lode Regional Consortium.

Modesto Junior College's Electronic Technology Department has a rich history in offering a breadth of classes in electrical, electronics and computer based topics. The department presently offers certificate and degree programs in Industrial Electronics and Computer Electronics. The department faculty also run a partial program of classes for electrician trainees as the registered DAS School #136 with the State of California Department of Industrial Relations. Recent reviews by faculty about the clarity of offerings has prompted program efforts to provide clearer award and more focused awards for students. Such efforts will assist the MJC Electronics Department be responsive to multiple industry occupational fields and providing clarity for student majoring or Electrical and Electronic fields.

The MJC Electronic Technology Department currently has 4 full-time instructors and 5 part-time instructors. The faculty maintain active relationships with local food manufacturing employers, electrical contractors, the IBEW and local high schools located in Stanislaus County. The department's Industrial Electronics and Electrical facilities are located on West Campus and the Computer Electronics classrooms and labs are located on the East Campus. Presently, there is adequate financial support in place for to support the current program and this proposed new certificate.

The proposed **Electro Mechanic Certificate** will prepared students with the knowledge and skill required for careers as maintenance/electrical technicians, electro-mechanics, engineering assistants, inspectors, etc. and therefore, appropriate to the objectives and conditions of higher education and community college education in California pursuant to Title 5 sections 55130(b) (6) and 55130(b) (7).

Open enrollment will be adhered to through observance of traditional college wide registration and enrollment practice available to all student seeking enrollment into college classes at Modesto Junior College – classes and program information will be published in the catalog and semester schedules for students seeking studies in electrician, industrial electrical, electrical mechanical and automation fields. No additional student selection criteria are in place; this certificate complies with California Code of Regulations, Title 5, sections 55201 and 58106.

Input from local employers on November 7, 2014 validated the need for the skilled individuals that the proposed Electro-Mechanic Certificate aims to provide. [Advisory minutes attached].

B. Need for Program

4. Enrollment and Completer Projections

		2016-17		2017-18	
CB 01: COURSE DEPT/NO	CB 02: COURSE TITLE	SECTIONS OFFERED (ANNUAL)	ENROLLMENT TOTAL (ANNUAL)	SECTIONS OFFERED (ANNUAL)	ENROLLMENT TOTAL (ANNUAL)
ELTEC 265	Troubleshooting Techniques	2	50	2	50
ELTEC 322	Technical Measurements	2	50	2	50
ELTEC 208	Fundamentals of Electricity and Electronics	4	96	4	40
ELTEC 320	Electrical Safety	2	50	2	40
WELD 200	Arc & Gas Welding	1	20	1	20
MACH 301	Machine Shop 1	1	20	1	20
ELTEC 223	Industrial Electrical Components and Control Devices	2	40	2	40
WELD 206	Gas Tungsten Arc Welding (G.T.A.W.)	1	20	1	20
ELTEC 226	Motors, Controls and Controllers	2	40	2	40
ELTEC 232	Introduction to Programmable Logic Controllers	1	18	1	18
AGM 262	Hydraulics/Pneumatics	1	20	1	20
ELTEC 229	Commercial & Industrial Wiring	1	18	1	18

5. Place of Program in Curriculum/Similar Programs

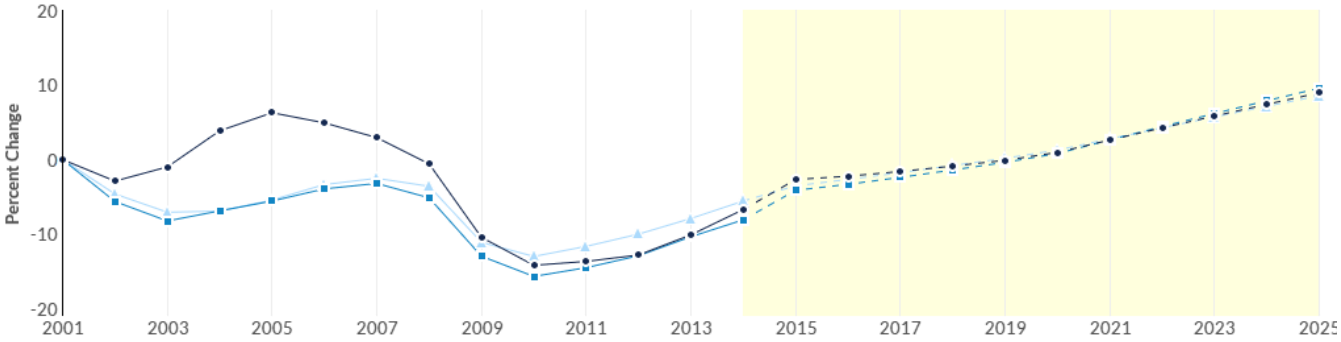
The proposed program is a new college certificate. It is designed for employers seeking electrical candidates with designed electrical and mechanical knowledge and skills to support facilities and operations. It is independent and unique to the campus; there are no other programs or programs with similar curriculum.

