

# EMERGENCY VEHICLE TECHNICIAN TRAINING ACADEMY

**MARCH 31–APRIL 4, 2014**

**SACRAMENTO, CALIFORNIA**

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The California Fire Mechanics Academy, Inc., in conjunction with the California Fire Chiefs Association and the Sacramento Metropolitan Fire District, is pleased to announce their 44th annual spring emergency vehicle technician training program. There are several new and exciting classes being offered this year including classes designed specifically for firefighters, engineers and officers wanting to know more about the apparatus they are responsible for. This converted former Air Force base provides the academy with the classrooms, shops and open spaces required to present the best possible program for our students. Classes will be held at McClellan Business Park in either the McClellan Conference Center or the Sacramento Metropolitan Fire District fleet maintenance facility. Please note that portions of some classes requiring specialized facilities may be off site.

This packet is designed to provide you with all the information you will need to complete the CFMA registration process. You will find classes specifically designed to provide the latest information regarding a variety of maintenance, service and repair activities related to fire apparatus and equipment. Please read through the entire packet prior to completing your registration paperwork.

**NEW**



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**916.333.5044**

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**CFMA ADMINISTRATIVE OFFICE**

3318 Howard Avenue  
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McClellan, CA 95652

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## GENERAL INFORMATION

The 2014 California Fire Mechanics Academy provides a unique training opportunity for fire service personnel and emergency vehicle technicians. The classes are scheduled for March 31—April 4, 2014. Please read through the entire registration packet carefully. The information contained within the packet should provide you with the answers to any questions you might have regarding the academy program. The CFMA Board of Directors strives to provide the best possible continuing educational opportunities to fire personnel from throughout the country. Everyone is welcome to attend—there is something for everyone, from the beginner to the highly experienced emergency vehicle technician as well as our popular firefighter classes.

### LOCATION

Sacramento, California once again provides the location for the spring academy. The McClellan Conference Center located off of Watt Avenue in Sacramento is the new location for CFMA classes. It is located right in the center of McClellan Business Park at 5411 Luce Avenue, McClellan, CA 95652. A limited number of classes will be held at the Sacramento Metropolitan Fire District fleet services headquarters and maintenance facility at 4425 Dudley Blvd., McClellan, CA 95652. The CFMA Board of Directors is confident that this location will provide the best possible atmosphere and facilities for the varied academy classes. *Please note that portions of some classes requiring specialized facilities may be held off site.*

### AIRPORT

Sacramento International Airport is located approximately 18 miles from McClellan Park. Car rentals are readily available at the airport. In addition, the local Super Shuttle is also available (call 1- 800-BLUE VAN at least one day in advance). Students will need their own transportation. CFMA is not able to provide shuttle service for students.

### BANQUET

One of the highlights of academy week is the annual banquet for all students, instructors, vendors, staff and special guests. It is scheduled for 7:00 pm on Thursday evening April 3, 2014. This will also be held at the McClellan Conference Center, 5411 Luce Avenue, on the McClellan Business Park. One banquet ticket is included with the weekly registration fee. Students attending classes on a “Daily Rate” basis do not have a banquet ticket included, but are certainly welcome. Additional banquet tickets are available to purchase for \$40.00 each. No other meals are included in the registration fee.



## FEES

Students may register for the entire week of classes for \$500 per person. Those students wishing to attend on a daily basis may do so for \$170 per day. State certification classes (*all classes beginning with "CFM"*), require an additional \$80 class registration fee for the State Fire Marshals office. Textbooks and/or handouts will be provided in class at no additional cost. Check the INVOICE INFORMATION form carefully for required fees. Personal check, company check, department purchase order or credit card information must accompany registration paperwork. Returned checks are subject to a \$25 service charge.

Registration processed with a purchase order will be invoiced monthly until paid and must be paid no later than 30 days after the completion of the academy. General registration closes February 10, 2014. Registrations received after that date will be assessed an additional \$50 per student for late registration fees. Student substitutions may be made prior to March 1, 2014 by contacting the CFMA office and will be assessed an additional \$50 processing fee. No registrations or substitutions will be accepted after March 10, 2014. Walk-in registrations are not accepted.

## CLASS CONFIRMATION

Every effort will be made to register students in their first choice class selection if there is space available. CFMA reserves the right to cancel classes due to low enrollment. Therefore, please indicate both a second and third choice on your class schedule. Each student will be notified individually by mail at the address provided on his/her registration form. Class confirmations will be mailed in early March, 2014. In addition, area maps, last minute instructions, program changes, etc. will be included so be on the lookout for your confirmation materials. Please bring your confirmation packet with you.

## CANCELLATION/REFUND POLICY

Notification of registration cancellation and refund requests must be submitted in writing no later than March 1, 2014. Refund requests must be from the Fire Chief or City Administrator on official letterhead and will be evaluated on an individual basis by the CFMA Board of Directors at the conclusion of the academy. Refund requests will not be considered if received after this deadline or if students do not actually attend classes. There is an administrative processing fee of 20% assessed on all cancellations, including those on purchase order.



## STUDENT HOUSING OPTIONS

The official host hotel for the 2014 academy is the **Lions Gate Hotel** located at McClellan Park—just a few blocks from where most (but not all) classes will be held. Make sure that you mention CFMA when making your reservation to insure you will receive the low conference rate of only \$92 per night. They are located at 3410 Westover Avenue, McClellan, CA 95652. The Lions Gate offers deluxe accommodations including several two and three bedroom options, restaurant, bar, hot breakfast and outdoor swimming pool. There is an additional charge for roll-away beds.

