



Human Resource Management / Fleet Specifications and Records (2020) Course Plan

Course Details

Certification:	Emergency Vehicle Technician 3
CTS Guide:	Emergency Vehicle Technician (2020)
Description:	<p>Human Resource Management Module: This module provides an overview of human resource management knowledge and skills utilized by a supervisory or managerial level emergency vehicle technician in a multiple technician agency or shop.</p> <p>Fleet Specifications and Records Module: This module provides an overview of the knowledge and skills utilized by an emergency vehicle technician to oversee outsourced repair quality control, forecast inventory needs and order parts, and develop the documentation needed to prepare estimates, adhere to maintenance and repair schedule, document warranty repairs, create work orders, validate maintenance records, and develop apparatus specifications.</p>
Designed For:	The SFT-certified Emergency Vehicle Technician (EVT) 2 advancing to EVT 3 or anyone with supervisory or managerial level responsibilities in a multiple technician agency or shop
Prerequisites:	None
Standard:	Complete all activities and formative tests. Complete all summative tests with a minimum score of 80%.
Hours:	Lecture: 18:45 Activities: 6:15

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Testing: 3:00

Hours (Total): 28:00

Maximum Class Size: 30

Instructor Level: Primary Instructor

Instructor/Student Ratio: 1:30

Restrictions: None

SFT Designation: CFSTES

Required Resources

Instructor Resources

To teach this course, instructors need:

- NFPA 1901: Standard for Automotive Fire Apparatus (current edition / physical copy)
- 1. NFPA 1911: Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Emergency Vehicles (current edition / physical copy)
- Student Supplement
 - Provided by California Fire Mechanics Academy, Inc.
- Sample policies and procedures that address:
 - Safety compliance
 - Discipline
 - Employee evaluations
 - Professional development
- Manufacturer manuals
- Manufacturer specification sheets
- Manufacturer websites

Online Instructor Resources

The following instructor resources are available online at

<https://osfm.fire.ca.gov/divisions/state-fire-training/cfstes-professional-certification/>:

- Activity 5-2: Inspecting Completed Vehicles
- Activity 6-1: Forecasting Inventory Needs
 - Sample Repair History Documents
- Activity 6-2: Ordering Inventory
- Activity 7-1: Preparing Estimates
- Activity 7-2: Scheduling Maintenance and Repairs

Student Resources

To participate in this course, students need:

- NFPA 1901: Standard for Automotive Fire Apparatus (current edition / physical copy or access to a digital copy)
- NFPA 1911: Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Emergency Vehicles (current edition / physical copy or access to a digital copy)
- Student Supplement
 - Provided by California Fire Mechanics Academy, Inc.
- Agency or AHJ policies and procedures that address:
 - Safety compliance

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- Discipline
- Employee evaluations
- Professional development

Facilities, Equipment, and Personnel

The following facilities, equipment, or personnel are required to deliver this course:

- Standard classroom equipped for 30 students
- Projector with appropriate laptop connections
- Wifi/Internet access
- Outdoor space for emergency response vehicle with a clear perimeter for student activities
- Activity 5-2: Inspecting Completed Vehicles
 - Vehicle/apparatus
 - Appropriate test, calibration, and diagnostic equipment and tools
- Activity 6-2: Ordering Inventory
 - Appropriate parts catalogs and manuals
- Activity 7-1: Preparing Estimates
 - Appropriate repair history, estimate forms, and parts list
- Activity 7-2: Scheduling Maintenance and Repairs
 - Black calendar pages (January – December) for the year in which the course is taught

Unit 1: Introduction

Topic 1-1: Orientation and Administration

Terminal Learning Objective

At the end of this topic, a student will be able to identify facility and classroom requirements and identify course objectives, events, requirements, assignments, activities, resources, evaluation methods, and participation requirements in the course syllabus.