	A.S. Degree Industrial Electronics [32.5]		
Skills Award: Automation Technician [15 units]	Certificate: Industrial Electronics [32.5 units]	**Certificate: Electro Mechanic [32.5 units]**	Certificate: Electrician [32.5 units]
			Skills Recognition: Electrical Installer [12.5 units]

6. Similar Programs at Other Colleges in Service Area

The Electro-Mechanic Certificate program resembles programs designed for the preparation of electricians or general maintenance programs. However, this particular certificate still provides an electrical concentration of study and expands mechanic skills sets in welding, machining, and related mechanics. It is meant to provide clear recognition for concentration of studies for employers typically seeking occupational titles such as maintenance electricians, electro-mechanics, MX, and/or facility technicians. It also clearly allows the MJC Electronic Department Program to distinguish knowledge and skill development for guiding students into sub section of studies.

7. Labor Market Information and Analysis



	Region	2014 Jobs	2025 Jobs	Change	% Change
●	Region	5,756	6,723	967	16.8%
●	State	197,147	235,034	37,887	19.2%
●	United States	2,088,734	2,400,931	312,197	14.9%

Career Technical Education – Labor Review: Labor Market Information has been evaluated. The EMSI economic analysis of data includes local, sub-region, central region and state level data [EMSI study attached]. In all sets of data, trends have indicated a steady need for local and region occupation professionals. Specifically, the data illustrated below projects 967 jobs between 2015 and 2025 (an average of 97 jobs annually) a 16.8% growth in related occupations in the immediate area. The employment percentile earnings range for associated occupations are listed between $22.12/hr. and $32.76/hr. The analysis indicates a strong need for programs that can fill this need.

8. Employer Survey

Faculty do not believe a survey is needed. Much work has been done via the local Industrial Electronics Advisory Committee, faculty visits to industry sites to verify the various occupational emphasis and options for students pursuing careers in the profession.

9. Explanation of Employer Relationship

Local employers serve on the advisory committee support the program via donation of (a) time in class as guests, (b) supplies, technology and equipment, (c) internships and/or work experience opportunities, and (d) review of curriculum.

10. List of Members of Advisory Committee

This list must include advisory committee member names, job titles, and business affiliations.

○ Jeff Albright, Director of Vocational Education - Modesto City Schools	○ Matthew Lucas, Lawrence Livermore Labs
○ Bob Apodaca, Saputo Foods	○ Mike Mahler, US Farm Systems
○ Dan Castro, Lawrence Livermore Labs	○ Joe Majewski, Gallo Glass
○ John Coate, Hilmar Cheese	○ Kennith McCowen, Covanta Energy
○ Rick Coffman, E & J Gallo Winery	○ Pedro Mendez, MJC CTE, Workforce Development
○ Adrian DeAngelis, MJC Industrial Electronics	○ RC Noreen, Platt Electric
○ Jeremy Henley, Guntert & Zimmerman Construction	○ Brandon Nunez, Blue Diamond
○ Jim Howen, MJC Industrial Electronics	○ Jacob Oxenrider, San Luis & Delta Mendota Water Authority
○ Justin Krum, First Light Energy	○ Michael Ryun, Modesto Irrigation District
○ Michael Catlapp, Johansen High School	○ Doug Van Diepen, Del Monte Foods
○ George Loogman, Satake	○ Chris Vanmeter, Ceres High School

11. Recommendation of Advisory Committee

See Attached Advisory Minutes.

C. Curriculum Standards

12. Display of Proposed Sequence

Proposed Sequence:

Year 1 (Fall) 7 units

Year 1 (Spring) 7 units

Year 2 (Fall) 9 units

Year 2 (Spring) 9.5 units

Total Units: 32.5 units

First Semester		Units
ELTEC 322	Technical Measurements	3
ELTEC 208	Fundamentals of Electricity and Electronics	3
ELTEC 320	Electrical Safety	1

Second Semester		Units
ELTEC 320	Electrical Safety	1
WELD 200	Arc & Gas Welding	3
ELTEC 223	Industrial Electrical Components and Control Devices	3

Third Semester		Units
MACH 301	Machine Shop 1	3
WELD 206	Gas Tungsten Arc Welding (G.T.A.W.)	3
ELTEC 226	Motors, Controls and Controllers	3

Fourth Semester		Units
ELTEC 232	Introduction to Programmable Logic Controllers	3
AGM 262	Hydraulics/Pneumatics	3
ELTEC 229	Commercial & Industrial Wiring	3.5

13. Transfer Applicability (if applicable)

n/a

D. Adequate Resources and Compliance

Library and Learning Resources Plan

No additional resources will be required beyond the college's current library and learning resources.

14. Facilities and Equipment Plan

Current Sierra Hall facilities accommodates the Electro Mechanic Certificate program.

15. Financial Support Plan

Financial support for program will be address under the CTE division's annual college operational resources planning projections for programs.

