

Electric Vehicle Service Specialist

Submitter's Information

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Title Dean

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Extension n/a

Region Los Angeles/Orange County

College Saddleback College

CTE Dean Anthony Teng

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Program Information

Program Name Electric Vehicle Service Specialist

Projected Start Date	2018-08-01
Program Type(s)	Certificate of Achievement 18+ Semester (27+ Quarter) Units
Certificate Required Units	18-20
Units of Major Degree	n/a
Total Units for Degree	n/a
TOPs Code	Automotive Technology (094800)
Program Goals	Prepare students to enter the work force in the area of automotive technicians with skills in electric and alternative fuel vehicles. The certificate may lead to the attainment of an AS degree in Automotive Repair Technician and entry into the work force. Advisory committee members recommend this subject concentration with the foresight that industry trends are to electric and alternative fuels by 2020-2030..
Program Description	<p>This program provides students with knowledge of all operating systems in the modern electrical vehicle. The program starts with simple electrical vehicles and works its way to currently available electric vehicles. The emphasis is on the unique characteristics and maintenance issues associated with electrical systems. Ideal for the small business owner, independent shop, or the dealership career-oriented technician.</p> <p>Student Learning Outcomes:</p> <p>Employability : Graduates of the Electric Vehicle Service Specialist program will be well-prepared for employment in the automotive industry.</p> <p>Industry Skills: Graduates of the Electric Vehicle Service Specialist program will have current industry-specific skills</p>

related to safety, operation, service, maintenance and repair of electric vehicles.

Electric vehicle service specialist: Graduates of the Electric Vehicle Service Specialist program will be able to apply knowledge in the workplace of the different systems of electric vehicles.

License preparation: Graduates of the Electric Vehicle Service Specialist program will be qualified to take the related ASE certification exams.

Program Requirements

Electric Vehicle Specialist Certificate Program

Auto601 Elect Vehicle powertrain service, maintenance, repair & diag * 3 units

Auto602 Elect Vehicle electric service, maintenance, repair & diag. * 3 units

Auto603 TIA ATS-TMPS Certification * 2 units

Auto101 Automotive Electrical 3 units

Auto201 Advanced Automotive Electrical 3 units

Auto207 Automotive Engineering Fundamentals 3 units

*New course in approval process

Total 17 units

Select one course from the following restricted electives:

GC215 Vehicle Wrap 1 unit

Auto220 Alternative Propulsion Systems 3 units

Auto23 Hybrid & Electric Vehicle Systems 3 units

Auto229 Diesel Systems Technology 3 units

Auto105 Automotive Powertrain 3 units

Auto108 Automotive Air Conditioning 3 units

Auto232 Diesel Systems 3 units

Auto240 Automotive Lab 3 units

Total 18-20 units

Program Projections

30-40 per year

Labor Market Information

[Download Electric Vehicle Service Specialist Saddleback Nov 17.pdf \(/storage/lmi/Electric Vehicle Service Specialist Saddleback Nov 17.pdf\)](#)

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Status Under Review

Los Angeles/Orange County Region Specific Questions

District South Orange County CCD

College Saddleback College

CRLC Member Anthony Teng

Email ateng@saddleback.edu

Phone 949-582-4895

Reason for approval request. Locally Approved

Place of program in college's curriculum/similar program. Automotive Technology

Similar programs at other colleges in the Los Angeles and Orange County Region Cypress, Mt. Sac, Santa Ana,

Annual Enrollment projects (non-duplicative) 150

Advisory Minutes

[Download fall 2015 November 13 Advisory Minutes.docx \(/storage/Los Angeles/Orange County/58-112-233-fall 2015 November 13 Advisory Minutes.docx\)](#)



Electrical Vehicle Service Specialist

November 2017

Prepared by the Los Angeles/Orange County Center of Excellence for Labor Market Research

Program Recommendation

This report was compiled by the Los Angeles/Orange County Center of Excellence to provide regional labor market data for the program recommendation of electrical vehicle service specialist. This report can help determine whether there is demand in the local labor market that is not being met by the supply from programs of study (CCC and non-CCC) that align with this occupation group.