Enabling Learning Objectives

1. Identify facility requirements
 - Restroom locations
 - Food locations
 - Smoking locations
 - Emergency procedures
2. Identify classroom requirements
 - Start and end times
 - Breaks
 - Electronic device policies
 - Special needs and accommodations
 - Other requirements as applicable
3. Review course syllabus
 - Course objectives
 - Calendar of events
 - Course requirements
 - Student evaluation process
 - Assignments
 - Activities
 - Required student resources
 - Class participation requirements

Discussion Questions

4. What is a formative test? What is a summative test?

Activities

1. To be determined by the instructor

Topic 1-2: Emergency Vehicle Technician Certification Process

Terminal Learning Objective

At the end of this topic, a student will be able to identify different levels in the Emergency Vehicle Technician certification track, the courses and requirements for State Fire Training (SFT) Emergency Vehicle Technician (EVT) certification, and can describe the task book and testing process.

Enabling Learning Objectives

1. Identify the different levels of certification in the Emergency Vehicle Technician (EVT) certification track

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- EVT 1
 - EVT 2
 - EVT 3
2. Identify the SFT courses required for EVT 1
 - State Fire Training
 - Emergency Vehicle Technician 1A: Chassis, Cab, Body, Tank and Accessories (2020)
 - Emergency Vehicle Technician 1B: Electrical Systems A (2020)
 - Emergency Vehicle Technician 1C: Pumps and Accessories (2020)
 3. Identify the SFT courses required for EVT 2
 - State Fire Training
 - Emergency Vehicle Technician 2A: Electrical Systems B (2020)
 4. Identify the SFT courses required for EVT 3
 - State Fire Training
 - Emergency Vehicle Technician 3A: Human Resource Management / Fleet Specifications and Records (2020)
 5. Identify additional requirements for Emergency Vehicle Technician 1
 - Experience (one of the following)
 - Have a minimum of two (2) years full-time, paid experience in a California fire department, public agency, or private industry as an automotive or truck mechanic, with one (1) year of which must be related to the maintenance of emergency response vehicles; or
 - Have a minimum of three (3) years full-time, paid experience in a California fire department, public agency, or private industry as a truck mechanic with no emergency response vehicles required; or
 - Have a minimum of four (4) years volunteer time or paid part-time, paid experience in a California fire department, public agency, or private industry as a truck mechanic with primary duties performing as a truck mechanic.
 6. Identify additional requirements for Emergency Vehicle Technician 2
 - Experience (one of the following)
 - Have a minimum of three (3) years full-time, paid experience in a California fire department, public agency, or private industry as an automotive or truck mechanic, with one (1) year of which must be related to the maintenance of emergency response vehicles; or
 - Have a minimum of four (4) years full-time, paid experience in a California fire department, public agency, or private industry as a truck mechanic with no emergency response vehicles required; or
 - Have a minimum of five (5) years volunteer time or paid part-time, paid experience in a California fire department, public agency, or private industry as a truck mechanic with primary duties performing as a truck mechanic.
 7. Identify additional requirements for Emergency Vehicle Technician 3
 - Have a minimum of four (4) years full-time, paid experience in a California fire department, public agency, or private industry as an automotive or truck