16. Faculty Qualifications and Availability

The faculty discipline for this program is Electronics. Presently, current FT faculty and adjunct faculty are available to support program. All faculty that teach in this program meet the State minimum qualifications and possess knowledge and experience in this program area.

17. Based on model curriculum (if applicable)

State the model curriculum on which the proposed program is based.

N/A

18. Licensing or Accreditation Standards

List any licensing, accreditation or certifications available to program completers.

Student who complete the program will have opportunities through their course studies to receive NCCER certification in related Electrical and Industrial Electrical Related Curriculum as well as AWS Welding Certifications.

19. Student Selection and Fees

If the program is selective, describe relevant entry criteria and the selection process for admission to the program. Specify all mandatory fees that students will incur for the program aside from the ordinary course enrollment fee.

There are no additional fees require beyond those identified in California Education Code section 76300

Stanislaus County Area Manufacturing / Maintenance Joint Apprenticeship Committee

Meeting Minutes
March 4, 2016

Attendees: Brandon Nunes (Blue Diamond Growers), Corey Gerson (Fastenal), Steven Lillie (Del Monte), Patricia Castillo (Del Monte), Ron Losinski (Carpenter Company), Doug Murdock (Lawrence Livermore National Laboratory), Pedro Mendez (Modesto Junior College), & Cindy Young (Stanislaus County Office of Education), Eric Elberg (Division of Apprenticeship Standards), & Eugene Garcia (Stanislaus Alliance WorkNet).
.
Not in attendance: Eric McDonald (Sconza Candy Co), Tom Thill (Ingomar Packaging), & Tom Nett (Seneca Foods)

Meeting Called to Order – Doug Murdock called the meeting to order @ 7:35

Quorum was present.

New Members / Guests

NA

Minutes

Minutes were approved as distributed.

Treasurer's Report

Bank balance as of January 1st was $2,515.00.
Apprenticeship Fees received –Fastenal and carpenter Co, $1,050.00
Annual Dues received – Sconza, $500.00
Deposit of $1,550.00 will be made following today's meeting
Clendenin Bird Accounting was contacted for correction of the IRS "disallowance" of the Committee's IRS Exempt Status. Report of mitigation has not been received.

Communication

A thank you was sent to Amber Edwards and Margarita Ramos for participating in Grant Gartin's Journey Activity and Amber for writing a short news article to cover the activity for the Alliance Newsletter. Copies of the Newsletter was provided to Corey. Corey requested an electronic copy, which Doug will provide.

The Alliance has listed developing Maintenance Occupations workers as a priority in Stanislaus

County. Doug will determine whether or not funds are available to encourage the hiring of Apprentices by offering reimbursement of partial reimbursement for time spent by Journeyman to conduct in-plant OJT.

The Stanislaus County Careers in Manufacturing Program has invited the Committee to attend its activities for 2016, the next to be held February 18th at Gregori High School.
The program was created as a "summer job" opportunity, but seems to have expanded to also serve as an opportunity to assess potential employees for their skills and work practices and / or "attitude". The participants must be 18 years of age to participate and have completed the Work Keys Assessment to allow their ranking to be assessed.
Doug will notify all Active Member Companies with details regarding participation prior to the 18th.

Notice was received from Rudi Ehrler, due to health reasons and Modesto Machine Works' immediate plans, he was asking for withdrawal from the Committee / Program.
Doug will file a DAS 24 removing Modesto Machine Works from listing in the Committee Standards.

Modesto Junior College requested review and vote of support for Electronics Technology re-tooled programs. New options for students will include Electrical Installer, Electrician, Electro Mechanic, Industrial Electrical and Automation Technician programs. Many of these courses align well to the Instrumentation Technician and Electrician Maintenance Apprenticeship programs for participating employers.

Members reviewed the design and approved programs. It was noted that the Electro Mechanic Certificate and Automation Technician Skills Recognition Award would especially work well with apprenticeship interests.

APPRENTICE RSI, OJT AND STEP MOVE ISSUES

Nothing to report of request

Old Business

1st Agenda Item – Indenture of Apprentices.

Pedro met with Lok N Stitch, a maintenance service provider and is planning a meeting, to which Doug will be invited, to discuss opportunities relating to the Apprenticeship Program, among other topics of discussion.

2nd Agenda Item – High School Communication / Meetings

Doug met with instructors at Ceres High School and Livingston High School. Both schools show strong curriculum and support of industrial education, preparing graduates for entry level positons and / or continuing their preparation at a community college.
Livingston High School would like the opportunity to attend a Committee Meeting to describe the progress in revamping its curriculum and adding equipment to its education and training resources.
Doug will send the "Summary", describing his visit to the Active Member Companies.

