

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: 3/4/16

Division: Career Technical Education

Faculty: Adrian DeAngelis, Jim Howen,

PROGRAM NAME: Electrician

☒ 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 Electrician 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. The curriculum is composed of courses that support curricular alignment for a partially approved program with the California Department of Industrial Relations as DAS School #136. The **Electrician Certificate** focuses on the preparation of electrical helpers, installers and electricians in the field. 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 for career and technical education and workforce development programs.

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, Installers Construction Wiremen, Electricians,	x	X				

SP02: Program Award	Certificate	Faculty Workload (1)	1.87
Program Title	Electrician	New Faculty Positions	0
Program Goal	Career Technical Education	New Equipment	0
SP01: Pgm Top Code	0952.20	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)	200+	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: Electrician

The Electrician program prepares students for careers in electrical installation and repair for the Public Utilities, Manufacturing and Construction industries. Students will study the principles of electricity, wiring, common devices, components, and PLCs.

Program Learning Outcomes:

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

1. Build circuits for power distribution or motor controls based on a schematic.
2. Perform measurements in a circuit and draw conclusions based on them for troubleshooting purposes.
3. Estimate ratings for basic components that make up an electrical circuit.

2. Program Requirements

Display of Program Requirements

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:			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
ELTEC 223	[2]	Industrial Electrical Components and Con	3
ELTEC 225	[2]	Residential Wiring	3
ELTEC 230	[2, 3]	Blueprint Reading for Electricians	2
ELTEC 235	[2, 3]	NEC: National Electrical Codes	4
ELTEC 226	[3]	Motors, Controls and Controllers	3
ELTEC 221	[3, 4]	Instrumentation Devices and Systems	3
ELTEC 232	[3, 4]	Introduction to Programmable Logic Controllers	3
ELTEC 229	[4]	Commercial & Industrial Wiring	3.5
Total Units			32.5

3. Background and Rationale

This program directly supports the electrician based occupations in the Central Valley Mother Lode Regional Consortium in the Building and Trades (Prop 39 related) and Utilities industries.

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. The certificate program directly links to cross walked courses identified for students seeking electrician trainee designation and/or preparation along the lighting technician, residential, commercial and ultimately the electrician state recognized track with the State of California. The proposed **Electrician Certificate** will prepared students with the knowledge and skill for these occupations 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).

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.

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 as electrician and installers. 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 Electrician Certificate aims to provide. [\[Advisory minutes attached\]](#).

B. Need for Program

4. Enrollment and Completer Projections

CB 01: COURSE DEPT/NO	CB 02: COURSE TITLE	2016-17		2017-18	
		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	96
ELTEC 320	Electrical Safety	2	40	2	40
ELTEC 223	Industrial Electrical Components and Con	1	20	1	20
ELTEC 225	Residential Wiring	1	20	1	20
ELTEC 230	Blueprint Reading for Electricians	1	25	1	25
ELTEC 235	NEC: National Electrical Codes	1	20	1	20
ELTEC 226	Motors, Controls and Controllers	1	20	1	20
ELTEC 221	Instrumentation Devices and Systems	1	18	1	18
ELTEC 232	Introduction to Programmable Logic Controllers	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 to prepare students with the electrical installation, wiring and code knowledge and skills to support the construction and utility installation needs of industry. The program has a similar foundation as the Electro Mechanic and Industrial Electrical

programs; however, it separate in its course combination to closely align with State of California DAS Electrical Competencies. 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

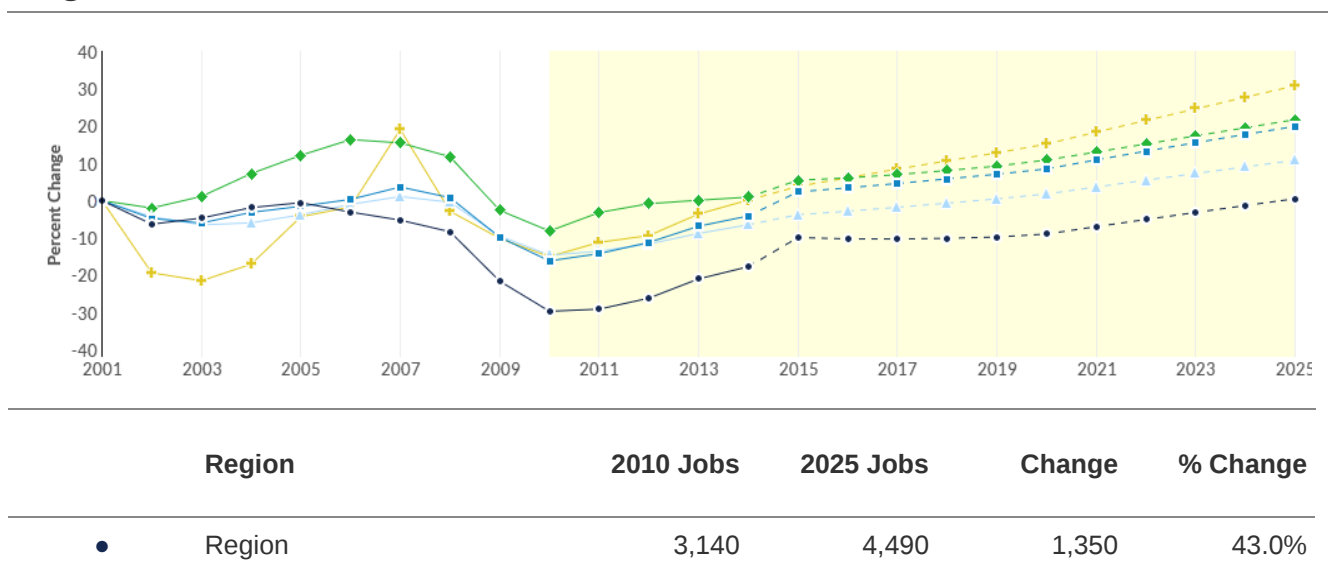
The Electrician Certificate program resembles programs designed for the preparation of electrician assistants, wiring installers and electricians. It is meant to provide clear recognition for concentration of studies for seeking to be focused on traditional electrical trade interests. It also clearly 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