# Host Hotel



LIONS GATE  
HOTEL & CONFERENCE CENTER

3410 Westover Ave.  
McClellan, CA 95652  
[www.lionsgatehotel.com](http://www.lionsgatehotel.com)

**\$92/night**

*single or double ~ including breakfast!*

*Plus applicable state & local taxes*

**FOR RESERVATIONS**

**916-643-6222**

**GROUP CODE: FIRE/14**



## OVERFLOW HOUSING OPTIONS

Accommodations for the California Fire Mechanics Academy are to be handled directly between the student/agency and the host hotel. Please be aware that there are a limited number of rooms blocked for the CFMA at this low rate so act quickly! Once the CFMA room block has been met, prevailing hotel rates will apply. Remember that check-in time is not until 3:00 pm.



*Totally Renovated*

**Crowne Plaza Sacramento Northeast**

**5321 Date Avenue**

### **CFMA Room Rate**

\$84/night single or double

Includes Breakfast Buffet for up to two persons per room

Plus applicable state & local taxes

For Direct Reservations

916-338-5800      or      [www.lionsgatehotel.com](http://www.lionsgatehotel.com)

**Group Code: CA Fire Mechanics**



The CFMA Board of Directors is determined to bring state-of-the-art fire apparatus and emergency equipment to students as well as agency personnel wishing to attend the only fire apparatus show in Northern California! This event provides the participants with the opportunity to view the displays and apparatus, talk with factory representatives, and ask specific questions of manufacturers in a casual, relaxed atmosphere. Students not enrolled in state certification classes are given release time from classes to attend the show.

**THURSDAY**

**APRIL 3, 2014**

Show Hours: Noon ~ 5:00 pm

**McClellan Conference Center**

5411 Luce Avenue

McClellan, CA 95652



## ASSOCIATION MEMBERSHIP INFORMATION

The Mechanics Sections of the California Fire Chiefs Association invite you to become a member and attend informative meetings throughout the year. Hear technical presentations, take seminar classes that may be eligible for re-certification continuing education credits, exchange ideas, and expose your maintenance problems for possible solution. For membership information, contact the appropriate section directly.

### **BAKERSFIELD & NORTH:**

**ANTHONY BULYGO, TREASURER**

adbmlb@gmail.com

661-829-1448

### **SOUTH OF BAKERSFIELD:**

**ANTHONY MASTROLIA, SECRETARY**

anthony.mastrolia@lacity.org

213-485-6114

*Membership Applications Are Available at [www.ncfma.org](http://www.ncfma.org)*

## EMERGENCY VEHICLE TECHNICIAN CERTIFICATION COMMISSION

Out-of-state students are NOT eligible to become California state certified fire mechanics. However, they may elect to take the EVTCC exams. The California Fire Mechanics Academy has been designated as a test site for the EVT Certification Commission exams. For an informational booklet and registration form, contact EVTCC at:

**EVT CERTIFICATION COMMISSION, INC.**

**P.O. Box 894**

**Dundee, IL 60118**

**Phone: 847-426-4075**

**Fax: 847-426-4076**

Technicians wishing to take EVT exams at the Academy MUST pre-register and pay the fees directly to EVTCC no later than 21 days prior to testing. Upon receipt of registration, a confirmation letter, objective list, and reference list will be sent. If a student wants to become certified in the state of California, you MUST take the California state exam at the conclusion of class. EVT is for non-California residents. Our classes may not prepare you for EVTCC testing. CFMA classes meet California requirements. **ALL EVT EXAMINATIONS WILL BE GIVEN ON FRIDAY, APRIL 4, 2014 AT NOON.**



The California Fire Mechanics Academy, Inc. Board of Directors is proud to offer their scholarship program designed to assist individuals with expenses related to attending the academy. These scholarships are available to anyone meeting the established criteria. Contact the CFMA administrative office for further information and to obtain the application paperwork. The application deadline is January 1, 2014.

### VINCENT MORELLO MEMORIAL SCHOLARSHIP

**Vincent Morello was a fire mechanic for the City of New York for twelve years before being hired as a FDNY firefighter and served with Engine 283 in Brownsville and then Ladder 35 in Manhattan.**

This scholarship shall be awarded to an individual who is **NOT** a resident of the State of California. Selection of the recipient shall be made by the Board of Directors of the California Fire Mechanics Academy, Inc. and shall include tuition and textbooks. Travel and hotel accommodations are not included. Anyone interested must contact the CFMA administrative office for the instructions, application and detailed selection criteria.

*Vincent made the supreme sacrifice at the World Trade Center on  
September 11, 2011*

### MATTHEW R. WILL MEMORIAL SCHOLARSHIP

**Matt Will was a 30 year old heavy equipment operator with the California Department of Forestry and Fire Protection who died October 8, 2007 as a result of a bulldozer rollover while battling the Colorado Fire in Monterey County.**

This scholarship shall be awarded annually to any individual interested in attending the California Fire Mechanics Academy. Selection of the recipient shall be made by the Board of Directors of the California Fire Mechanics Academy, Inc. and shall include tuition and textbooks. Travel and hotel accommodations are not included. Anyone interested must contact the CFMA administrative office for the instructions, application & detailed selection criteria.





## DONALD WISINSKI

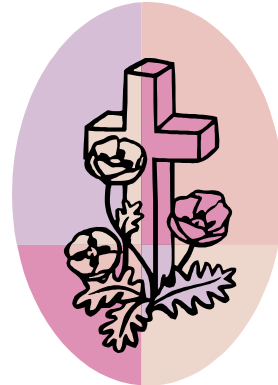
### MEMORIAL SCHOLARSHIP

**Donald Wisinski was a former President of the California Fire Mechanics Association Northern Section and a long-time member of the Education Committee of the California Fire Mechanics Academy.**

This scholarship shall be awarded to a member of the Northern Section of the California Fire Mechanics Association. The scholarship will provide academy tuition and textbooks. Travel and hotel accommodations are not included. Selection of the recipient shall be made by the Northern Section Board of Directors or their designee. Anyone interested must contact the Northern Section for instructions, application and detailed selection criteria.