Based on the data, the COE has mixed findings, and cannot determine if there is an unmet need for the electrical vehicle service specialist program in Orange County. Reasons include:

- In 2016, there was only one online job posting in the region for an electrical vehicle service specialist, and no postings listed the Automotive Service Excellence (ASE) L3 – Light Duty Hybrid/Electric Vehicle Specialist Certification as a required or desired qualification
- There were 240 job postings in 2016 that mentioned “electric* vehicle” or “hybrid” on the posting; possibly signaling that employers are looking to hire automotive service workers with both traditional and alternative vehicle experience
- Automotive service technicians, an occupation which includes specialty technicians who work with electric vehicles and/or hybrids, is expected to grow by 5% in Orange County over the next five years

Occupation Codes and Descriptions

Currently, automotive technicians that specialize in electric and/or hybrid vehicles are classified by the standard occupational classification (SOC) system as automotive specialty technicians, which is an emerging occupation. The occupation title and description, as well as relevant tasks and reported job titles are included in Exhibit 1.¹

Exhibit 1 – Occupation, description, and sample job titles

O*NET Code	Title	Description	Sample of Reported Job Titles
49-3023.02	Automotive Specialty Technicians	Repair only one system or component on a vehicle, such as brakes, suspension, or radiator. Relevant tasks: change spark	Air Conditioning Technician, Automobile Mechanic, Automobile Technician, Automotive

¹ New and emerging occupations (N&E) are incorporated into the O*NET-SOC classification system based on the evolving nature of workforce requirements stemming from changes in technology, society, law, and business practices. Incorporating N&E occupations into the O*NET system makes O*NET information more beneficial and responsive. <https://www.onetcenter.org/reports/NewEmerging.html>

plugs, fuel filters, air filters, and batteries in hybrid electric vehicles; service internal combustion engine systems for hybrid electric vehicles; diagnose and repair regenerative braking systems or hydraulic systems in hybrid vehicles.

Technician, Drivability Technician, Heavy Line Technician, Lube Technician, Oil Bay Technician, Quick Service Technician, Service Technician

Source: O*NET Online

Current and Future Employment

In Orange County, the number of automotive service jobs is expected to increase by 5% over the next five years. More than 650 job opportunities in this occupation will be available annually through 2021 due to new job growth and replacement need (e.g., retirements). Since automotive specialty technician (49-3023.02) is an emerging occupation, data collection is underway and is not yet available; therefore, all current labor market data for this emerging occupation is included in the SOC code for automotive service technicians and mechanics (49-3023). It is important to consider that the available labor market data encompasses many different automotive service occupations, and does not only represent electrical vehicle service specialists. Exhibit 2 contains detailed employment projections data for the occupation of interest.

Exhibit 2 – 5-year projections for automotive service technicians and mechanics in Orange County

SOC	Occupation	2016 Jobs	2021 Jobs	2016 - 2021 Change	2016 - 2021 % Change	Annual Openings
49-3023	Automotive Service Technicians and Mechanics	6,457	6,765	308	5%	656

Source: Economic Modeling Specialists International (EMSI)

Earnings

In Orange County, the average entry-level wage for automotive service technicians is \$11.21, which is below the MIT Living Wage² estimate of \$14.48 per hour for a single adult. The average annual earnings for this occupation in the region is over \$48,000 per year, assuming full-time employment.

² MIT Living Wage Calculator. <http://livingwage.mit.edu/>

Exhibit 3 contains hourly wages and annual average earnings for this occupation. Entry-level hourly earnings is represented by the 10th percentile of wages, median hourly earnings is represented by the 50th percentile of wages, and experienced hourly earnings is represented by the 90th percentile of wages, demonstrating various levels of employment.

Exhibit 3 – Earnings for automotive service technicians and mechanics in Orange County

SOC	Occupation	Entry-Level Hourly Earnings	Median Hourly Earnings	Experienced Hourly Earnings	Average Annual Earnings
49-3023	Automotive Service Technicians and Mechanics	\$11.21	\$20.80	\$40.91	\$48,200

Source: Economic Modeling Specialists International (EMSI)

Employer Job Postings

In this research brief, real-time labor market information is used to provide a more nuanced view of the current job market, as it captures job advertisements for occupations relevant to the field of study. Employer job postings are consulted to understand who is employing workers in the field of electrical vehicle service, and what they are looking for in potential candidates. To identify job postings related to electrical vehicle service specialists, the following search terms were used were used: Automotive Service Technicians and Mechanics (49-3023), and job postings must include “electric*” or “hybrid”. **In 2016, there was only one job posted for a specialist in electrical vehicle service.**

Each of the remaining job postings (n=239) mentioned responsibilities and duties related to electric and/or hybrid vehicles, such as:

“...troubleshooting and repairing complex hydraulic systems, generators and electrical systems, hybrids, and on-board computer systems.”

“...diagnose and repair vehicles...from tough trucks to fuel-efficient hybrids.”

“Knowledge of wheelchair lift repair, hybrids, CNG, a PLUS.”

“Continuously learn new technical information and techniques in formal training sessions in order to stay abreast with rapidly changing automotive technology.”