Occupation Summary for 6 Occupations

4,024 Jobs (2015) 10% below National average	43.0% % Change (2010-2025) Nation: 29.8%	\$27.57/hr Median Hourly Earnings Nation: \$24.10/hr
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Regional Trends



	Region	2010 Jobs	2025 Jobs	Change	% Change
●	State	80,242	114,792	34,550	43.1%
●	United States	913,203	1,185,514	272,311	29.8%
●	San Joaquin Valley	6,834	9,059	2,225	32.6%
●	Modesto Junior College Service Area	79	122	43	54.4%

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 an upward and consistent trend in the past 5 years and future 10 years with a growth of 2,225 jobs between 2010 and 2025, a 32.6% growth in related occupations in the immediate region and 54.4% in the Modesto area. The employment percentile earnings range for associated occupations are listed between \$22.36/hr. and \$33.02/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. In addition, this curriculum aligns to the approval and updates with the State of California DAS Partial Program via the Department of Industrial Relations for Electrician Trainees and state recognized certificate Electricians.

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	○ Kenneth 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
○ Mark Kirkes, Kirkes Electrical	○ Mark Bowdwn, IBEW 684
○ Steve Dicksen, Best Electric	○ Luis Torres, ELTEC Alumni K
○ David Howe, Industrial Electric Inc.	

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) 8 units

Year 2 (Fall) 8 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 225	Residential Wiring	3
ELTEC 230	Electrical Blue Print Reading	2
ELTEC 223	Industrial Electrical Components and Controls	3

Third Semester		Units
ELTEC 235	National Electrical Codes	4
ELTEC 265	Troubleshooting Techniques	1

ELTEC 226	Motors, Controls and Controllers	3
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Fourth Semester		Units
ELTEC 232	Introduction to Programmable Logic Controllers	3
ELTEC 221	Instrumentation Devices and Systems	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 Electrician 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. Students will also have the option of being actively registered as Electrician Trainees with the State of California Department of Apprenticeship Standards.

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

Modesto Junior College
Electronics Technology Department
Advisory Committee Minutes
November 7, 2014

Members

☒ P Mendez, Dean of CTE	☒ Adrian DeAngelis, MJC Industrial Electronics
☒ Jim Howen, MJC Industrial Electronics	☒ M Henderson, Johansen High School, ITEA
☒ J Benson, E&J Gallo Winery	☒ C Vanmeter, Ceres High School, MPGT
☒ Steve Dickson, Best Electric	☒ M McKinsey, Willie Electric
☒ T Nett, Seneca Foods	☐ M Ryun, Modesto Irrigation District
☒ S Socrati, ICS Inc	☒ Joseph Enos, Diamond of California (Alum)
☐ M Mahler, US Farm Systems	☒ L Torres, E&J Gallo Livingston (Alum)
☐ J Rowe, Stanislaus Alliance	☐ Doug Van Diepen, Del Monte Foods
☒ B Hawkins, Turlock High School	☐ S Shook, Stanislaus County GSA
☒ D Howe, Industrial Electric, Inc.	☒ M Kirkes, Kirkes Electric
☒ L Bowman, Platt Electric	☒ M Bowden, IBEW 684

Old Business: None

New Business:

A. Introductions

Members went around the table and introduce themselves, their organization and position.

B. Review of Mission of Advisory Group

Discussion occurred on the need to establish an Electrical Department Advisory committee with the ending of the YROP Advance Manufacturing Committee due to ROP state of California Changes. However, there seem to be a growing need to evaluation of education and training or electricians, industrial electricians, electro mechanics and system integrators. This would now be the formation of this group.

C. Goals of Advisory Group

Members discussed purpose of advisory group. Group confirmed that the purpose of the advisory should be kept focused. Members agreed to focus on the following 3 goals.

1. Input into skill needs, courses, programs and third party certificates
2. Identification of future Instructors
3. Ensuring Ceres HS, Johansen HS and Modesto JC and industry are working together to prepare students for electrician and plant industrial electrical professions
4. Promotion of program in the community
5. Support of Program: (a) materials and equipment, (b) field trips and (c) internships

D. Review of New Program

1. **Electrician Certificate:** Professor De Angelis presented new certificate program per direction he was given meetings that the Electronics Technology faculty have had in establishing clearer separation between programs for students striving to be "Electricians" and those striving to gain the education and knowledge of Industrial Electronics: Automation and Systems Integration. Members reviewed courses and felt new certificate was valuable. Business members recommended that faculty develop specific Math Calculation & NEC courses and to exploring work experience for students in the field. Members also requested that CTE Pathways be developed to ensure smooth transition for local high schools. **Advisory membership recommended approval of program adoption.**

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

Occupation Overview

Modesto Junior College



435 College Avenue
Modesto, California 95350
209.575.6550

Parameters

Occupations

11 items selected. See Appendix A for details.