3rd Agenda Item – Manufacturing Academy, a jointly conducted program by the Alliance

and the MJC

Pedro reported 15 participants when the program actually started, early January. Each participant is being monitored in a "work environment" regarding punctuality, work practices and participation in general. One participant has been placed on notice regarding expected performance / behavior.
The Committee has expressed its desire to attend / observe the daily activity, meet the participants, provide a company tour and participate in a "mock interview" activity. Pedro will discuss these points with the "team" to determine the possibility and arrangements.

4th Agenda Item – Apprentice Workshop

Nothing was provided by Active Member Companies regarding topics or participation. The agenda item shall be "tabled" until further interest.

5th Agenda Item – Recommended / Proposed extension of Apprenticeship program to needed disciplines.

Doug did not have anything to further discussion of Boiler Operator / Maintenance Worker training. He will continue working with Pedro and contact RF McDonald.

Pedro will continue to follow up on the Automation – Instrument Control Technician curriculum and will invite the MJC instructor, who shall serve as the SME for the curriculum development, to the Committee's March meeting to explain the expected competencies of program graduates.

6th Agenda item – Occupational Olympics

Doug asked active member Companies to specify their interest and their attendance at the event to be held at the Stanislaus County Fairgrounds March 24th. Cindy emphasized the advantages of having an activity or live discussion describing employment opportunities to encourage attendees to "stop and discuss" employment opportunities.
Del Monte expressed their interest in participating.

7th Agenda Item – California's Bill 321 Funds

The committee agreed with a suggestion by both doug and Pedro to make a 30 – 70 5 split in funds received fro Bill 321. The funds to be distributed by the Chancellor's Office amounts to $5.43 per classroom hour, per Apprentice. The Committee approved the arrangement and Doug and Pedro will develop an MOU to that effect.

New Business

Item #1 – Apprentice Initiative Funds may be available to the Committee by partnering with an organization receiving the funds from the DOL. John Dunn, now at American River College, has made a tentative offer to partner in the use of funds. Pedro will determine the path forward if there is such within the areas of use and participation by the Committee.

Item #2 – The VA has re-initiated its offer to evaluate the Committee's Program for eligibility for GI Benefits. The assessment of the program will occur at the MJC, a meeting between a VA Representative and Doug. One of the requirements is to have files "on hand" and in a lockable file cabinet at the location of the Committee's Business Meetings. Doug will make arrangements with Judy Wagoner to have access to a file cabinet in the Technical Education Office and store duplicate files for use.

Item #3 – The Committee suggested the purchase of a table cover for use at public events. The estimated cost is $200.00. The Committee approved the action. Doug will contact Peggy O'Donnell @ AIA/Mid-Valley Promotions.

DAS Report

Nothing to report.

Good of the Order

Nothing reported

Next Meeting

Next Meeting Date / Location – Friday April 1, 2016
Modesto Junior College West Campus
Sierra Hall, Room 235, 7:30 AM

Action Items

✓Follow-up with Ron on addition of Electrician – Maintenance Apprentice.
Add optional courses to the Electrician Maintenance RSI Course List
Provide copy of Administrative Policy and Procedures to Active Member Companies – electronic or hard copy?
✓Create a composite file for the Committee Standards and submit file to the DAS electronically.
✓Submit the SOI to the Secretary of State by May 31, 2015
✓Provide up-dated Committee Standards to the DAS for approval – Deferred by DAS
✓Determine procedures and cost for creating a Trust Account / Impound Account.
✓Meet with Apprentices to conduct yearly "satisfaction survey". Proposed June 19, 2015
Develop DRAFT Boiler Operator / Maintenance Technician Training Program
Collect information regarding Quality Assurance Technician and Automation Development and Control Technician
Meet with Lock 'N Stitch to discuss Apprenticeship Program
✓Work on Committee's involvement in the 2016 Manufacturing Academy
✓Create DRAFT proposal for distribution of "321 Funds"
Create DRAFT MOU for distribution of "321 Funds"

Electronics Technology
(Industrial Electronics and Electrical)
Advisory Committee
www.mjc.edu/teched

August 13, 2015
4:30pm – 6:30pm
Modesto Junior College (West Campus)
Sierra Hall Building
Modesto, CA

Meeting Minutes

☐ Jeff Albright, Director of Vocational Education Modesto City Schools	☐ Matthew Lucas, Lawrence Livermore Labs
☐ Bob Apodaca, Saputo Foods	☐ Mike Mahler, US Farm Systems
■ Dan Castro, Lawrence Livermore Labs	☐ Joe Majewski, EJ Gallo Winery
☐ John Coate, Hilmar Cheese	☐ Kennith McCowen, Covanta Energy
☐ Rick Coffman, E & J Gallo Winery	■ Pedro Mendez, MJC CTE, Workforce Development
■ Adrian DeAngelis, MJC Industrial Electronics	☐ RC Noreen, Platt Electric
■ Jeremy Henley, Guntert & Zimmerman Construction	☐ Brandon Nunez, Blue Diamond
■ Jim Howen, MJC Industrial Electronics	■ Jacob Oxenrider, San Luis & Delta Mendota Water Authority
☐ Justin Krum, First Light Energy	■ Michael Ryun, Modesto Irrigation District
☐ Michael Catlapp, Johansen High School	☐ Doug Van Diepen, Del Monte Foods
■ George Loogman, Satake	■ Chris Vanmeter, Ceres High School

4:30 – 4:35 p.m. Welcome — Pedro Mendez, *Dean* Career Technical Education

P Mendez welcomed attendees to the MJC West Campus and to participation in the advisory committee.