Source: Labor Insight/Jobs (Burning Glass)

Top Titles

The top titles for Orange County employers posting job ads related to electric vehicle service are listed in Exhibit 4. Auto mechanic/technician was the most mentioned job title, and was present in 74% of all relevant job postings (178 postings). Only one regional job posting mentioned electric vehicles in the job title (Automotive Technician – EV/Hybrid).

Exhibit 4 –Job titles (n=240)

Title	Job Postings, Full Year 2016
Auto Mechanic/Technician	178
C Technician Automotive Mechanic	15
B Technician Automotive Mechanic	11
A Technician Automotive Mechanic	7

Source: Labor Insight/Jobs (Burning Glass)

Top Employers

Exhibit 5 lists the major employers hiring electrical vehicle service professionals. Top employers postings job ads included Bridgestone/Firestone, Chrysler and Pep Boys. The top worksite cities in the region for these occupations were Anaheim, Tustin, Irvine, Costa Mesa, Huntington Beach and Santa Ana.

Exhibit 5 – Top employers (n= 229)

Employer	Job Postings, Full Year 2016
Bridgestone/Firestone	74
Chrysler	49
Pep Boys	33
Group Automotive Incorporated	10
Theodore Robins Ford	7

Source: Labor Insight/Jobs (Burning Glass)

Certifications

Automotive Service Excellence (ASE) Certification was the only sought-after certification for this occupation, and was included on 93% of the postings that specified a certification. Most job postings desired candidates who have completed ASE certifications in multiple areas; however, no job posting in the region specifically requested ASE Certification L3 – Light Duty Hybrid/Electric Vehicle Specialist Certification.

Exhibit 6 –Job certifications (n=266) and job skills (n=426)

Certification	Job Postings, Full Year 2016
Automotive Service Excellence (ASE) Certification	107

Source: Labor Insight/Jobs (Burning Glass)

Advertised Education Levels

Exhibit 7 displays the education level requested by employers in online job ads. The majority of employers were looking for a candidate with a high school or vocational training level of education. Approximately 58% of job postings did not specify a level of education.

Exhibit 7 – 2016 Online job ads with minimum advertised education requirements for jobs related to electrical vehicle service (n=101)



Source: Labor Insight/Jobs (Burning Glass)

Industry Concentration

Automotive service jobs in Orange County are most often found in the general automotive repair industry (48% of total jobs in the industry). Exhibit 8 shows the industries that are the largest employers of automotive service jobs in Orange County.

Exhibit 8 – Industries with the most automotive service jobs, 2016

NAICS (6-Digit)	Industry	Occupation Group Jobs in Industry	% of Occupation Group in Industry
811111	General Automotive Repair	2,123	33%
441110	New Car Dealers	1,623	25%
811121	Automotive Body, Paint, and Interior Repair and Maintenance	418	7%
441310	Automotive Parts and Accessories Stores	265	4%

Source: Economic Modeling Specialists International (EMSI)

Education and Training

Exhibit 9 shows the typical entry-level education requirement for the occupations of interest, along with the typical on-the-job training, and percentage of workers in the field who hold a community college award or have completed some postsecondary courses. One-third of the workforce in automotive service occupations has completed some community college education as their highest level of education.

Exhibit 9 – Education and training requirements 2016-2021

SOC	Occupation	Typical entry-level education	Typical on-the-job training	% of Community College Award Holders or Some Postsecondary Coursework
49-3023	Automotive Service Technicians and Mechanics	Postsecondary non-degree award	Short-term	33%

Source: Economic Modeling Specialists International, Bureau of Labor Statistics Employment Projections (Educational Attainment)

Currently, there are five community colleges in the Los Angeles/Orange County region that train students in programs related to the field of alternative fuels and advanced technology. Exhibit 10 displays the headcount and annual average community college awards for each of the colleges training in this field. Headcount is the actual number of students enrolled, regardless of credit hours. It is also important to note that an award is not equivalent to a single person in search of a job opening, since a student may earn more than one award (e.g. an associate degree and a certificate).

Between 2012 and 2015, the total annual average community college awards conferred was 48 (3 associate degrees and 45 certificates) across one program: Alternative Fuels and Advanced Transportation Technology (0948.40).