Regions

Code	Description
6001	Alameda County, CA
6009	Calaveras County, CA
6043	Mariposa County, CA
6047	Merced County, CA
6077	San Joaquin County, CA
6099	Stanislaus County, CA
6109	Tuolumne County, CA

Timeframe

2014 - 2024

Datarun

2014.3 – QCEW Employees, Non-QCEW Employees, and Extended Proprietors

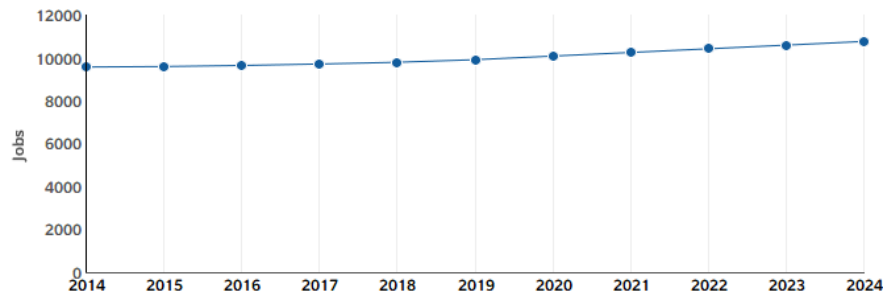
11 Occupations in CTE Valley Sierra Region

Occupation Summary for 11 Occupations

9,588 Jobs (2014) 13% below National average	12.4% % Change (2014-2024) Nation: 15.3%	\$30.02/hr Median Earnings Nation: \$23.55/hr
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Growth

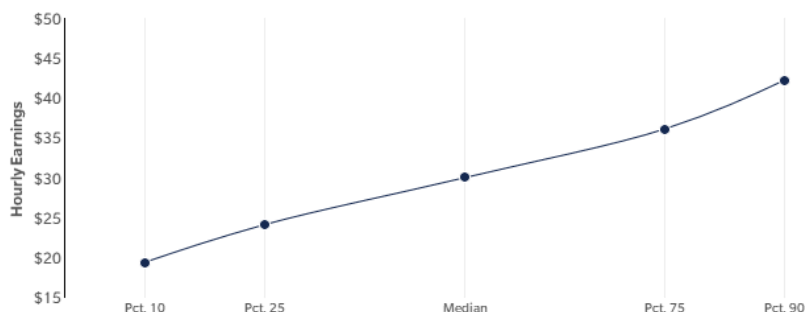
9,588 2014 Jobs	10,780 2024 Jobs	1,193 Change (2014-2024)	12.4% % Change (2014-2024)
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Occupation	2014 Jobs	2024 Jobs	Change	% Change
Electrical and Electronics Engineering Technicians (17-3023)	1,310	1,360	50	4%
Electro-Mechanical Technicians (17-3024)	321	332	11	3%
Electricians (47-2111)	4,348	5,002	654	15%
Solar Photovoltaic Installers (47-2231)	187	233	46	25%
Helpers--Electricians (47-3013)	290	386	96	33%
Electrical and Electronics Repairers, Commercial and Industrial Equipment (49-2094)	494	520	26	5%
Electrical and Electronics Repairers, Powerhouse, Substation, and Relay (49-2095)	131	139	8	6%
Security and Fire Alarm Systems Installers (49-2098)	753	865	112	15%
Maintenance Workers, Machinery (49-9043)	816	926	110	13%
Electrical Power-Line Installers and Repairers (49-9051)	415	466	51	12%
Electromechanical Equipment Assemblers (51-2023)	522	552	30	6%

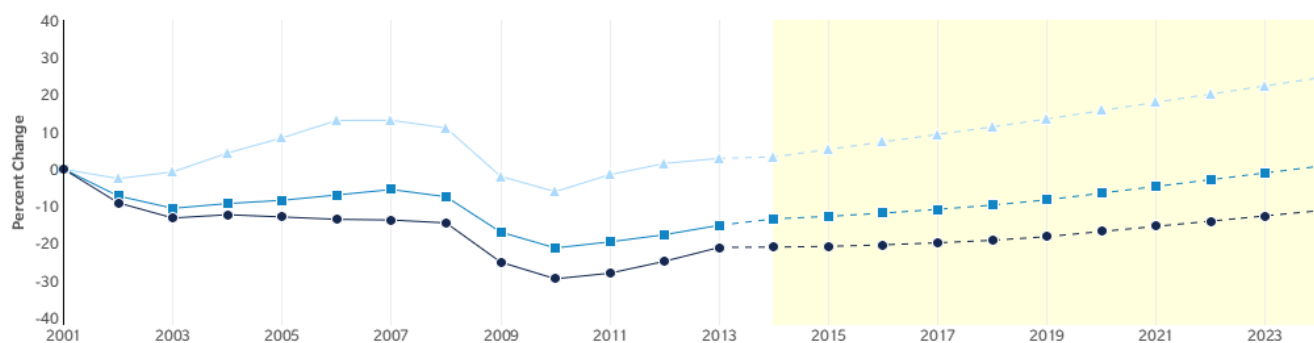
Percentile Earnings

\$24.12/hr	\$30.02/hr	\$36.13/hr
25th Percentile Earnings	Median Earnings	75th Percentile Earnings



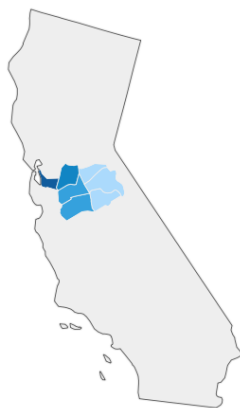
Occupation	25th Percentile Earnings	Median Earnings	75th Percentile Earnings
Electrical and Electronics Engineering Technicians (17-3023)	\$25.63	\$31.19	\$38.47
Electro-Mechanical Technicians (17-3024)	\$23.12	\$30.70	\$38.93
Electricians (47-2111)	\$26.91	\$33.48	\$40.14
Solar Photovoltaic Installers (47-2231)	\$16.15	\$20.01	\$22.73
Helpers--Electricians (47-3013)	\$10.03	\$12.96	\$15.78
Electrical and Electronics Repairers, Commercial and Industrial Equipment (49-2094)	\$20.88	\$28.65	\$35.26
Electrical and Electronics Repairers, Powerhouse, Substation, and Relay (49-2095)	\$33.46	\$36.78	\$39.42
Security and Fire Alarm Systems Installers (49-2098)	\$19.90	\$22.31	\$28.52
Maintenance Workers, Machinery (49-9043)	\$16.42	\$23.37	\$28.33
Electrical Power-Line Installers and Repairers (49-9051)	\$39.70	\$47.20	\$51.88
Electromechanical Equipment Assemblers (51-2023)	\$13.68	\$16.81	\$20.45