4:35 – 4:40 p.m. Introductions Business Interest & Needs — ALL

Business Attendee Introductions: Business members introduce themselves and spend some time discussing interests in what they see as a need in industry. J Henley referenced the need for individuals with not only technical skills and knowledge but a need for troubleshooting skills. J Oxenrider, stated a need to be able to have programs where they could send their employees or apprentices to school locally and customized curriculum for their organizations need. G Loogman discuss the general need they are seeing in their agriculture clients and the need to recruit students who can be developed as technicians to support equipment the industry with complex equipment being installed in the area. D Castro discussed the need to hire individuals with Electronics preparedness for his particular area. M Ryun (quasi roll as MJC Instructor and MID representative) reference during the meeting a full breadth of fundamental electrical and automation preparedness to have a foundation to grow with industry.

Education Attendee Introductions:
P Mendez, Dean of CTE, Community & Workforce Development

J Howen, MJC Lead Industrial Electronics Professor
[MJC Courses: Fundamental of Electricity, Electronics Fabrication, Digital Electronics, Instrumentation, Troubleshooting Techniques],

Adrian DeAngelis, MJC Industrial Electronics Professor
[MJC Courses: Fundamentals of Electricity, Electrical Safety, Electrical Blue Print Reading, Motor Controls, National Electrical Codes, Commercial & Industrial Wiring],

Michael Ryun, MJC Industrial Electronics Adjunct Instructor
[MJC Courses: Residential Wiring, PLC and PAC]

Electronics Technology
(Industrial Electronics and Electrical)
Advisory Committee
www.mjc.edu/teched

Chris Vanmeter, Ceres High School Manufacturing Program
[MJC Courses: Introduction to Applied Technologies, Fundamentals of Electricity, Photovoltaic Systems]

4:40 – 5:45 p.m.	Review of Programs *Industrial Electronics (HMI Classes) *Electrician *ACT Pathway *Electrician DAS (School 136) *CTE Pathways (Ceres, Johansen & Fanuc Robotics)	Jim Howen, Lead Instructor Industrial Electronics

Programs were presented by J Howen and P Mendez (See Attachments).

Members discussed each program its courses and direction. Discussion was very engaging. Below is an attempt to capture discussions highlights:

- **Industrial Electronics [Certificate, AS Degree]:** This is the most complete program offered by the department. Representative inquired about Electrical Blue Print Reading. Professor DeAngelis provide examples of blue prints students begin with early in the semester and what they are asked to do and level of prints offered at the end of the semester. Members felt program was thorough.

  Discussion Conclusion: Program direction support by members of industry with recommended changes.

  Recommendation: Add ELTEC 235: NEC to Elective Structure. One employer would require employee to enroll in this course. NEC is viable as an option.

- **Electrician [Certificate]:** This program is designed for the traditionalist electrician. Courses are aligned with the Electrician Trainee DAS classes. Goal is prepare students to work in electrical installation and repair.

  Discussion Conclusion: Program direction support by members of industry with recommended changes.

  Recommendation*: Add ELTEC 221: Instrumentation to Required Courses and drop ELTEC 232: PLC to Elective Courses. Electricians with this focus entering industry are in more need of understanding instrumentation devices and concepts vs PLC.*

- **Electrical Installer (Skills Recognition Award):** Program meant to provide quick shorten completion point to students enrolled in program seeking to quickly begin their work. Members discussed its merits and felt while the individual that the program would have value for a student completing and applying for an entry level job. The understanding would be that this person would need to continue their education in the field of Electricity.

  Discussion Conclusion: Program direction supported by members of industry.

- **Electrician Trainee DAS Program:** P Mendez explained that MJC is designated as School #136 through the CA Department of Industrial Relation and DAS. What this means is that individuals who are not enrolled in an official electrical apprenticeship program have an option to attend MJC as an "Electrician Trainee." This person must work under a journeyed electrician. It provides business with this level of construction and installation electrical work with an option to still grow their employees to journey level electrician status. The approach is an alternative option. Employees must complete 150 hours per year. This typically means registering in two Electrical Courses per calendar year. Testing stopping points are (1) lighting electrician – 2,400 hours worked in the field, (2) residential electrician test - 4,800 hours worked in the field and (3) general electrician (journey level equivalent) – 8,000 hours worked in the field.

Electronics Technology
(Industrial Electronics and Electrical)
Advisory Committee
www.mjc.edu/teched

- **CTE Pathway:** P Mendez provided a handout (see attached) of what schools refer to when attempt to layout a pattern for students from high school to community colleges.