#### FOR INFORMATION, CONTACT

Ed Stirling  
Northern Section President  
E-Mail: [ed@ncfma.org](mailto:ed@ncfma.org)



## EUGENE ROBESON

### MEMORIAL SCHOLARSHIP

**Gene Robeson was a founder of the Southern Section of the California Fire Mechanics Association and was very instrumental in establishing and supporting the California Fire Mechanics Academy.**

This scholarship shall be awarded to a member of the Southern Section of the California Fire Mechanics Association. The scholarship will provide academy tuition and textbooks. Travel and hotel accommodations are not included. Selection of the recipient shall be made by the Southern Section Board of Directors or their designee. Anyone interested must contact the Southern Section for instructions, application and detailed selection criteria.

#### FOR INFORMATION, CONTACT

Jeff Kahler  
E-Mail: [jkahler@live.com](mailto:jkahler@live.com)



**CLASS SCHEDULE**

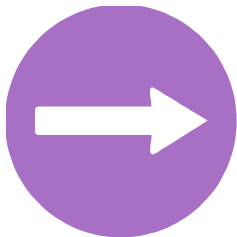
Class #	Course Title	Total Hours	Mon 3/31	Tues 4/01	Wed 4/02	Thurs 4/03	Fri 4/04
<b>MECHANIC STATE CERTIFICATION CLASSES</b>							
CFM-115	Fire Pumps & Accessories	36	8	8	8	8	4
CFM-215A	Electrical Systems 2a	36	8	8	8	8	4
CFM-215B	Allison Transmissions	36	8	8	8	8	4
CFM-215C	Aerial Apparatus	36	8	8	8	8	4
CFM-216	Ambulance Service & Maintenance	36	8	8	8	8	4
CFM-116B	Driver / Operator 1B	40	9	9	9	9	4
<b>MECHANIC STATE RE-CERTIFICATION CLASSES</b>							
RCFM - 1	Level I	36	8	8	8	8	4
RCFM - II	Level II	36	8	8	8	8	4
RCFM - III	Level III	36	8	8	8	8	4
<b>FIREFIGHTER CLASSES</b>							
FF - 501	Knowing Your Apparatus	32	8	8	8	4	4
FF - 502	Pump Testing For Firefighters	16	8	8			
FF - 504	Ground Ladder Testing	4					4
<b>GENERAL SERVICE &amp; MAINTENANCE CLASSES</b>							
FM-106	Air Brakes & ABS	8	8				
FM-109	Electrical Systems I	32	8	8	8	4	4
FM-111	Fire Service Valves	4				4	
FM-124	Welding	16		8	8		
FM-204C	CAT Diesel Service	8	8				
FM-204D	CAT Electronic Controls	8		8			
FM-205	International Diesel Service	16			8	4	4
FM-206	Allison Transmission Prev. Maintenance	12			8	4	
FM-208	Steering & Suspension	8		8			

\*\* All "CFM" Classes require  
the additional \$80 State Fire Training  
class registration fee

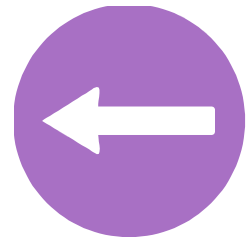


Class #	Course Title	Total Hours	Mon 3/31	Tues 4/01	Wed 4/02	Thurs 4/03	Fri 4/04
FM-222	Small Engine Service	8			8		
FM-229D	Cummins Engine Service	32	8	8	8	4	4
FM-231	Warning Equipment Service	8		8			
FM-303	Multiplexing	16	8	8			
FM-308	Aerial Service & Maintenance	16	8	8			
FM-310	Air Conditioning	8			8		
FM-312	Pump Theory & Troubleshooting	16	8	8			
FM-323	Spec Writing	16	8	8			
FM-331	Laws, Regulations & Standards	4				4	
FM-332	Diesel Emissions	4					4
FM-336	Third Party Aerial Inspections	8			8		
FM-339	Meeting ISO Requirements	4					4

## CLASSES BEGIN PROMPTLY AT 8:00 AM



All 4 hour classes are MORNINGS  
**Monday—Wednesday: 8:00 am ~ 5:00 pm**  
**Thursday : 8:00 ~ Noon**  
**(except state certification classes)**  
**Friday: All classes conclude at Noon**



## STATE CERTIFICATION CLASSES

### CFM-115 FIRE PUMPS AND ACCESSORIES

**Monday-Friday**

**36 hours**

This class is designed as an entry level course to acquaint students with the principles, theories, installations, applications, and standard inspection practices associated with the maintenance, repairs and operational pump testing requirement for fire apparatus. The course provides a working knowledge of common pump types, various pump drivers, and controllers, installation of components and related accessories. Practical hands on experience will improve your ability to analyze pump performance and implement correct inspection, repair and maintenance procedures. This class fulfills partial education requirement for California State Fire Marshals Fire Mechanic Level I certification. Each student shall provide proper PPE as required by their agency: i.e., boots, gloves, helmet, hearing and eye protection are recommended. A hand held calculator is also recommended for this class.

**NOTE:** *Pump test portion of class is held at a different location.*

**Instructor: Chris Belflower** *Chris has been involved with the fire service and fire apparatus since 1994 when he began his fire service career as a Firefighter/EMT. He is currently involved with the City of Mahtomedi Fire Department in Minnesota. Chris worked for 14 years as a fire pump training specialist with Waterous Company and is now a fire instructor and consultant.*

### CFM-215A ELECTRICAL SYSTEMS 2A

**Monday-Friday**

**36 hours**

This course includes a basic overview of automotive and heavy truck electrical systems covering topics in basic electricity including electrical theory, battery theory, meters, wire and cables, alternators and cranking motors, advanced electricity, the application of the above theories plus troubleshooting of entire systems. Additional course content will include performance requirements of fire apparatus electrical systems, components of electrical systems and preventive maintenance and troubleshooting activities as per NFPA 1901. Students will also be provided with a thorough understanding of the use of diagnostic equipment, batteries, the construction and operation of starting systems, charging systems and components, and the accepted practices used to diagnose and repair electrical systems.