Exhibit 10 – CCC Student Awards (by TOP and College)

0948.40 – Alternative Fuels and Advanced Technology					
College	Headcount	CCC Associate Degrees	CCC Certificates	Total CC Awards	Program Title(s)
Golden West	12	-	-	-	-
LA Trade-Tech	N/A	N/A	12	12	Hybrid & Electric Plug-In Vehicle Technology
Long Beach	70	1	28	29	Advanced Transportation Technology – Alternative Fuels; Advanced Transportation Technology – Electric Vehicles
Rio Hondo	58	1	2	3	Alternative Fuels and Advanced Transportation Technology; Electric Vehicle and Fuel Cell Technology Technician
Saddleback	N/A	1	3	4	Alternative Fuel Vehicle Specialist
TOTAL	140	3	45	48	

Source: California Community Colleges Chancellor’s Office MIS Data Mart

Regional supply data shows that there is a supply of students who have completed program(s) in non-California community college institutions. The following institutions have awarded the following:

California Career School (Orange County): 9 Average Annual Awards (0 Associate degrees and 9 certificates/other awards)

Student Outcomes

The CTE LaunchBoard provides student outcome data on the effectiveness of CTE programs. The following student outcome information was collected from exiters of the Alternative Fuels and Advanced Technology Taxonomy of Program (TOP) code (0948.40) in the Los Angeles/Orange County region for the 2014-2015 academic year.

- The median annual wage after program completion is \$22,956
- 38% of students are earning a living wage
- 68% of students are employed within six months after completing a program

Source: CTE LaunchBoard

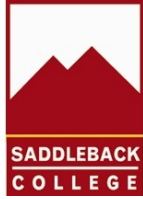
Sources

O*Net Online, Labor Insight/Jobs (Burning Glass), Economic Modeling Specialists International (EMSI), MIT Living Wage Calculator, Bureau of Labor Statistics (BLS) Education Attainment, California Community Colleges Chancellor's Office Management Information Systems (MIS) Data Mart, CTE LaunchBoard, Statewide CTE Outcomes Survey, Employment Development Department Unemployment Insurance Dataset

Notes

Data included in this analysis represents the labor market demand for positions most closely related to electrical vehicle service specialist, as well as alternative fuels and advanced technology. Standard occupational classification (SOC) codes were chosen based on the national education level required for employment (associate degree and postsecondary certificate) as well as the proportion of current workers who hold a community college award or have had some community college training. This selection process narrows the labor market analysis to the most relevant employment opportunities for students with community college education and/or training.

Traditional labor market information was used to show current and projected employment based on data trends, as well as annual average awards granted by regional community colleges. Real-time labor market information captures job post advertisements for occupations relevant to the field of study and should not be used to establish current job openings, because the numbers may include duplicate job postings or postings intended to gather a pool of applicants. Real-time labor market information can signal demand and show what employers are looking for in potential employees, but is not a perfect measure of the quantity of open positions.



ADVISORY COMMITTEE MINUTES
Advanced Technology and Applied Science Division
Friday November 13, 2015 from 12:30pm to 2:00pm
Room TAS-124

Saddleback College Faculty/Staff Present:

Anthony Teng, Clifford Meyer, Vincent Pollizzi, Raj Dhillon, Sahar Tehrani

Automotive Advisory Committee Members Present:

Brian Stranahan – MATCO Tool Corp.
David Strader – Karma Automotive
Kenneth Richard – O'Reilly Auto Parts
Steve Gibson – K & N
David Williams – Auto Appraisal
Brad Larson – Rover Doctor
Rick Lapham – Courtesy Auto Suppliers
Jerry Giardullo – Mission Equipment
Margie Van Lierop - Viking Auto garage
Paul Jacober – Snap On Tool Corp
Matt Loftus – BAR (OC Division - Placentia)

1. Call to Order

The first part of the advisory committee meeting started at 12:30 p.m. This part of the meeting included networking and refreshments and was held in the Automotive Technology lab area. Clifford Meyer called the main meeting to order at 1:00 p.m. in room TAS-124. At this time Clifford Meyer reminded everyone to sign in.

- a. At this time, self-introductions were made and members identified their place of business.
- b. The minutes of the March 20, 2015 meeting were presented. There were no questions or revisions. Matt Loftus made a motion to approve the March 20, 2015 meeting minutes. Brian Stranahan seconded the motion. The March 20, 2015 minutes were approved.

- c. At this time, Clifford Meyer went over the Advisory committee functions in detail. He also informed every one of the new programs and machines that are now available and in use at the department.

2. Report Items

A. Program Update

1. College update:

Clifford Meyer updated the group on the status of the plans for the renovation/relocation of the department. The timeline of the renovation and some of the logistical challenges that will be faced were also presented by Clifford Meyer.

Dean Anthony Teng spoke about how we are in competition with IVC over funds, and a way to get more funds available to us is dependent on how many students enroll in the program, therefore referrals are very important for us.