5:45 – 6:30 p.m.	Review & Discussion of Schedule & Academy Concept	ALL

MJC presented scheduling designed to focus courses serving two different audiences (1) enrolled students working and (2) students able to enroll in courses as dedicated FT students for a short and intensive period of time. Below is discussion on scheduling and academy designed concepts.

(1) **Course schedules designed for working students:** MJC faculty recommended proactively scheduling course into morning [8:00am – 12:00pm] and evening [5:30pm-10:40pm] sections of the day. Schedules would provide rotation of class offerings to allow students to enroll in classes. Feedback from industry confirmed that the proposed areas for scheduling would work with industry and provide options for students working day shifts, swing shift and graveyard shifts. Night courses was the time of the day employers around the table felt was most important in supporting industry. The advisory committee member attendees agreed that for sites with rotating schedules for employees would still be challenged. P Mendez stated instructors commonly deal with students in this situation and generally attempt to work with employees enrolled in classes with this challenges as much as possible.

Conclusion: Direction to move classes to morning and evening was widely supported as an effective scheduling strategy.

(2) **Academy:** The goal behind this proposed concept was to design a program layout for student with limited work experience that can exclusive focus on skill and knowledge preparation for industry in a short period of time. The academy concept was presented as a middle of the day program 5 days a week, students in uniform, punch in clock environment beginning in June 2016 and ending April 2017. A cohort of up to 24 students would be accepted using a Lottery process with criteria elements following models from the MJC Fire Academy and MJC Nursing Program. Feedback was very positive for this type of approach and members saw much merit to not only the academic content intensity but to the ability for students to demonstrate reliability in attendance and professionalism via a mimicked academic environment linked to expectations in industry.

Conclusion: Overwhelming support for Academy concept. J Henley who attended the ACT Program at MJC felt the scaled up version added so much more to the preparation of students effectively for work. Support for both the Manufacturing Academy Pilot proposed start date Spring 2016 – Summer 2016 and the more intensive Industrial Electronics Academy with a propose Summer 2016 – Spring 2017.

Postponed Due To Time. Information	Program Updates *Equipment & Technology Needs *Internships / Job Placement	ALL

Next meeting: Spring 2016 – Modesto Junior College
To Be Announce and By Mail Invitation

Occupation Overview

EMSI Q4 2015 Data Set

February 2016

Modesto Junior College

435 College Avenue
Modesto, California 95350
209.575.6550

Parameters

Occupations

12 items selected. See Appendix A for details.

Regions

Code	Description
6047	Merced County, CA
6077	San Joaquin County, CA
6099	Stanislaus County, CA

Timeframe

2014 - 2025

Datarun

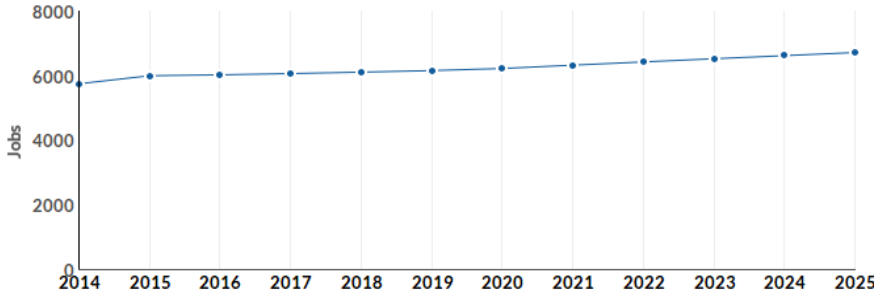
2015.4 – QCEW Employees, Non-QCEW Employees, Self-Employed, and Extended Proprietors

Occupation Summary for 12 Occupations

6,004	16.8%	$27.27/hr
Jobs (2015)	**% Change (2014-2025)**	**Median Hourly Earnings**
15% below National average	Nation: 14.9%	Nation: $26.35/hr

Growth

5,756	6,723	967	16.8%
2014 Jobs	2025 Jobs	Change (2014-2025)	% Change (2014-2025)