*This course prepares the technician for the California State Fire Mechanics level 2 Certification exam. Required prerequisites are completion of FM-109: Basic Auto, Truck and Ambulance electrical systems or successful completion of the Basic Electrical Challenge Pre-test. This class fulfills partial certification requirements for Level II fire mechanic.*

**Required Prerequisite:** FM-109: Electrical Systems I

**Instructor: Tom Tengdin**

### CFM-215B ALLISON TRANSMISSION

**Monday-Friday**

**36 hours**

This class will cover a thorough introduction, application, and general assembly. Training provides an understanding of the World Transmission operation, construction, service requirements, installation guidelines, and troubleshooting procedures. Classroom topics include torque converter operation, power flows, clutches, retarder operation, vehicle interface, electronic and hydraulic



control systems, and preventive maintenance. Hands-on exercises cover volt-ohm meter use, basic electrical circuits, connector repair, disassembly and reassembly of a transmission to the modular level, and Allison diagnostic tool basics. This class fulfills partial education requirement for Level II state certification.

**Instructor: Jay Bohon** *Jay started his mechanical career in the United States Marine Corps as a Light Armored Vehicle technician. In 1997 he began working for Sierra Detroit Diesel Allison in West Sacramento, CA as an apprentice Allison transmission technician. He completed his apprenticeship and soon began working as a R&R technician, performed diagnostic and overhaul repairs as well as providing customer service and tech support for the company. Jay soon became the shop foreman after the company was purchased by the Stewart & Stevenson Company. The business was purchased in 2004 by Valley Power Systems, Inc. In 2010 Jay became an Allison Transmission distributor trainer for Valley Power Systems, Inc. in Southern California. Jay has completed numerous accreditations through Allison and has been an Allison Transmission Guild member since 1998.*

## **CFM-215C** **AERIAL APPARATUS**

**Monday-Friday**

**36 hours**

This course will provide instruction for Emergency Vehicle Technicians on the repair and maintenance requirements of today's Aerial Fire Apparatus. Course objectives include: Defining the terms and phrases commonly used with aerial fire apparatus. Principles of safe application and operation of aerial devices. Understanding and identifying the operational physics of aerial apparatus. NFPA 1901 design requirements for aerial fire apparatus and apply NFPA 1911 testing, inspection, and documentation requirements of all aerial fire apparatus. Understand and identify aerial device hydraulic and electrical systems symbols and components including the application of accepted practices of service and repair of aerial apparatus. The class will include lecture, demonstration and hands-on instruction.

*This class fulfills partial certification requirements for California State Level II Fire Mechanic.*

**Required Materials:** Calculator, coveralls and work boots

**Anthony (Tony) Bulygo, Instructor** *Tony retired from the fire service as a Master Fire Mechanic for the Santa Clara County (CA) Fire Department after 42 years of service with experience in the diagnosis and repair of all major fire apparatus. Throughout his career, Tony has received training and certification from numerous apparatus and component manufacturers. Tony instructs the aerial apparatus class not only for the California Fire Mechanics Academy, but also for the Oregon, Colorado and Washington state fire mechanics academies. Tony also is an instructor for the Santa Clara County and San Jose Fire Departments engineer academies. His experience and qualifications are too numerous to list here. Tony is the sole proprietor of Bulygo & Associates, a firm that provides consulting, inspection, investigation, specification writing and training to the fire service.*

## **CFM-216** **AMBULANCE SERVICE AND MAINTENANCE**

**Monday-Friday**

**36 hours**

This class will cover the latest manufacturing standards and criteria used to build today's ambulances. Course content will include Blood Borne Pathogen awareness, body & build design, vehicle service, repair and maintenance techniques that are used to maintain OEM ambulance chassis, motor, drive train, steering, suspension, brakes, oxygen system, suction system and air conditioning/heating system. Course will include students having to research different design and build techniques used by today's ambulance manufacturers. This class fulfills partial requirements for California State Fire Marshals Fire Mechanic Level III state certification.



**Instructor: Paul Gantt** *Paul has a broad background in occupational and construction safety, hazardous materials use/storage and operations, emergency management and regulatory compliance. He spent many years in the California Fire Service where he held just about every position before he took an early retirement in 1992 to start Safety Compliance Management. Today Paul is a regular and in-demand speaker at national conferences, as well as an expert witness in multiple areas, and a widely respected trainer and consultant in the safety world.*

**Instructor: Adam Thibodeau and Don Estabrook**

## **CFM-116B DRIVER / OPERATOR 1B**

**Monday—Friday**

**40 hours**

This course is designed to provide the student with information on driver techniques for emergency vehicles and techniques of inspection, operation of fire pumps, including actual driving and pumping of water under simulated emergency exercises. Additional course content will include driver/operator responsibilities, types of fire pumps, pump mounting, drive arrangements, piping, valves, automatic pressure control devices, pump panel instrumentation, inspecting and maintaining the pump and control systems, and pump service testing. Additional instruction will cover principles of friction loss, calculating gpm, friction loss formulas, fire ground hydraulics, evolutions of drafting operations and hydrant operations. Emphasis is placed on learning throttle/gate manipulation, obtaining and maintaining a prime, introduction of a supply while pumping from the tank, discharge gate manipulation while pumping large volumes of water, etc. ***Proper PPE based on your department SOP will be required for each student.***

**Instructor: Michael Elson**

## **RCFM-1 LEVEL I RE-CERTIFICATION**

**Monday-Friday**

**36 hours**

This class provides review and update of operation, service and maintenance of pumps and accessories used in fire apparatus. The class fulfills re-certification requirements for Level I Fire Mechanic. Students will be provided with a personalized class schedule that will fulfill the CEU requirements of this certification level.