2. Clifford Meyer announced the statistical information for the automotive Technology Department in the Fall 2015 Semester:

Fall 2015- 15 sections offered by the department

Fall 2015 – Enrollment down (325 students)

Clifford Meyer presents possible reasons why enrollment was down. Not being able to offer the amount of sections that they normally offer. Also we have a need for adjunct instructors to teach during the day.

3. VTEA-Perkins Funding, Clifford Meyer informed the group that they were awarded some funding for the NATAF proposal about \$40,000. (Women in Green Technology) Results: Clifford Meyer informed the group of the efforts made to market our auto tech classes to women

4. CTE- Enhancement Funds (Stem & Electric Vehicle project), Clifford Meyer informed the group that this is to go into effect as of March 2016, it is going to be a multi college program with Golden West College and LA Trade tech and the training is taking place at Saddleback College. Raj Dhillon spoke in detail about the electrical cars and alternate fuel vehicles and how the program will allow the students to take the electric Switch cars apart and put them back together. But due to all that is going on with the move and some issues with the curriculum it has been put on hold, but we are looking to get everything together in the next two weeks. The group agreed that a new training program for electric vehicles is needed.

5. Clifford Meyer asked everyone to fill out the surveys as it will help him address the needs of the industry and take their remarks to the dean for the needs of the department. This is how we can prove to the Sacramento office

about our requests for things that are needed in the department. This is a form of evidence for the requests.

3. Discussion Items

A. Vehicle Needs!!! Donations or Funding:

Clifford Meyer spoke to the group in regards to vehicle needs. We need cars for the alternative purpaltion program, need for diesel cars and an electric car. He also informed everyone that the auto tech department needs funds and donations to stay current and meet our industry partner's needs.

B. Equipment/Facility Needs/Donations:

Clifford Meyer made a general request for support and donations to the program. With this request Clifford Meyer also explained some of the ways the resources we have and the issues we face with equipment maintenance and repairs. These issues are impacting the lab activities of the students.

C. Current Industry Trends-Input from members:

Clifford Meyer started this part of the meeting by sharing some of his observations on recent changes in the automotive service industry. Margie Van Lierop spoke about how to appeal to the new generation to come and work for the independent small shops, especially when the new generation "The Millennials" prefers to continue their education than to go and work in the field once they are certified. Brad Larson spoke about how the new generations have different needs and by being more flexible, giving them a more family oriented environment and even creating a personal scholarship through a foundation. These are ways that the smaller businesses would be able to compete with the larger companies. David Strader commented that electric-hybrid training is in high demand to supply a quality technician repair workforce.

At this point Raj Dhillon spoke up about how he gets the student excited to go into the field is by taking them on field trips and letting them ask questions and become more informed of what is actually going on in the fields and what will be offered to them and what is expected of them. Therefore it will help us help the industry by having more field trips for the student's which involves the shops to actually let us go in one day and tour their facilities. Clifford Meyer spoke about having an open house, Dean Anthony Teng spoke about doing something fun for the students while bringing them in contact with the industry leaders.

Clifford Meyer will contact everyone on the committee by January or February 2016 to brainstorm and plan something like a car show or another event to get everyone together.

Toyota is coming out with a Hydrogen car and there will be a need for a bay for this type of vehicle in the new space.

D. NATEF Certification :

Clifford Meyer informed every one that this currently on hold due to the move

to the new location. We are in contact with a consultant and getting the

paperwork done and finding out how it's going to affect us if we do it for the new space or when we come back to this space.

E. Scholarship & Foundation Donations:

Clifford Meyer informed everyone that in the past year they have gotten about \$5000 in donations from different sources. He also mentioned that he and Raj donated their time to raise money for the department by donating their time and getting paid in a form of a donation and they have raised over \$2000.00. Clifford Meyer made a general appeal to the other members of the Advisory Committee for support and donations. In addition, he reviewed some of the current scholarships, the requirements, and student incentive programs that are active in the department.

Current Scholarship programs:

Sue and Bill Gross - \$240,000 to the school - 14 automotive students currently receive \$2,700 a year each.

Tuttle Click - \$750.00 student scholarship per semester/\$1500.00 per year and a toolbox valued at approximately \$4000.00 which becomes the student's box when they complete a program certificate. This is a two year program.

Grainger – Two \$2,000.00 scholarships per year which includes a toolbox when the student completes their program certificate.

4. Summary of Recommendations

- A. Much of this information was explored earlier in the meeting, and there was no new material to add from the members of the committee or the faculty. The recommendation for a new program certificate for electric vehicles will be moved forward for consideration.

5. Adjournment

- A. At this point Clifford Meyer thanked everyone for their attendance and support and stated that the Spring 2016 meeting time and date would be announced later. The meeting was adjourned at 2:10 pm.