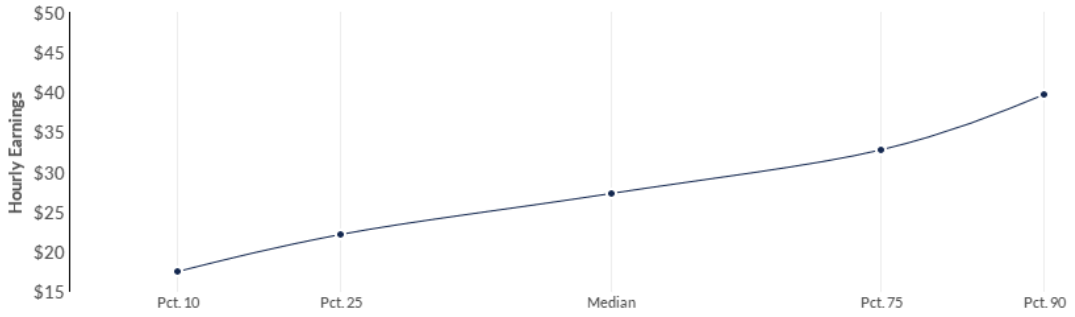


Occupation	2014 Jobs	2025 Jobs	Change	% Change
Electrical and Electronics Engineering Technicians (17-3023)	234	241	7	3%
Electro-Mechanical Technicians (17-3024)	10	12	2	20%
Industrial Engineering Technicians (17-3026)	41	51	10	24%
Mechanical Engineering Technicians (17-3027)	41	49	8	20%
Engineering Technicians, Except Drafters, All Other (17-3029)	157	169	12	8%
Electricians (47-2111)	1,819	2,156	337	19%
Solar Photovoltaic Installers (47-2231)	48	58	10	21%
First-Line Supervisors of Mechanics, Installers, and Repairers (49-1011)	1,345	1,559	214	16%
Electrical and Electronics Repairers, Commercial and Industrial Equipment (49-2094)	201	213	12	6%
Electrical and Electronics Repairers, Powerhouse, Substation, and Relay (49-2095)	39	41	2	5%
Industrial Machinery Mechanics (49-9041)	1,648	1,982	334	20%

Occupation	2014 Jobs	2025 Jobs	Change	% Change
Electrical Power-Line Installers and Repairers (49-9051)	174	191	17	10%

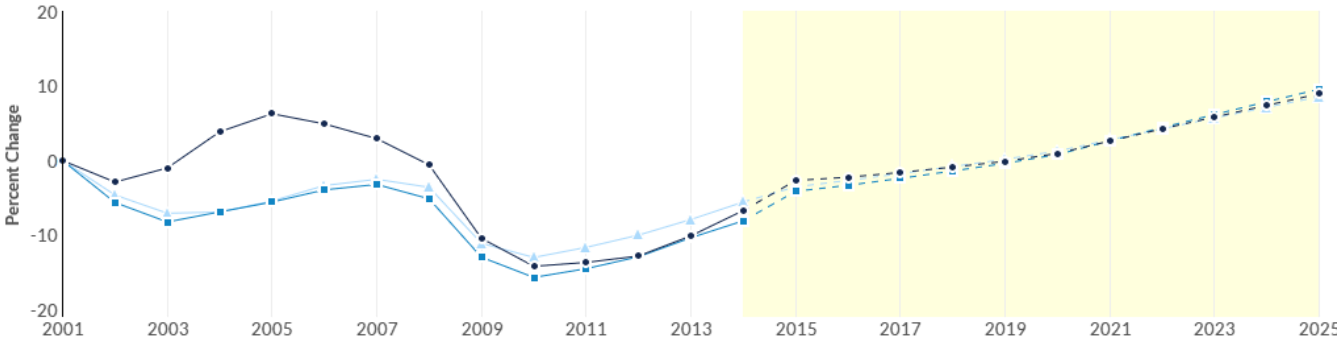
Percentile Earnings

$22.12/hr	$27.27/hr	$32.76/hr
25th Percentile Earnings	Median Earnings	75th Percentile Earnings



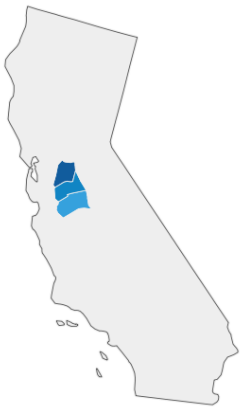
Occupation	25th Percentile Earnings	Median Earnings	75th Percentile Earnings
Electrical and Electronics Engineering Technicians (17-3023)	$23.25	$27.59	$32.49
Electro-Mechanical Technicians (17-3024)	$22.95	$24.87	$27.19
Industrial Engineering Technicians (17-3026)	$21.99	$25.80	$30.82
Mechanical Engineering Technicians (17-3027)	$20.84	$25.51	$31.25
Engineering Technicians, Except Drafters, All Other (17-3029)	$26.72	$32.92	$41.21
Electricians (47-2111)	$20.99	$25.37	$30.54
Solar Photovoltaic Installers (47-2231)	$16.26	$18.67	$21.07
First-Line Supervisors of Mechanics, Installers, and Repairers (49-1011)	$23.91	$31.03	$38.42
Electrical and Electronics Repairers, Commercial and Industrial Equipment (49-2094)	$20.06	$23.44	$28.27
Electrical and Electronics Repairers, Powerhouse, Substation, and Relay (49-2095)	$28.11	$33.03	$36.97
Industrial Machinery Mechanics (49-9041)	$20.60	$24.89	$29.30
Electrical Power-Line Installers and Repairers (49-9051)	$31.77	$41.44	$46.57