## **RCFM-2 LEVEL II RE-CERTIFICATION**

**Monday-Friday**

**36 hours**

This class will review and update the theory, operation and maintenance of fire pumps and accessories, electrical systems and Allison transmissions currently being used in fire apparatus. The class fulfills re-certification requirements for Level II Fire Mechanic. Students will be provided with a personalized class schedule that will fulfill the CEU requirements of this certification level.

## **RCFM-3 LEVEL III RE-CERTIFICATION**

**Monday-Friday**

**36 hours**

This class will review and update the theory, operation and maintenance of fire pumps and accessories, electrical systems, Allison transmissions, aerial ladders and platforms and ambulances currently being used in the fire service and emergency response agencies. Also included will be a review of basic supervisory, management and leadership skills. This class fulfills re-certification requirements for Level III Fire Mechanic. Students will be provided with a personalized class schedule that will fulfill the CEU requirements of this certification level.



## FF-501 KNOWING YOUR APPARATUS

Monday-Friday

32 hours

This class will provide a detailed review of the primary operating systems of fire apparatus and troubleshooting techniques the operator can perform. The class will review the special requirements, needs and issues of fire service equipment and enhance the student's ability to provide more detailed information to the fire service mechanic. It will also cover the role of the apparatus operator dealing with emergency response equipment and the goal to be operationally ready at all times.

**Instructor: Boyd Clegg** *Boyd has always had a passion for teaching as well as working on anything mechanical. He started his mechanical career as a smog and headlight technician and general mechanic. His fire service quest began in 1975 as a volunteer with the San Ramon Fire Department. He was hired in 1978 as a full time firefighter and did all their own equipment maintenance and repair. He advanced from Firefighter to Engineer, Captain and on to Battalion Chief prior to retirement in 2005. He continues serving his community as a volunteer firefighter for the Vacaville Fire Protection District and serves as Assistant Chief with that agency. Other classes he has taught include Rescue Systems, Auto Extrication, Pump Operations, Automotive Electrical Systems and Fire Ground Operations. Boyd attended his first Fire Mechanics Academy in Santa Ana in 1981 and continued to attend throughout his career. His combined experience allowed him to develop the "Knowing Your Apparatus" class with the hope to provide the students with a solid understanding of apparatus systems and the problems associated with them.*

## FF-502 PUMP TESTING

Monday-Tuesday

16 hours

This class will cover the procedures used to perform various pump tests which are conducted at the draft pit including troubleshooting and analyzing test data. Demonstration and practice of actual pump test is included and will be held off site. **Proper PPE based on your department SOP will be required for each student.**

**Instructor: Eric Haus**

## FF-504 GROUND LADDER TESTING

Friday

4 hours

This course covers fire service ground ladder maintenance, inspections and testing as required by NFPA 1932 *Standard on Use, Maintenance, and Service Testing of In-Service Fire Department Ground Ladders*. This course will provide students with the means to determine if in-service ground ladders meet the standard for continued service as well as proper maintenance.

**Instructor: Mike Ross**

## FM-106 AIR BRAKES & ABS SERVICE

Monday

8 hours

This class will review basic air brake theory, design and maintenance requirements for typical air brake systems as well as some ABS systems found on today's fire apparatus. Individual brake components, repair and maintenance issues will be discussed along with typical service requirements for each unit. The class will also include troubleshooting and analyzing failures.



**Instructor: Tom Fitch** Tom started his career by obtaining a degree in mechanical engineering. After college, Tom began working in the heavy duty truck brake industry by starting work with Midland Brake. Tom worked with Midland for 14 years as a sales and service rep in addition to becoming the Western Field Engineer for the Grey Rock Brake Lining Division. Tom currently is employed with Meritor/Rockwell where his career has spanned 27 years as a district sales and service manager.

## **FM-109**      **ELECTRICAL SYSTEMS 1**

**Monday-Friday**

**32 hours**

This is the first of two courses in the electrical certification series. This course is designed for the student with little or no knowledge of electrical systems as they relate to automotive and truck applications and is ***required*** for students wishing to take the electrical certification class and state examination. This course will cover electrical theory, magnetism, semiconductors, transistors, relays, circuit theory, circuit building and testing, multimeter basics, batteries, charging systems, starting systems and wiring diagrams and schematics.

**Required Materials:**    Digital Volt Ohm meter (DVOM) and calculator

**Instructor: Wray Schott**

## **FM-111**      **VALVES & NOZZLES**

**Thursday**

**4 hours**

This class will cover the application, cleaning, maintenance and service requirements for most major brands of fire service valves used on modern fire apparatus. Class will include a comprehensive lecture combined with hands on applications of service and repair techniques for various intake and discharge valves. Students will learn the specification requirements, valve identification combined with manufacturer's procedures and techniques for overhauling and rebuilding of these valves.

**Instructor:: Ken Burton**

## **FM-124**      **WELDING**      *(Class Size Strictly Limited)*

**Tuesday—Wednesday**

**16 hours**

This course is intended for students who seek some new or review instruction in basic welding techniques utilizing many different welding processes. This course is a great way to get reacquainted with electrical terms related to welding equipment. It's also great for anyone who wants a refresher on basic electrical terminology and components for welding and cutting. Some course content will include the basic electrical fundamentals for the common electric arc welding for many different metals. There will also be a thorough review of Engine-Driven Power Sources, Gas Metal Arc Welding, Gas Tungsten Arc Welding & Shielded Metal Arc Welding as well as Plasma Cutting and Gouging. This course was developed for the purpose of providing basic educational materials and to help the student understand the complex arc welding process. Please note this course is not intended to provide a welding certification or to teach the skill of welding or cutting, but rather to provide a foundation of general knowledge about the various processes and related topics.





This course will include a "hands on" application of the many various types of welding and cutting equipment.