Regional Trends



	Region	2014 Jobs	2024 Jobs	% Change
●	Valley Sierra Region (Stan, SJ, Merced, Mother Lod)	9,588	10,780	12.4%
●	State	125,131	145,669	16.4%
●	San Joaquin Valley	10,356	12,498	20.7%

Regional Breakdown



County	2024 Jobs
Alameda County, CA	7,183
San Joaquin County, CA	1,596
Stanislaus County, CA	1,425
Merced County, CA	329
Calaveras County, CA	109

Job Postings Summary

134 Unique Postings (Aug 2014) 654 Total Postings	5 : 1 Posting Intensity (Aug 2014) Regional Average: 8 : 1 
--	--

Occupation Gender Breakdown



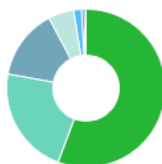
	Gender	2014 Jobs	2014 Percent
•	Males	8,395	87.6%
•	Females	1,192	12.4%

Occupation Age Breakdown



	Age	2014 Jobs	2014 Percent
●	14-18	39	0.4%
●	19-24	658	6.9% ■
●	25-34	2,259	23.6% ■■
●	35-44	2,352	24.5% ■■
●	45-54	2,615	27.3% ■■
●	55-64	1,431	14.9% ■■
●	65+	233	2.4% ■

Occupation Race/Ethnicity Breakdown



	Race/Ethnicity	2014 Jobs	2014 Percent
●	White (Not Hispanic or Latino)	5,341	55.7%
●	Hispanic or Latino (All Races)	2,123	22.1%
●	Asian (Not Hispanic or Latino)	1,382	14.4%
●	Black or African American (Not Hispanic or Latino)	499	5.2%
●	Two or More Races (Not Hispanic or Latino)	153	1.6%
●	Native Hawaiian or Other Pacific Islander (Not Hispanic or Latino)	47	0.5%
●	American Indian or Alaska Native (Not Hispanic or Latino)	43	0.5%

Occupational Programs

12 Programs (2013)	345 Completions (2013)	318 Openings (2013)
------------------------------	----------------------------------	-------------------------------

CIP Code	Program	Completions (2013)
46.0302	Electrician	221
15.0303	Electrical, Electronic and Communications Engineering Technology/Technician	66
47.0303	Industrial Mechanics and Maintenance Technology	23
15.9999	Engineering Technologies and Engineering-Related Fields, Other	12
47.0105	Industrial Electronics Technology/Technician	10

Industries Employing these Occupations

Industry	Occupation Group Jobs in Industry (2014)	% of Occupation Group in Industry (2014)	% of Total Jobs in Industry (2014)
Electrical Contractors and Other Wiring Installation Contractors	3,505	36.6%	52.9%
Local Government, Excluding Education and Hospitals	445	4.6%	0.8%
Security Systems Services (except Locksmiths)	428	4.5%	32.8%
Plumbing, Heating, and Air-Conditioning Contractors	224	2.3%	2.4%
Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology)	151	1.6%	1.1%

Appendix A - Occupations

Code	Description
17-3023	Electrical and Electronics Engineering Technicians
17-3024	Electro-Mechanical Technicians
47-2111	Electricians
47-2231	Solar Photovoltaic Installers
47-3013	Helpers--Electricians
49-2094	Electrical and Electronics Repairers, Commercial and Industrial Equipment
49-2095	Electrical and Electronics Repairers, Powerhouse, Substation, and Relay
49-2098	Security and Fire Alarm Systems Installers
49-9043	Maintenance Workers, Machinery
49-9051	Electrical Power-Line Installers and Repairers
51-2023	Electromechanical Equipment Assemblers

Appendix B - Data Sources and Calculations

State Data Sources

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

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.

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.

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.

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.

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.

MJC Electronics Technology Program & Related Maintenance Programs

1 INDUSTRIAL ELECTRONICS AND ELECTRICAL

Certificate & A.S. Degree: Industrial Electronics			
The Electronics Technology Department prepares students in the Industrial Electronics Program for a career in industry as Electronics Technicians, Instrumentation Technicians, and Electricians. Students receive theoretical and laboratory instruction in electrical/electronic principles, analog and digital devices, electrical/electronic systems, computer hardware, industrial equipment and control systems. Consult with an Electronics Faculty for advising on the selection of courses options.			
PROGRAM LEARNING OUTCOMES			
Upon satisfactory completion of this program, the student should be prepared to:			
1. Perform basic troubleshooting and electrical oriented repairs an installations in accordance to industry standards. 2. Work successfully in the Power Utility, Building Trades, and/or Manufacturing Industry. 3. Comply with current electrical/engineering safety and environmental standards.			
PROGRAM REQUIREMENTS			
To earn an Associate in Science Degree, the student must complete the MJC Associate Degree Requirements in addition the coursework below. All required and sufficient elective courses in the program must be completed with a C or better.			
REQUIRED COURSES - 28.5 units			Units
ELTEC 200	[1]	Technical Measures & Analysis	3
ELTEC 208	[1]	The World of Electricity and Electronics	3
ELTEC 212	[2, 3]	Digital Principles and Circuits	3
ELTEC 221	[3, 4]	Instrumentation Devices and Systems	3
ELTEC 226	[2, 3]	Motors, Controls and Controllers	3
ELTEC 229	[3, 4]	Commercial & Industrial Wiring	3.5
ELTEC 230	[1, 2, 3]	Blueprint Reading for Electricians	2
ELTEC 232	[2, 3]	Introduction to Programmable Logic Controllers	3

ELTEC 234	[3, 4]	Introduction to PACs:Programmable Automation Controllers	3
ELTEC 236	[3, 4]	HMI & Industrial Communications	2
ELTEC 265	[2, 3, 4]	Troubleshooting Techniques	1
ELTEC 320	[1, 2]	Electrical Safety	1
ELECTIVE COURSES - Complete a minimum of 3 units			
CMPET 206	[1, 2]	Personal Computer Assembly, Upgrading & Repairing	3
CMPET 214	[2, 3]	Microprocessor Programming & Interfacing	4
ELTEC 205	[1, 2]	Electronics Fabrication and Assembly Techniques	3
ELTEC 223	[2, 3]	Industrial Electrical Components and Con	3
ELTEC 321	[3, 4]	Photovoltaic Systems	3
Total Units			33.5 - 34.5

Certificate of Achievement: Electrician

The Electrician program prepares students for careers in electrical installation and repair for the Public Utilities, Manufacturing and Construction industries. Students receive the principles in electricity, wiring, common devices & components and PLCs.