Regional Trends



	Region	2014 Jobs	2025 Jobs	Change	% Change
●	Region	5,756	6,723	967	16.8%
●	State	197,147	235,034	37,887	19.2%
●	United States	2,088,734	2,400,931	312,197	14.9%

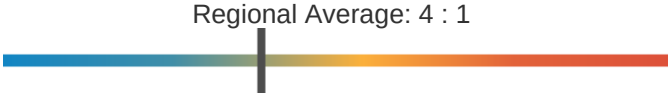
Regional Breakdown



County	2025 Jobs
San Joaquin County, CA	2,962
Stanislaus County, CA	2,649
Merced County, CA	1,111

Job Postings Summary

258	3 : 1
Unique Postings (Jan 2016)	**Posting Intensity (Jan 2016)**
690 Total Postings	Regional Average: 4 : 1



There were **690** total job postings for 12 Occupations in January 2016, of which **258** were unique. These numbers give us a Posting Intensity of **3-to-1**, meaning that for every 3 postings there is 1 unique job posting.This is lower than the Posting Intensity for all other occupations and companies in the region (4-to-1), indicating that companies may not be trying as hard to hire this position.

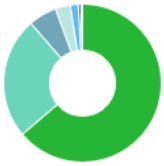
Occupation Gender Breakdown

Gender	2015 Jobs	2015 Percent
Males	5,731	95.4%
Females	273	4.6%

Occupation Age Breakdown

	Age	2015 Jobs	2015 Percent
●	14-18	11	0.2%
●	19-24	275	4.6%
●	25-34	1,137	18.9%
●	35-44	1,442	24.0%
●	45-54	1,741	29.0%
●	55-64	1,144	19.0%
●	65+	255	4.2%

Occupation Race/Ethnicity Breakdown



	Race/Ethnicity	2015 Jobs	2015 Percent
●	White	3,830	63.8%
●	Hispanic or Latino	1,491	24.8%
●	Asian	347	5.8%
●	Black or African American	184	3.1%
●	Two or More Races	99	1.6%
●	American Indian or Alaska Native	34	0.6%
●	Native Hawaiian or Other Pacific Islander	19	0.3%

Occupational Programs

17	139	435
Programs (2014)	**Completions (2014)**	**Openings (2014)**

CIP Code	Program	Completions (2014)
15.0303	Electrical, Electronic and Communications Engineering Technology/Technician	38
47.0105	Industrial Electronics Technology/Technician	25
15.0399	Electrical and Electronic Engineering Technologies/Technicians, Other	21
15.1501	Engineering/Industrial Management	15
47.0104	Computer Installation and Repair Technology/Technician	10

Industries Employing 12 Occupations

Industry	Occupation Group Jobs in Industry (2015)	% of Occupation Group in Industry (2015)	% of Total Jobs in Industry (2015)
Electrical Contractors and Other Wiring Installation Contractors	1,326	22.1%	42.2%
Local Government, Excluding Education and Hospitals	346	5.8%	1.5%
Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	256	4.3%	20.9%
Fruit and Vegetable Canning	241	4.0%	5.2%
Natural Gas Distribution	182	3.0%	11.2%

Appendix A - Occupations

Code	Description
17-3023	Electrical and Electronics Engineering Technicians
17-3024	Electro-Mechanical Technicians
17-3026	Industrial Engineering Technicians
17-3027	Mechanical Engineering Technicians
17-3029	Engineering Technicians, Except Drafters, All Other
47-2111	Electricians
47-2231	Solar Photovoltaic Installers
49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers
49-2094	Electrical and Electronics Repairers, Commercial and Industrial Equipment
49-2095	Electrical and Electronics Repairers, Powerhouse, Substation, and Relay
49-9041	Industrial Machinery Mechanics
49-9051	Electrical Power-Line Installers and Repairers

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.

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.

Industry Data

EMSI industry data have various sources depending on the class of worker. (1) For QCEW Employees, EMSI primarily uses the QCEW (Quarterly Census of Employment and Wages), with supplemental estimates from County Business Patterns and Current Employment Statistics. (2) Non-QCEW employees data are based on a number of sources including QCEW, Current Employment Statistics, County Business Patterns, BEA State and Local Personal Income reports, the National Industry-Occupation Employment Matrix (NIOEM), the American Community Survey, and Railroad Retirement Board statistics. (3) Self-Employed and Extended Proprietor classes of worker data are primarily based on the American Community Survey, Nonemployer Statistics, and BEA State and Local Personal Income Reports. Projections for QCEW and Non-QCEW Employees are informed by NIOEM and long-term industry projections published by individual states.

Staffing Patterns Data

The staffing pattern data in this report are compiled from several sources using a specialized process. For QCEW and Non-QCEW Employees classes of worker, sources include Occupational Employment Statistics, the National Industry-Occupation Employment Matrix, and the American Community Survey. For the Self-Employed and Extended Proprietors classes of worker, the primary source is the American Community Survey, with a small amount of information from Occupational Employment Statistics.

State Data Sources

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