Students registering for this course will be required to pay an **additional \$50.00 materials fee** and must bring the following equipment: *Proper PPE. No shorts or flip flops. Each student must have long pants, work boots, and bring to class a welding jacket, gloves, welding helmet, safety glasses, wire brush and pliers.*

**Instructors: Alex Demirjian and Silvio Modena**

## **FM-204C**    **CAT DIESEL SERVICE**

**Monday**

**8 hours**

This course will cover maintenance and tune-up procedures with recommended methods of troubleshooting Caterpillar Diesel engines. Course content includes the various models and their design features used in typical engines found in fire apparatus applications. This course covers major component identification, operation, diagnosis, and service procedures for a Caterpillar Diesel engine. This course is designed to acquaint you with the unique and critically important steps required to conduct a service and maintenance on a caterpillar commercial engine. As you proceed through the course you'll learn best practices that will aid in improving your proficiency in conducting service, maintenance and repair of the Caterpillar Diesel engine.

**Instructor: Matt Torrence**

## **FM-204D**    **CAT ELECTRONIC CONTROLS**

**Tuesday**

**8 hours**

This course is an introduction to the identification, operation and diagnosis of Caterpillar Electronic systems, input temperature and pressure sensors and related components. Course will help students identify key components and correct operation of ECM's used in Caterpillar Diesel engines. This course also covers identification, operation, diagnosis, and service procedures for a hydraulically actuated, electronically controlled, unit injector (HEUI) fuel system. The major components of the Caterpillar Diesel engine electronic controls that are covered include the electronic engine control system, the HEUI fuel injector, and injector actuation. Hands on instruction using the Caterpillar reader and the latest PC based diagnostics tools. The application of the digital multi-meter (DMM) is also introduced.

**Instructor: Matt Torrence**



**FM-205**

**INTERNATIONAL DIESEL SERVICE**

**Wednesday-Thursday-Friday**

**16 hours**

This course will cover maintenance and tune-up procedures with recommended methods of troubleshooting. It includes the various models and their design features used in typical engines found in fire apparatus applications.

**Instructor: Matt Torrence**

**FM-206**

**ALLISON TRANSMISSION PREVENTATIVE MAINTENANCE**

**Wednesday—Thursday**

**12 hours**

This class will cover the operation and troubleshooting of the DDEC control system. This course is designed to give students a basic review of the Detroit Diesel engine control systems used in today's fire apparatus along with real world failure modes and analysis. The material covered in this class may include basic electrical concepts, tools, and wiring diagrams. Hands-on troubleshooting of faults using the latest electronic tools. Practical problem solving using snapshot data, methods to examine fuel economy issues and for issues caused by incorrect parameter settings.

**Instructor: Frank Burke**

**FM-208**

**STEERING & SUSPENSION**

**Tuesday**

**8 hours**

This course will cover the techniques used to diagnose and service steering and suspension units. Types of manual and power steering systems and suspensions found in truck applications, how to diagnose steering problems and methods of correction, and routine service performed to maximize repair intervals will be covered.

**Instructor: Gary May** *Gary joined Spartan Chassis in 2004 as a customer and product support technician for emergency response chassis before taking on the role of Technical Trainer. He brings more than 42 years of experience to his new role, and currently holds eight state, ASE master mechanic certifications for truck and school bus. Gary's experience prior to coming to Spartan includes trucking company lead mechanic, distributor for heavy duty parts, and service manager for an independent repair facility.*

**FM-222**

**SMALL ENGINE SERVICE**

**Wednesday**

**8 hours**

This course will cover the proper techniques used to remove and install sub-assemblies, methods used to determine wear and relationships to original specifications, and conditions which cause parts or component failure. This class does not cover 2-cycle engines.



**Instructor: Ron Smith**

## FM-229D CUMMINS ENGINE SERVICE

Monday-Friday

32 hours

This class will cover the theory, operation and installation of the Cummins diesel engines used in today's fire apparatus. As time allows, this class may examine operating systems such as fuel supply and delivery, HEUI theory and application, computer and injector driver module systems, diagnostic procedures, computer strategies as well as common problems and pattern failures. Instruction will include theory and hands-on tune up and troubleshooting.

**Instructor:** TBD

## FM-231 WARNING EQUIPMENT SERVICE & MAINTENANCE

Tuesday

8 hours

This class will cover the servicing and maintenance procedures for halogen, strobes, and LED lighting systems plus mechanical and electronic audible warning devices.

**Instructor:** Phil Hussein

## FM-303 ELECTRICAL MULTIPLEXING SYSTEMS

Monday—Tuesday

16 hours

This class will cover new and anticipated design changes and service requirements, differences in current production of electrical units compared to previous models, and changes which are expected in the future including electronics and microprocessors used in multiplexing systems on today's fire apparatus. This course will cover the multiplexing system used on **PIERCE** fire apparatus only.

**Per Pierce Manufacturing:** *All students requesting this multiplexing class are required to have a multiplexed fire apparatus within their agency's fleet. Pierce will require students to provide the agency name and a job number of at least one Pierce multiplexed vehicle at the start of the class.*

**Instructor:** TBD

## FM-308 AERIAL SERVICE & MAINTENANCE—KME

Monday—Tuesday

16 hours

NFPA 1071, *Standard for Emergency Vehicle Technician Professional Qualifications*, establishes the minimum job performance requirements for a person qualified as an emergency vehicle technician who is engaged in the inspection, diagnosis, maintenance, repair, and testing of an emergency response vehicle. This class will cover the factory specific service and maintenance requirements for aerial apparatus used in today's fire service. Topics will include hydraulic system diagnostics and repairs, electrical system diagnostics and repairs, structural degradation identification and repair including annual testing requirements per the manufacturer's recommendations.

**Instructor:** TBD



## FM-310 AIR CONDITIONING

Wednesday

8 hours

This class will cover theory, application, troubleshooting and servicing of air conditioning systems, components and applicable regulations pertaining to fire apparatus.