PROGRAM LEARNING OUTCOMES

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

1. Build circuits for power distribution or motor controls based on a schematic.
2. Perform measurements in a circuit and draw conclusions based on them.
3. Dimension basic components that make up an electrical circuit.

PROGRAM REQUIREMENTS

To earn a Certificate of Achievement in this major, the student must complete all courses listed in required courses category below and the unit minimum from the elective courses category.

Required Courses: Complete 25 units			Units
ELTEC 208	[1]	The World of Electricity and Electronics	3
ELTEC 320	[1]	Electrical Safety	1
ELTEC 230	[1]	Blueprint Reading for Electricians	2
ELTEC 223	[1, 2]	Industrial Electrical Components and Con	3
AGM 225	[1, 2]	Principles of Electrical Wiring	3
ELTEC 226	[2, 3]	Motors, Controls and Controllers	3
ELTEC 265	[2, 3]	Troubleshooting Techniques	1
ELTEC 235	[2, 3, 4]	California Electrical Code	4
ELTEC 232	[3, 4]	Introduction to Programmable Logic Controllers	2
ELTEC 229	[3, 4]	Commercial & Industrial Wiring	3
Elective Courses: Complete a minimum of 5 units			
AGM 262	[NP]	Hydraulics/Pneumatics	3
ELTEC 205	[NP]	Electronics Fabrication and Assembly Techniques	3
ELTEC 212	[2, 3, 4]	Digital Principles and Circuits	3
ELTEC 321	[2, 3, 4]	Photovoltaic Systems	3
ELTEC 221	[3, 4]	Instrumentation Devices and Systems	3
ELTEC 234	[4]	Advanced Topics in Programmable Logic	2
Total Units			30 - 31

Skills Recognition Award: Electrical Installer

This program provides skill preparation courses intended to quickly prepare students to begin their careers in industry as electrician assistants. Students will be exposed to basic safety, electrical theory and wiring techniques.

PROGRAM LEARNING OUTCOMES

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

1. Perform common tasks related to electrical wiring following safety procedures.
2. Interpret typical schematics used in electrical installations or as descriptions of electrical controls.
3. Perform the required wiring of a standard circuit (e.g.: a 3-way lighting circuit) or a circuit described in an electrical schematic.
4. Demonstrate professional quality and efficient workmanship in wiring assignments produced in lab.

PROGRAM REQUIREMENTS

To earn a Skill Recognition Award as Electrical Installer, the student must complete the requirements detailed in the Career Technical Education Pathway which include completion of the requirements below.

Required Courses: Complete 12 units			Units
ELTEC 208	[1]	The World of Electricity and Electronics	3
AGM 225	[1]	Principles of Electrical Wiring	3
ELTEC 230	[1]	Blueprint Reading for Electricians	2
ELTEC 320	[1]	Electrical Safety	1
ELTEC 229			

A.S. Univ Prep - Area of Emphasis: University Prep - Industrial Arts

The Electronics Technology Department prepares students in the Industrial Electronics Program for a career in industry as Electronics Technicians, Instrumentation Technicians, and Electricians. Students receive theoretical and laboratory instruction in electrical/electronic principles, analog and digital devices, electrical/electronic systems, computer hardware, industrial equipment and control systems. Consult with an Electronics Faculty for advising on the selection of courses options.

PROGRAM LEARNING OUTCOMES

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

1. Demonstrate broad systems and technology understanding in various industrial and technical fields.

2. Transfer into an industrial arts, industrial technology or broad based manufacturing 4 year of study program.			
PROGRAM REQUIREMENTS			
To earn an Associate of Arts Degree in this major, the student must complete the requirements detailed in the the University Preparation Pathway which include completion of the requirements below. This degree is specifically designed to meet transfer requirements to a CSU Industrial Arts Program.			
REQUIRED COURSES -			Units
AUTEC 311	[NP]	Basic Automotive Systems	4
CMPET 269	[3, 4]	Networking Devices & Systems	1
CSCI 240	[1, 2]	Networking Essentials	4
CSCI 270	[1, 2]	Introduction to Programming	3
CSCI 271	[3, 4]	Problem Solving and Programming 1	3
ELTEC 208	[1]	The World of Electricity and Electronics	3
ELTEC 212	[2, 3]	Digital Principles and Circuits	3
MACH 211DE	[NP]	Machine Tool Technology 1	4 - 5
WELD 200	[NP]	Arc & Gas Welding	3
Total Units			28 - 29
NOTE: It is highly recommended that students complete the following courses in CSU Graduation Requirement: B1. PHYSICAL SCIENCE - CHEM 143: Introduction to College Chemistry B4. MATH & QUANTITATIVE REASONING - MATH 134: Elementary Statistics			

2 MANUFACTURING & GENERAL MAINTENANCE RELATED PROGRAMS

Certificate of Achievement: Manufacturing Technology (Interdisciplinary)

The Industrial Welding Program supports and maintains a training platform that focuses on the most common welding and sheet metal processes, certifications, and supporting technologies used in industry. The curriculum for the program is concentrated primarily on the Shielded Metal Arc, Gas Tungsten Arc, Gas Metal Arc, Flux Core Arc Welding, Oxy-Acetylene Welding, Oxy-Acetylene and Plasma Cutting. The program's courses expose students to both hands-on, laboratory and lecture learning objectives.