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- mechanic, with one (1) year of which must be related to the maintenance of emergency response vehicles; or
 - Have a minimum of five (5) years full-time, paid experience in a California fire department, public agency, or private industry as a truck mechanic with no emergency response vehicles required; or
 - Have a minimum of six (6) years volunteer time or paid part-time, paid experience in a California fire department, public agency, or private industry as a truck mechanic with primary duties performing as a truck mechanic.
- 8. The following requirements are required for each EVT 1, EVT 2, and EVT 3
 - Code of Federal Regulations (CFR) 396.25: Department of Transportation Brake Inspector Qualification
 - Successful completion of the CFMA Certification Exam or CFMA Recertification Exam for the respective SFT Level of Certification. This exam is administered by the California Fire Mechanics Academy (CFMA).
 - EVT 1 Requires the following ASE Certifications:
National Institute for Auto Service Excellence (ASE)
 - Gasoline Engines [T1]
 - Diesel Engines [T2]
 - Drive Train [T3]
 - Brakes [T4]
 - Suspension and Steering [T5]
 - Preventative Maintenance Inspections [T8]
 - EVT 2 and EVT 3 Requires the following ASE Certifications:
National Institute for Auto Service Excellence (ASE)
 - Gasoline Engines (T1)
 - Diesel Engines (T2)
 - Drive Train (T3)
 - Brakes (T4)
 - Suspension and Steering (T5)
 - Electrical / Electronic Systems (T6)
 - Heating, Ventilation and Air Conditioning (HVAC) (T7)
 - Preventative Maintenance Inspections (T8)
- 9. Describe the task book process
 - Complete all prerequisites and course work
 - Complete all job performance requirements included in the task book
 - Must have identified evaluator verify individual task completion via signature
 - Submit application and fees
 - A candidate may apply for the EVT 1, EVT 2, and EVT 3 task books at the same time (three applications and three fees)
 - Shall not submit the EVT 2 task book until he or she receives EVT 1 certification (a prerequisite for EVT 2)
 - Shall not submit the EVT 3 task book until he or she receives EVT 2 certification (a prerequisite for EVT 3)

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- Must have Fire Chief or authorized representative verify task book completion via signature
- Must be employed by a California Fire Agency or be in a position as a volunteer or paid part-time, in a California fire department, or public agency, or private industry as a truck mechanic with primary duties performing as a truck mechanic as noted above for experience.
- This experience must be documented prior to submitting completed task book to State Fire Training

10. Complete Continuing Education

- Persons with EVT Certification are required to renew their certification every five years. The recertification requires that the applicant completes 36 hours of approved continuing education (CE) and meet all prerequisites stated for Recertification Requirements. All recertification applications must be postmarked on or before the certification expiration date. If the certified EVT did not meet all recertification requirements by the expiration date, the EVT Certification is considered to be lapsed.
- If the EVT Certification lapsed, the applicant will be required to complete 36 hours of CE in addition to the completion of additional CE hours. If the certification lapsed less than 6 months, you can regain EVT Certification by completing an additional 8 hours of approved CE. If the certification lapsed between 6 months and less than 12 months, you can regain EVT Certification by completing an additional 16 hours of approved CE. If the certification lapsed between 12 months and less than 18 months, you can regain EVT Certification by completing an additional 24 hours of approved CE.
- For expiration, greater than 18 months, the applicant will need to reapply for initial EVT 1 certification which includes successful completion of the EVT certification exam and completion of a new Certification Task Book.

11. Complete all formative and summative tests administered during the course deliveries

Discussion Questions

1. To be determined by the instructor

Activities

1. To be determined by the instructor

Instructor Notes

1. SFT teaches most EVT 1 (inspect and maintain) and EVT 2 (repair and replace) content together because depending on the size of the agency or shop, there are different expectations of the technician.

Human Resource Management Module

Unit 2: Employee Development

Topic 2-1: Assigning Tasks or Responsibilities

Terminal Learning Objective

At the end of this topic, a student, given a work order, an apparatus, work space, and required tools, equipment, and parts, will be able to assign tasks or responsibilities to technicians so that the instructions are complete, clear, and concise; safety considerations are addressed; and the work is completed and within the scheduled time

Enabling Learning Objectives

1. Identify the function, construction, and operation of vehicles and systems
2. Identify required testing
3. Identify required record-keeping and documentation
4. Identify common deficiencies
5. Identify repair procedures
6. Identify testing procedures
7. Identify apparatus safety requirements
8. Identify skill levels of assigned technicians
 - Involve labor and management
 - Job performance analysis
 - Training
 - Monitoring
 - Evaluation
 - Feedback
 - Modification
9. Identify agency priorities
10. Identify available resources
11. Communicate verbally and in writing
12. Evaluate technician performance

Discussion Questions

1. How does your agency identify technician skill level?

Activities

1. Determined by instructor

CTS Guide Reference: CTS 11-1

Topic 2-2: Conducting Individual Technician Training

Terminal Learning Objective

At the end of this topic, a student, given an apparatus, an assignment, a workspace, and all necessary tools, will be able to conduct individual training for technicians so that the