**Instructor: Gary May** *Gary joined Spartan Chassis in 2004 as a customer and product support technician for emergency response chassis before taking on the role of Technical Trainer. He brings more than 42 years of experience to his new role, and currently holds eight state, ASE master mechanic certifications for truck and school bus. Gary's experience prior to coming to Spartan includes trucking company lead mechanic, distributor for heavy duty parts, and service manager for an independent repair facility.*

## FM-312 PUMP THEORY & TROUBLESHOOTING

Monday—Tuesday

16 hours

This class will provide information on pump theory, operation and troubleshooting of fire pumps and related systems and will acquaint the students with the principles and theories associated with maintenance required for fire apparatus and equipment.

**Instructors: Ben Ruthman and Steve Fisk**

## FM-323 FIRE APPARATUS SPECIFICATION & PURCHASE

Monday-Tuesday

16 hours

Writing a set of specifications for a new piece of fire apparatus can seem overwhelming, but a basic bid spec can be written very plainly to suit the needs of your department. The specification writing process is a time consuming job that requires patience and the ability to logically develop all of the ideas and concepts that your apparatus committee has requested into a written document. This class will assist the student with developing and writing apparatus specifications for the purchase of pumpers, aerials and other types of fire apparatus.

**Instructor: Roy Cobb**

## FM-331 LAWS, REGULATIONS & STANDARDS

Thursday

4 hours

This class will cover Federal Motor Vehicle Safety Standards, NFPA Standards and “Out-of-Service” criteria, acquainting students with the principles and theories associated with maintenance required for fire apparatus and equipment. Recent case studies will be reviewed in the classroom setting.

**Instructor: Kevin Gibbons**



**FM-332**

**DIESEL EMISSIONS**

**Friday**

**4 hours**

The California Air Resources Board is involved in a variety of activities including on-road commercial trucks; diesel vehicle idling; construction; mining, off-road and other industries. Additionally, Green House Gas (GHG) control strategies are soon to be required for diesel vehicles in California. This course is designed to provide an overview of many diesel programs and will help the student understand the current emission requirements of today's diesel engines as required by state and federal agencies.

**Instructor: Randy Opfer**

**FM-336**

**THIRD PARTY AERIAL INSPECTIONS**

**Wednesday**

**8 hours**

This course will review NFPA 1911, Chapter 10, Inspection and Maintenance of Aerial Devices section which defines the minimum requirements for establishing an inspection, maintenance, and testing program for in-service aerial fire apparatus. This course will help the student identify the systems and items on a fire apparatus that are to be inspected and maintained, the frequency of such inspections and maintenance, and the requirements and procedures for conducting performance tests on components. Additionally this course will provide information on the requirements for an inspection, maintenance, and testing program that will ensure that in-service fire apparatus are serviced and maintained to keep them in safe operating condition.

**Instructor: Jim Johannessen**

**FM-339**

**MEETING ISO REQUIREMENTS**

**Friday**

**4 hours**

The Insurance Service Office (ISO) issues ratings to Fire Departments throughout the country for the effectiveness of their fire protection services and equipment to protect their community. The ISO rating is a numerical grading system and is one of the primary elements used by the insurance industry to develop premium rates for residential and commercial businesses. ISO collects information on municipal fire protection efforts in communities throughout the United States. In each of those communities, ISO analyzes data using a Fire Suppression Rating Schedule and then assigns a Public Protection Classification to the fire agency. This course is designed to provide students with the information needed to aid in the preparation of a Fire Suppression Rating and assists fire departments in planning and budgeting for facilities, equipment, and training.

**Instructor: TBD**



**DON'T FORGET TO BRING ANY  
CLASSROOM MATERIALS YOU  
MIGHT NEED !**



## RECOMMENDED TEXTBOOKS

Classroom materials will be distributed to each student on the first day of class. In addition to handout materials, the California Fire Mechanics Academy will provide actual textbooks for some classes. These are intended for classroom use only. Some students have expressed a desire to purchase textbooks and other reference material for their own use. Some suggestions are:



### **CFM-115 / Fire Pumps & Accessories Recommended Study & Reference Materials are:**

***Fire Department Pumping Apparatus Maintenance***, by Don Henry

ISBN# 0-87939-219-3    *This book is available to purchase at Amazon.com*

***Fire Apparatus Operator Pumper***, by Howard Sykes & Thomas Sturtevant

ISBN# 1-4354-3862-0    *This book is available to purchase at Amazon.com*

**NFPA 1911: *Standard for the Inspection, Maintenance, Testing and Retirement of In-Service Automotive Fire Apparatus.***

*This book is available to purchase through NFPA*

### **CFM-215A / Electrical Systems textbook is:**

***Today's Technician: Medium/Heavy Duty Truck Electricity & Electronics***, Sulev Oun, Author

Delmar Publishing Company. *This book is available to purchase on Amazon.com*





## Please note the important changes

### CFMA has made for 2014.

All Academy students are asked to check-in with CFMA beginning Sunday afternoon, March 30, 2014 at the **NEW LOCATION**—the McClellan Conference Center, 5411 Luce Avenue, McClellan, CA 95652. CFMA staff will be there Sunday from 1:00—6:00 pm to assist with any questions you might have and distribute classroom materials and instructions. The opening ceremonies and Sunday evening networking reception will also be held at this new location! Students arriving after 6:00 pm on Sunday or attending only a portion of academy week may check in with the CFMA Administrative Office in the McClellan Conference Center after 7:00 am each morning.

1. Read through the **Class Schedule** and **Course Descriptions** carefully and identify those classes that best accommodate your specific needs.
2. Complete the **CFMA Student Registration** form. Make sure that the class selection portion is completely filled in. By providing a first, second and third choice, we will be better able to accommodate your wishes.
3. Complete the **CFMA Invoice Information** form. Be sure to include the \$80 state class fee if registering for a certification class (course number begins “CFM”) or the welding materials fee if you are registering in Class #FM-124. Textbooks are included in the registration fee and will be handed out in class to registered students.
4. Mail, fax or email both completed forms along with payment or purchase order to the CFMA administrative office. No student will be registered until all the paperwork is complete.