PROGRAM LEARNING OUTCOMES

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

1. Perform the measuring and calculating of voltages, currents, and resistance in circuits and the wiring application of typical industrial equipment.
2. Perform typical machining, grinding, and threading operations within acceptable tolerances of general manufacturing procedures.
3. Demonstrate proper set-up of SMAW, GMAW, and GTAW equipment and perform typical welding procedures according to general manufacturing codes and standards.

PROGRAM REQUIREMENTS

To earn a Certificate in this major, the student must complete the requirements below:

			Units
AGM 262	[1]	Hydraulics/Pneumatics	3
ELTEC 208	[1]	The World of Electricity and Electronics	3
ELTEC 229	[2]	Commercial & Industrial Wiring	3
ELTEC 265	[1]	Troubleshooting Techniques	1
MACH 301	[1]	Machine Shop 1	3
MACH 302	[2]	Machine Shop 2	3
WELD 200	[1]	Arc & Gas Welding	3
WELD 204	[2]	Gas Metal Arc Welding(G.M.A.W) & Flux Core Arc Welding (F.C.A.W)	3
WELD 206	[2]	Gas Tungsten Arc Welding (G.T.A.W.)	3
Total Units			25

Certificate of Achievement: Maintenance Machinist 2

The Machine Tool Technology program is designed to provide training in the operation of traditional manual as well as computer operated machine tools used to produce the mechanical components used in all industrial applications. Students will receive instruction the use of lathes, milling machines, precision grinders as well as the theory and practice of precision dimensional measurement.

PROGRAM LEARNING OUTCOMES

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

1. Demonstrate compliance with current machine shop safety and environmental regulations.
2. Perform manual machine shop operations in accordance with industry recognized and accepted practices.

PROGRAM REQUIREMENTS

To earn a Certificate of Achievement the student must complete 21 units from the areas indicated. This series of courses is intended to address the needs of those who are interested in advancing the skills developed in the Maintenance Machinist recognition award program.

REQUIRED COMPETENCIES FOR CERTIFICATE

Units

Successfully Complete MATH 20 Pre-Algebra **or**
Eligibility for MATH 70 by MJC assessment process.

5

Required Courses – Complete 16 units

Units

MACH 301	[1]	Machine Shop 1	3
MACH 302	[2]	Machine Shop 2	3
MACH 303	[3]	Machine Shop 3	3
WELD 200	[2]	Arc & Gas Welding	3
MACH 357	[1]	Machine Trades Print Reading	2
MACH 395ABC	[4]	Advanced Mach Tool Technology Lab	2 - 3
ELECTIVE COURSES - Complete 5 units			Units
WELD 204	[3]	Gas Metal Arc Welding(G.M.A.W) & Flux Core Arc Welding (F.C.A.W)	3
WELD 206	[4]	Gas Tungsten Arc Welding (G.T.A.W.)	3
ELTEC 320	[NP]	Electrical Safety	1
ELTEC 265	[NP]	Troubleshooting Techniques	1
AGM 214	[NP]	Equipment Service and Safety	1
Total Units			21

3 UNIVERSITY TRANSFERRED FOCUS OPTION

A.S. University Prep - Industrial Arts

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PROGRAM LEARNING OUTCOMES

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

1. Demonstrate broad systems and technology understanding in various industrial and technical fields.
2. Transfer into an industrial arts, industrial technology or broad based manufacturing 4 year of study program.

PROGRAM REQUIREMENTS

To earn an Associate of Arts Degree in this major, the student must complete the requirements detailed in the the University Preparation Pathway which include completion of the requirements below. This degree is specifically designed to meet transfer requirements to a CSU Industrial Arts Program.

REQUIRED COURSES -			Units
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CMPET 269	[3, 4]	Networking Devices & Systems	1
CSCI 240	[1, 2]	Networking Essentials	4
CSCI 270	[1, 2]	Introduction to Programming	3
CSCI 271	[3, 4]	Problem Solving and Programming 1	3
ELTEC 208	[1]	The World of Electricity and Electronics	3
ELTEC 212	[2, 3]	Digital Principles and Circuits	3
MACH 211DE	[NP]	Machine Tool Technology 1	4 - 5
WELD 200	[NP]	Arc & Gas Welding	3
Total Units			28 - 29

4 CTE PROGRAM OF STUDY (PATHWAY FROM CERES AND JOHANSEN HIGH)

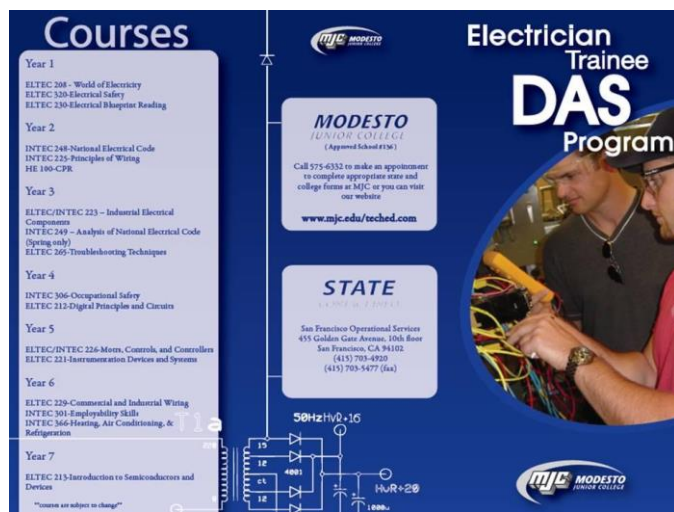
MJC Electronics Technology Department

Career Technical Education (CTE) Programs of Study

	Ceres High School <i>Chris Vanmeter</i>	Johansen ITEA <i>Michael Catlapp</i>
MJC <i>Jim Howen Adrian DeAngelis Jon Kropp Michael Ryun Marty McKinsey Aaron Hamilton Tim Vaughan Jose Cazares Barney Gordon</i>	Industrial Electrical (Certificate or Degree) Electrician (Certificate) Electrical Installer (Award) *Manufacturing Technology (Certificate) *Maintenance Machinist	Industrial Electrical (Certificate or Degree) Electrician (Certificate) Electrical Installer (Award) *Manufacturing Technology (Certificate) *Maintenance Machinist
12th Grade	Academy Intro. to Tech Industries	ITEA 3:
11th Grade	Academy Fundamentals of Electricity ELTEC 208: 3 units]	ITEA 2:
10th Grade	Academy Manufacturing Drafting (CAD Drafting, VEX Robotics, Milling, Pneumatics, Mechanics)	ITEA 1:
9th Grade	Manufacturing Technologies Foundation [ELTEC 300: 3 units]	-----