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technician understands the procedure and is able to demonstrate proficiency at the given task

Enabling Learning Objectives

1. Identify the function, operation, and construction of component
2. Identify applicable standards
3. Identify manufacturer specifications
4. Identify recommended procedures
5. Determine the technician's capability
6. Research, communicate, and deliver training material based on methods and practices
7. Evaluate the results

Discussion Questions

1. How can an EVT utilize a work order?
2. How can you determine EVT work hours for a work order?
3. What are an administrator's responsibilities for work injury reduction in the assigned shop area?

Activities

1. Determined by instructor

Instructor Notes

1. If time permits, review the individual training and professional development policies and procedures that students bring to class.

CTS Guide Reference: CTS 11-2

Unit 3: Employee Evaluation

Topic 3-1: Evaluating Technician Performance

Terminal Learning Objective

At the end of this topic, a student, given time records, pertinent work orders, and evaluation forms, will be able to provide input on the performance level of a technician so that the abilities and weaknesses of the technician can be determined; required counseling and training can be scheduled to maintain or improve a technician's proficiency; or an issue can be referred to the next level of supervision

Enabling Learning Objectives

1. Identify allowable repair times
2. Describe how to evaluate and analyze technician strengths and weaknesses
 - Give assignment
 - Measure performance completion
 - Evaluate skill completion (or lack of completion)
 - Skill degradation
 - Skill enhancement
 - Maintain work history base on equipment/specific brand
 - Sometimes it may intuition or instinct
3. Identify agency policies and procedures

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4. Describe appropriate workplace behavior
5. Identify job descriptions
6. Describe goals of the evaluation program
7. Communicate verbally and in writing
 - 5 W's (who, what, when, when, why)
 - End date / start date
 - "What ifs"
 - Write first, then communicate verbally
8. Evaluate and document performance

Discussion Questions

1. How does your agency evaluate technician performance?
2. How does your agency recognize outstanding performance?
3. How does your agency handle weak performance?

Activities

1. Given several sample employee evaluations have students:
 - Prepare a professional development plan for employee improvement
 - Identify strengths and how they can be acknowledged or rewarded

Instructor Notes

1. If time permits, review the individual employee evaluation policies and procedures that students bring to class.

CTS Guide Reference: CTS 11-3

Topic 3-2: Recommending and Enforcing Discipline

Terminal Learning Objective

At the end of this topic, a student, given an employee's history and agency SOPs, will be able to recommend, specify, and enforce discipline so that the employee is given the guidance necessary to improve or resolve issues

Enabling Learning Objectives

1. Identify agency policies and procedures
2. Demonstrate an awareness of the situation and the individual involved
3. Communicate verbally and in writing
4. Assess employee abilities and attitudes
5. Implement the most effective alternative

Discussion Questions

1. What is the difference between discipline and professional development?
2. Who is involved in the disciplinary process?

Activities

1. Given the following scenario, have students break into small groups and identify what they would do for each option listed below. Share with the group and share strategies.
 - Two employees are horsing around in the shop throwing a rag at each other. One escalates the event by soaking or spraying accelerant on the rag, which catches on fire. He or she throws it back, just as you enter the workspace.

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- Option 1: Both are technicians who work for you
- Option 2: One is your technician and one is management
- Option 3: One is your technician and one is a firefighter dropping off a vehicle

Instructor Notes

1. If time permits, review the individual disciplinary policies and procedures that students bring to class.

CTS Guide Reference: CTS 11-4

Unit 4: Employee Safety

Topic 4-1: Recommending and Enforcing Safety Policies and Procedures

Terminal Learning Objective

At the end of this topic, a student, given agency safety policies and procedures; federal, state, local, and industry standards for workplace safety; and safety hazards, will be able to recommend and enforce safety policies and procedures so that workplace safety is monitored and recommendations for deficiencies are documented

Enabling Learning Objectives

1. Identify agency safety policies and procedures
2. Identify federal, state, local, and industry standards for workplace safety
3. Identify safety hazards
4. Identify safe practices
5. Identify equipment limitations
6. Identify personal protection devices
7. Communicate verbally and in writing
8. Promote a safe working environment

Discussion Questions

1. How does your agency enforce safety policies and procedures?
2. How do you determine which safety policy or procedure takes priority?