**Please—no telephone registration!**

***Remember, classes fill quickly so register early!***

# STUDENT REGISTRATION

**NAME** \_\_\_\_\_  
*First* *M.I.* *Last*

**SOCIAL SECURITY #** \_\_\_\_\_ *(last four digits)*      **FIRST TIME ATTENDING?**  *Yes*  *No*

**MAILING ADDRESS** \_\_\_\_\_  
*No. & Street* *City* *State* *Zip*

**TELEPHONE** \_\_\_\_\_  
*Cell* *Work* *Fax*

**E-MAIL** \_\_\_\_\_

**DEPARTMENT/AGENCY** \_\_\_\_\_

**JOB TITLE** \_\_\_\_\_

- |                                 |  |                                    |                                       |
|---------------------------------|--|------------------------------------|---------------------------------------|
| <input type="radio"/> Mechanic  | <input type="radio"/> Firefighter/Mechanic | <input type="radio"/> Fire Line    | <input type="radio"/> Supervisor/Mgmt |
| <input type="radio"/> Corp Yard | <input type="radio"/> Fire Department      | <input type="radio"/> Private Shop | <input type="radio"/> City            |

### FILL IN CLASS SELECTIONS BELOW

**BE SURE TO CHECK CLASS SCHEDULE FOR DAY(S) CLASSES ARE OFFERED**

	Monday 3/31/14	Tuesday 4/01/14	Wednesday 4/02/14	Thursday 4/03/14	Friday 4/04/14
<u>1st Choice</u>					
<u>2nd Choice</u>					
<u>3rd Choice</u>					

**MAKE CHECK/PURCHASE ORDER PAYABLE TO**

**California Fire Mechanics Academy, Inc.**

P.O. Box 678

No. Highlands, CA 95660

*Tax ID # 68-0299669*





# INVOICE INFORMATION

PAYING STUDENT OR AGENCY: \_\_\_\_\_

BILLING ADDRESS: \_\_\_\_\_  
No & Street City State Zip

*( Address Must Match Credit Card Billing Address )*

AGENCY TELEPHONE: \_\_\_\_\_ SUPERVISOR: \_\_\_\_\_

STUDENT(S) NAME:

- 1. \_\_\_\_\_
- 2. \_\_\_\_\_
- 3. \_\_\_\_\_
- 4. \_\_\_\_\_
- 5. \_\_\_\_\_
- 6. \_\_\_\_\_
- 7. \_\_\_\_\_
- 8. \_\_\_\_\_

QTY	DESCRIPTION	UNIT PRICE	TOTAL
	Academy Registration Fee <i>Weekly Rate</i>	\$ 500.00	
	Academy Registration Fee <i>Daily Rate</i>	\$ 170.00	
	State Certification Class Fee <i>(All classes beginning with "CFM")</i>	\$ 80.00	
	Late Registration Fee <i>(after 2/10/14)</i>	\$ 50.00	
	Student Substitution Fee	\$ 50.00	
	Additional Banquet Ticket	\$ 40.00	
	Welding Class Materials Fee	\$ 50.00	
	<b>TOTAL AMOUNT DUE:</b>		

## METHOD OF PAYMENT

**Check #** \_\_\_\_\_

**P.O. #** \_\_\_\_\_ *(copy attached)*

**Credit Card #** \_\_\_\_\_

*Visa*                       *Master Card*

Expiration: \_\_\_\_\_ Security Code #: \_\_\_\_\_

**Authorized Signature:** \_\_\_\_\_

**Please Print Name:** \_\_\_\_\_

*Credit Card Receipt will be sent to the authorized signer at the address listed above unless otherwise specified.*



The Academy, its directors, officers, agents, employees or representatives (hereafter, collectively, the “Academy”) agree to indemnify and hold Student harmless from and against any and all damage Student may suffer due to the acts or actions of the Academy. Student hereby agrees to indemnify and hold the California Fire Mechanics Academy, Inc., the Sacramento Metropolitan Fire District, and any and all other entities associated with the Academy harmless from and against any and all liability or damage they may suffer as a result of claims, demands, costs (including attorney fees, court or arbitration costs and expenses, or judgments against the Academy) arising out of Student’s acts or actions in connection with the application, registration, attendance, participation, transportation, hotel accommodations, or otherwise. A claim made under this section requires written notice by the party claiming indemnity.

*Class Confirmation Will Be Mailed To Each  
Student in early March, 2014*



## CFMA Sustaining Sponsors

The mission of the California Fire Mechanics Academy is to develop and provide an effective training program that addresses the needs of emergency vehicle technicians. The need for quality education and training is the same as it is for emergency response and rescue personnel. The CFMA has been in existence since 1970 and has provided training on a yearly basis since that time. The CFMA has become a nationally recognized and respected training resource for emergency personnel from all over the United States.

It is extremely important that the Academy have the support of the fire apparatus and equipment manufacturers. Without their support we would be unable to offer classes that reflect the latest equipment and technology innovations.



**ALLISON TRANSMISSION**

**CALIFORNIA FIRE CHIEFS ASSOCIATION**

**GOLDEN STATE FIRE APPARATUS**

**HALE PRODUCTS**

**HI-TECH EMERGENCY VEHICLES**

**ORANGE COUNTY FIRE AUTHORITY**

**PETERSON TRUCKS, INC.**

**SACRAMENTO METRO FIRE DISTRICT**

**VALLEY POWER SYSTEMS**

**WATEROUS CO.**

**W. S. DARLEY & SONS**





**CFMA Mailing Address**

P.O. Box 678  
North Highlands, CA 95660

**CFMA Office Location**

3318 Howard Avenue  
Bldg #338, Suite #140  
McClellan, CA 95652

**Telephone**

916-333-5044

**Fax**

916-333-5014

[cfm.academy@gmail.com](mailto:cfm.academy@gmail.com)

[www.cafiremech.com](http://www.cafiremech.com)

Register  
Now!