5 ELECTRICIAN TRAINEE DAS #136 COURSES

Modesto Junior College is approved as School #136 and delivers a partial program for “electrician trainees” registered through the Division of Labor Standards. What this means for “electrician trainees” is that there are courses for you to register in to stay active, but the MJC program does not offer a full menu of classes found in an approved full program. This program adheres to California Code of Regulations, Title 8, Section 296.0 (e).



The poster is titled "Electrician Trainee DAS Program" and features the Modesto Junior College logo. It lists courses for Years 1 through 7. Year 1 includes ELTEC 204 - World of Electricity, ELTEC 230 Electrical Safety, and ELTEC 230 Electrical Blueprint Reading. Year 2 includes INTEC 248 National Electrical Code, INTEC 225 Principles of Wiring, and HE 100 CPR. Year 3 includes ELTEC/INTEC 223 - Industrial Electrical Components, INTEC 249 - Analysis of National Electrical Code (Spring only), and ELTEC 240 Troubleshooting Techniques. Year 4 includes INTEC 306 Occupational Safety and ELTEC 212 Digital Principles and Circuits. Year 5 includes ELTEC/INTEC 226 Motors, Controls, and Controllers and ELTEC 221 Instrumentation Devices and Systems. Year 6 includes ELTEC 229 Commercial and Industrial Wiring, INTEC 301 Handyman Skills, and INTEC 366 Heating, Air Conditioning, & Refrigeration. Year 7 includes ELTEC 213 Introduction to Semiconductors and Devices. A small circuit diagram is shown at the bottom left. Contact information for the State Department of Industrial Relations is provided on the right.

Courses

Year 1
ELTEC 204 - World of Electricity
ELTEC 230 Electrical Safety
ELTEC 230 Electrical Blueprint Reading

Year 2
INTEC 248 National Electrical Code
INTEC 225 Principles of Wiring
HE 100 CPR

Year 3
ELTEC/INTEC 223 - Industrial Electrical Components
INTEC 249 - Analysis of National Electrical Code (Spring only)
ELTEC 240 Troubleshooting Techniques

Year 4
INTEC 306 Occupational Safety
ELTEC 212 Digital Principles and Circuits

Year 5
ELTEC/INTEC 226 Motors, Controls, and Controllers
ELTEC 221 Instrumentation Devices and Systems

Year 6
ELTEC 229 Commercial and Industrial Wiring
INTEC 301 Handyman Skills
INTEC 366 Heating, Air Conditioning, & Refrigeration

Year 7
ELTEC 213 Introduction to Semiconductors and Devices

Electrician Trainee DAS Program

MODESTO JUNIOR COLLEGE
(Approved School #136)
Call 575-6332 to make an appointment to complete appropriate state and college forms at MJC or you can visit our website
www.mjc.edu/teched.com

STATE
San Francisco Operational Services
455 Golden Gate Avenue, 15th floor
San Francisco, CA 94102
(415) 703-4920
(415) 703-5477 (fax)

50Hz 110/0/10
15
10
4001
5V
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100u
100R+20

MJC MODESTO JUNIOR COLLEGE

Students, please be aware that not all courses are offered each semester and that courses begin typically on the first day of either summer, fall, or spring semesters (i.e. May/June, August, and January).

When registering please contact Judy Wagner at (209) 575-6332 or visit our Division Office at the Sierra Hall Building on the West Campus.

6 SCHEDULE HAND OUTS

SPRING 2016 SCHEDULE: ELECTRONICS- WEST CAMPUS Rev. D

TIME	MONDAY			TUESDAY			WEDNESDAY	THURSDAY			FRIDAY
8:55				208 Basic DC/AC 9:55				208 Basic DC/AC 9:55			9:00 321 Solar-Patterson
9:55				208 Basic DC/AC LAB 11:35				208 Basic DC/AC LAB 11:35			11:05
11:05				11:05							
11:35						11:45 320 Electrical Safety 12:50			321 Solar Lab Patterson		
12:45				12:45				12:45			
1:15		1:15 208		Micro-processors 1:45	1:15	1:15 223	1:15	Micro-processors 1:45	1:15 223	1:15	2:10

1:45		Basic DC/AC 3:20		1:50 Micro- processors lab 3:20	205 Fabrication 3:20	Industrial control devices 3:20	208 Basic DC/AC LAB 4:20		1:50 Micro- processors lab 3:20	Industrial control devices LAB 4:20	205 Fabricatio n Lab 4:20	
3:20												
4:20												4:25
5:30	208 Basic DC/AC 7:35	223 Industrial control devices 7:35	221 Instrume ntation 7:35	5:30 229 Industrial Wiring 7:35	232 Intro to PLCs 6:35	265 Trouble- shooting 6:25	226 Motors 7:35	236 HMIs 6:35	5:30 229 Lab Industrial Wiring 10:05	234 Advanced PLCs 6:35		230 Blueprint Reading 6:30
6:45					6:45	6:35 212 Digital 7:35	7:35	6:45		6:45	6:35 212 Digital 7:35	
7:45	7:45 208	7:45 223	7:45 221		232 Intro to PLCs lab	7:45 212 Digital lab	7:45 226	9:50		234 Advanced PLCs lab	7:45 212 Digital lab	