Activities

1. Determined by instructor

Instructor Notes

1. If time permits, review the individual safety policies and procedures that students bring to class.

CTS Guide Reference: CTS 11-5

Topic 4-2: Monitoring Environmental Safety Compliance

Terminal Learning Objective

At the end of this topic, a student, given agency policies and procedures; federal, state, and local environmental regulations; and material safety data sheets (MSDS), will be able to monitor compliance of applicable environmental regulations so that the workplace is in compliance with all required regulations; and all deficiencies are identified and corrected

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Enabling Learning Objectives

1. Identify agency policies and procedures
 - Annual inspections
 - Location of documents
2. Identify federal, state, and local environmental regulations
 - Occupational Safety and Health Administration (OSHA)
 - 29 CFR 1910.1020 (Code of Federal Regulations)
 - Hazard Communication Standard (HCS) / HazCom 2012
 - Fire marshal
 - Authority having jurisdiction (AHJ)
3. Identify location of material safety data sheets (MSDS)
4. Identify the 16 sections of the SDS
5. Communicate verbally and in writing

Discussion Questions

1. What is the replacement document for the material safety data sheet (MSDS)?
2. Do the MSDS in your agency have pictograms?
 - Are they required on an SDS?

Activities

1. Determined by instructor

Instructor Notes

1. In 2012 OSHA renamed the MSDS (material safety data sheet). It is now SDS (safety data sheet).

CTS Guide Reference: CTS 11-6

Fleet Specifications and Records Module

Unit 5: Outsourced Repair Quality Control

Topic 5-1: Monitoring Outsourced Repairs

Terminal Learning Objective

At the end of this topic, a student, given a completed vehicle, a deficiency list, and a list of completed tasks, will be able to monitor outsourced repairs so that all repairs are verified and diagnostic checks are completed and documented

Enabling Learning Objectives

1. Identify the function, construction, and operation of vehicles and systems
2. Identify qualifications and limitations of entity performing maintenance or repairs
 - In-house technicians
 - Vendor
 - Manufacturer
 - Third-party shop
3. Identify required diagnostic checks and performance testing
4. Identify required record-keeping and documentation
 - Work order identifying maintenance or repair need
 - Outsourced vehicle tracking document or database:
 - List of outsourced vehicles
 - Outsource location
 - Primary contact information
 - Outsource reason
 - Maintenance
 - Repair
 - Projected return date
 - Progress reports
 - Written
 - Verbal
 - Photos
 - Anticipated cost
 - Completed work order from entity performing maintenance or repairs
 - Inspection and return to service checklists and documentation
5. Identify common deficiencies
6. Identify repair procedures
7. Identify diagnostic checks and performance testing procedures
8. Identify vehicle safety requirements
9. Operate vehicles
10. Verify diagnostic checks and performance tests of equipment and tools identified by manufacturer's specifications

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11. Use diagnostic equipment and tools
12. Communicate verbally and in writing

Discussion Questions

1. Under what circumstances might you send a vehicle out for maintenance or repair?
2. What information should you track when you send a vehicle sent out of service?

Activities

1. To be determined by the instructor

Instructor Notes

1. ELOs 1, 3, and 5-12 are covered extensively in EVT I and should be common knowledge for most students. Refresh this content if needed, but focus on ELOs 2 and 4.

CTS Guide Reference: CTS 12-2

Topic 5-2: Inspecting Completed Vehicles

Terminal Learning Objective

At the end of this topic, a student, given an apparatus, a deficiency list, completed tasks, and a required license, will be able to inspect a completed vehicle so that all deficiencies are repaired; documentation is completed; and the vehicle is diagnostically checked to manufacturer specifications

Enabling Learning Objectives

1. Identify the function, construction, and operation of vehicles and systems
 - Vehicle types
 - Type I
 - Type III
 - Systems (and components)
 - Chassis
 - Cab and body
 - Pumps and tanks
 - Electrical
2. Identify diagnostic checks and performance testing procedures
 - Performance test (was the vehicle repaired correctly)
3. Identify required record-keeping and documentation
 - Manufacturer requirements
 - AHJ requirements
4. Identify common deficiencies
 - Corrosion
 - Rust, oxidation, electrolysis
 - Warping
 - Leaks
 - Class I
 - Class II
 - Class III
 - Fluid and lubrication levels

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- Cracks, fractures, breaks
 - Loose, broken, worn, or missing components
5. Identify repair procedures
 6. Identify vehicle safety requirements and confirm that they are diagnostically checked to manufacturer's specifications
 - Gather tools and safety equipment
 - Secure vehicle in a safe environment
 - Set parking brake and place wheel chocks
 - Wear appropriate PPE
 7. Observe proper apparatus operation
 8. Verify performance of required tests and checks
 9. Use test, calibration, and diagnostic equipment and tools
 10. Communicate verbally and in writing

Discussion Questions

1. Who is responsible to validate that an outsourced repair was completed and the vehicle is ready for service?

Activities

1. Activity 5-2: Inspecting Completed Vehicles

Instructor Notes

1. These inspection principles also apply to an apparatus, not just an entire vehicle.
2. ELO 1 – Addresses the minimum vehicles and systems to be addressed.
3. ELO 7 – Describe this process to the students as you do it if time, safety, and liability considerations restrict students from operating the vehicle themselves.
4. ELOs 8-10 – Covered by the required activity.

CTS Guide Reference: CTS 12-1

Unit 6: Inventory Control

Topic 6-1: Monitoring Inventory Levels

Terminal Learning Objective

At the end of this topic, a student, given current inventory, agency equipment lists, manufacturer specifications, manufacturer parts manuals, a maintenance schedule, and previous repair history, will be able to monitor inventory levels within the relevant level of responsibility so that the inventory is maintained at the required levels

Enabling Learning Objectives

1. Identify current suppliers
2. Evaluate previous repair history
3. Identify agency and purchase policies
4. Determine current needs
5. Use previous repair history to predict future needs

Discussion Questions

1. Does your shop stock parts?

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- Why or why not?
 - What are the pros and cons?
2. How does your agency track inventory?

Activities

1. Activity 6-1: Forecasting Inventory Needs

Instructor Notes

1. Use the activity to generate ELO/content discussion.
2. ELO 4 and 5 – Covered by required activity.

CTS Guide Reference: CTS 13-1

Topic 6-2: Ordering Parts

Terminal Learning Objective

At the end of this topic, a student, given a part number or specification and application of part required, a purchase order form and procedure, and a vendor list, will be able to order appropriate parts so that the correct part is ordered from the vendor; purchase orders are tracked; and purchase is recorded

Enabling Learning Objectives

1. Identify the function, operation, and construction of component
2. Identify applicable standards
3. Identify manufacturer specifications
4. Identify recommended part substitutions
5. Identify parts locations
6. Identify transportation systems
7. Research written and electronic sources and manuals
8. Communicate verbally and in writing

Discussion Questions

1. Which is more important, cost or delivery timeframe?
2. Which is more important, cost or quality?
 - “Buy the best, cry once”

Activities

1. Activity 6-2: Ordering Inventory

Instructor Notes

1. Use the activity to generate ELO/content discussion as activity is completed.

CTS Guide Reference: CTS 13-2

Unit 7: Documentation Control

Topic 7-1: Preparing Estimates

Terminal Learning Objective

At the end of this topic, a student, given an emergency vehicle, repair history, estimate forms, parts lists, required repair or upgrade hours, and a calculator, will be able to prepare an estimate of deficiencies or upgrades to be completed on an emergency vehicle so that the costs are calculated, documented, and communicated