	Basic DC/AC LAB	Industrial control devices lab	Instrume ntation lab		9:50	9:50	Motors lab			9:50	9:50	
9:50												
10:05 10:50							10:50					
	10:50	10:50	10:50									

	Available for Night and Swing shift employees		Available for Full-time students		Available for Day and Night shift employees
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PROPOSED FALL SCHEDULE: ELECTRONICS- WEST CAMPUS

TIME	MONDAY		TUESDAY		WEDNESDAY		THURSDAY		FRIDAY	
8:55	223 Industrial control devices 11:00	221 Instrumentation 11:00	230 Blueprint Reading 11:00	208 Basic DC/AC	223 Industrial control devices lab (S102) 12:00	221 Instrumentation Lab 12:00	208 Basic DC/AC		208 Basic DC/AC 11:00	
10:05				208 Basic DC/AC LAB			208 Basic DC/AC LAB			
11:10		265 Trouble-shooting 12:10	320 Electrical Safety 12:00						11:10	208 Basic DC/AC Lab
11:40										
12:30										
1:15		226 Motors 2:05		212 Digital 12:30 – 1:35	226 Motors 2:05		212 Digital 12:30 – 1:35		2:15	
2:05		226 Motors lab 3:45		212 Digital lab 3:35	226 Motors lab 3:45		212 Digital lab 3:35			

3:35										
3:45										
5:30	223 Industrial control devices	229 Industrial Wiring	232 Intro to PLCs	205 Fabrication	229 Industrial Wiring lab	208 Basic DC/AC 7:35	208 Basic DC/AC 7:35	234 Advanced PLCs		
6:35			234 Intro to PLCs lab					232 Advanced PLCs lab		
7:35	223 Industrial control devices lab		9:50	205 Fabrication Lab	10:05	7:45 208 Basic DC/AC lab	7:45 208 Basic DC/AC lab	9:50		
10:50	10:50			10:50		10:50	10:50			

	Available for Night and Swing shift employees		Available for Full-time students		Available for Day and Night shift employees
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7 ADVISORY LIST

Last Name	First Name	Company	Position	Phone #	Email	Address	City	State	Zip
Albright	Jeff	Modesto City Schools	DAVE	209-576-4702	albritton.j@monet.k12.ca.us	641 Norseman Dr.	Modesto	CA	95131
Apodaca	Bob	Saputo Foods	Maintenance Manager	209-862-1732 Ext. 107	rapodaca@saputo.com	691 Inyo St.	Newman	CA	95131
Castro	Dan	Lawrence Livermore National Laboratory	Senior Engineering Associate	925-422-3455 925-980-6923	castro1@llnl.gov	P.O. Box 808, L-360	Livermore	CA	94550
Coate	John	Hilmar Cheese	Maintenance Manager	209-656-1156	jcoate@himarcheese.com	9001 N. Lander Ave.	Hilmar	CA	95128
Coffey	Rick	E&J Gallo Winery			richard.coffey@ejgallo.com	P.O. Box 1130	Modesto	CA	95131
DeAngelis	Adrian	MJC	Electronics Instructor	209-575-6088	deangelisa@mjc.edu	435 College Ave.	Modesto	CA	95131
Henley	Jeremy	Guntert & Zimmerman Const. Div., Inc.		209-599-0066		222 East Fourth St.	Ripon	CA	95131
Howen	Jim	MJC	Electronics Instructor	209-575-6896	howenj@mjc.edu	435 College Ave.	Modesto	CA	95131
Krum	Justin	First Light Electric		209-846-7541	JKrum@1stlightenergy.com	3224 McHenry Ave.	Modesto	CA	95131

Loogman	George	Satake	Western Services Supervisor	209-551-3203	gloogman@satake-usa.com	1055 Reno Ave.	Modesto	CA	95
Lucas	Matthew	Lawrence Livermore National Laboratory	Engineering Technical Associate	925-422-1949	lucas3@llnl.gov	P.O. Box 808, L-360	Livermore	CA	94
Mahler	Mike	US Farms Systems	Service Manager (Turlock Facility)	559-685-0340	mmahler@usfarmsystems.com	2955 South K St.	Tulare	CA	93
Majewski	Joe	Gallo Glass	Director of Operations	209-341-3633	joseph.majewski@ejgall.com	P.O. Box 1230 605 S. Santa Cruz	Modesto	CA	95
McCown	Kennith	Covanta Energy	Western Region Tech Training	209-837-4423	kmccown@covantaenergy.com	P.O. Box 278	Crows-landing	CA	95
Noreen	RC	Platt Electric	Vice President	916-419-5721	rcnoreen@platt.com	4201 South Market Ct.	Sacramento	CA	95
Nunez	Brandon	Blue Diamond	Plant Manager	209-262-2971	bnunes@bdgrowers.com	1300 N. Washington	Turlock	CA	95
Oxenrider	Jacob	San Luis and Delta-Mendota Water Authority	Plant Foreman		jacob.oxenrider@sldmwa.org	P.O.Box 2157	Los Banos	CA	95
Ryun	Michael	Modesto Irrigation District MJC	MJC Adjunct Instructor	209-575-6332	ryunm@mjc.edu	435 College Ave.	Modesto	CA	95
Scrosati	Steve	ICS Online	Owner	209-599-9775	steve@icsonlineinc.com	P.O. Box 481	Ripon	CA	95

Van Diepen	Doug	Del Monte Foods	Plant Engineer	209-548-5545	Douglas.vandiepen@delmonte.com	4000 Yosemite Blvd.	Modesto	CA	95161
Vanmeter	Chris	Ceres High School	Instructor	209-556-1920	cvanmeter@ceres.k12.ca.us	2320 Central Ave.	Ceres	CA	95307