Enabling Learning Objectives

1. Identify the function, construction, and operation of emergency response vehicles
2. Identify estimated repair times
 - Technician experience and skill level
 - Fleet priority
 - Parts availability
 - Staffing levels
3. Identify parts and component costs
 - Replacement part cost
 - Secondary costs
 - Replacing associated parts impacted by new part
 - Replacing items damaged during repair
 - Additional problems discovered during repair
 - Shipping cost
 - Labor cost
4. Identify applicable vehicle standards
 - Manufacturer specifications (vehicle)
 - Original equipment manufacturer (OEM) specifications (part or component)
 - NFPA standards
 - AHJ standards
5. Estimate and calculate costs and repair times
6. Complete documentation and record-keeping
7. Communicate verbally and in writing

Discussion Questions

1. What factors impact repair time?
2. What factors impact repair cost?

Activities

1. Activity 7-1: Preparing Estimates

Instructor Notes

1. ELOs 5-7 – Covered by Activity 7-1: Preparing Estimates

CTS Guide Reference: CTS 14-1

Topic 7-2: Adhering to Repair and Maintenance Schedules

Terminal Learning Objective

At the end of this topic, a student, given an emergency vehicle, a schedule, forms, a repair or maintenance request, current staffing and workload, work estimate, and work space availability, will be able to adhere to a schedule for maintenance or repair of an emergency vehicle so that required repairs or maintenance can be assigned and completed in accordance with the projected times

Enabling Learning Objectives

1. Identify the function, construction, and operation of emergency response vehicles
2. Identify resource availability
 - Matching resources to workload
 - Technicians available to do the work
 - Vehicle available to cover for vehicles out of service
3. Identify factors that impact resource availability
 - Fleet management
 - Required scheduled inspection cycles
 - New vehicle prep
 - Budget cycles
 - Climate
 - Fire season
 - Wet season
 - Weather
 - Staff levels
 - Training schedules
 - Vacation time
 - Work injury/illness
 - Event
 - Accident
 - Catastrophic failure
4. Identify agency requirements
5. Utilize resources
6. Evaluate requests
7. Project maintenance or repair results

Discussion Questions

1. What routine activities should you factor into your maintenance/repair schedule?
2. What events may impact your maintenance/repair schedule?

Activities

1. Activity 7-2: Scheduling Maintenance and Repairs

CTS Guide Reference: CTS 14-2

Topic 7-3: Documenting Warranty Repairs

Terminal Learning Objective

At the end of this topic, a student, given a repaired vehicle, applicable warranties, a deficiency list, technical service bulletins, and a list of completed tasks, will be able to document warranty repairs so that all repairs are completed, and diagnostically checked and performance tested if required are verified, and tested; and the warranty claim is processed

Enabling Learning Objectives

1. Identify the function, construction, and operation of emergency response vehicles
2. Identify current warranties
3. Identify technical service bulletins
 - Purpose/use
 - Where to locate
4. Identify required diagnostic checks or performance tests
5. Identify required record-keeping and documentation
6. Identify diagnostic checks or performance testing procedures
7. Identify vehicle safety requirements
8. Identify manufacturer specifications
 - Whether or not something is covered by warranty
 - Who can perform warranty repairs
 - Manufacturer-designated repair facility
 - Manufacturer-negotiated in-house repairs
9. Identify agency policies and procedures
10. Communicate verbally and in writing
11. Comply with the record-keeping requirements of the manufacturer and the authority having jurisdiction (AHJ)

Discussion Questions

1. How are inventory numbers determined?
2. Is it necessary to inspect the unit and documents prior to releasing the unit back into service?
 - Why or why not?

Activities

1. Determined by instructor

Instructor Notes

1. ELOs 1, 4, 6, and 7 are covered extensively in EVT I courses and should be common knowledge for most students. Refresh this content if needed, but focus on ELOs 2, 4, 5, and 8.

CTS Guide Reference: CTS 14-3

Topic 7-4: Creating Work Orders

Terminal Learning Objective

At the end of this topic, a student, given an emergency response vehicle, an assignment, and agency work order forms, will be able to create work orders so that all work to be performed is documented; all required information is recorded; all necessary information is communicated to the technician(s); and the emergency response vehicle is prepared for repair or maintenance

Enabling Learning Objectives

1. Identify required record-keeping
2. Identify agency record-keeping system
3. Identify previous repair history
4. Identify the function, construction, and operation of emergency response vehicles
5. Apply agency record-keeping system
6. Communicate verbally and in writing
7. Utilize diagnostic skills

Discussion Questions

1. Why is documentation important?
2. How long do you keep completed work orders?
 - How long should you keep them?

Activities

1. Given a completed work order, have students review for complete and accurate information and correct any deficiencies.

Instructor Notes

1. Recommend bringing in sample work orders and walking students through the different components and why they are important.

CTS Guide Reference: CTS 14-4

Topic 7-5: Validating Maintenance Records

Terminal Learning Objective

At the end of this topic, a student, given completed documentation of maintenance records and agency record-keeping policies will be able to validate maintenance records so that accurate records are maintained

Enabling Learning Objectives

1. Identify record-keeping and accounting procedures
2. Describe how to analyze statistics
3. Identify agency policy and procedure
4. Recognize, evaluate, analyze, and calculate statistical information, accounting reports, and cost performance reports

Discussion Questions

1. Who keeps/maintains maintenance records in your shop?
2. Should all defects and repairs be “signed off”?
 - Why or why not?

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Activities

1. Determined by instructor

CTS Guide Reference: CTS 14-5

Topic 7-6: Developing Apparatus Specifications

Terminal Learning Objective

At the end of this topic, a student, given agency recommendations, agency policies and procedures, and applicable NFPA and industry standards, will be able to develop a specification through review and research of existing fire apparatus so that technical criteria are presented as a completed specification

Enabling Learning Objectives

1. Identify current quality standards and requirements of the agency, state and local laws and regulations, the American Society of Mechanical Engineers (ASME), the Society of Automotive Engineers (SAE), the Occupational Safety and Health Administration (OSHA), and NFPA for the construction of a fire apparatus
2. Recognize agency guidelines
3. Organize and identify apparatus components based on the needs of the applicable divisions
4. Communicate verbally and in writing

Discussion Questions

1. What role does maintenance play when developing apparatus specifications?
2. Should warranty [word] be considered when developing apparatus specifications?
 - Why or why not?

Activities

1. Determined by instructor

CTS Guide Reference: CTS 15-1

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Time Table

Segment	Lecture Time	Activity Time	Total Unit Time
Unit 1: Introduction			
Topic 1-1: Orientation and Administration			
Lecture	00:30		
Activity 1-1: To be determined by instructor		00:00	
Topic 1-2: Emergency Vehicle Technician Certification Process			
Lecture	00:30		
Activity 1-2: Determined by instructor		00:00	
Unit 1 Totals	1:00	0:00	1:00

Human Resource Management Module

Segment	Lecture Time	Activity Time	Total Unit Time
Unit 2: Employee Development			
Topic 2-1: Assigning Tasks or Responsibilities			
Lecture	1:00		
Activity 2-1: Determined by instructor		0:00	
Topic 2-2: Conducting Individual Technician Testing			
Lecture	1:00		
Activity 2-2: Determined by instructor		0:00	
Unit 2 Totals	2:00	0:00	2:00
Unit 3: Employee Evaluation			
Topic 3-1: Evaluating Technician Performance			
Lecture	1:00		
Activity 3-1: See recommended activity		1:00	
Topic 3-2: Recommending and Enforcing Discipline			
Lecture	2:00		
Activity 3-2: See recommended activity		1:00	
Unit 3 Totals	3:00	2:00	5:00
Unit 4: Employee Safety			
Topic 4-1: Recommending and Enforcing Safety Policies and Procedures			
Lecture	2:00		

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Activity 4-1: Determined by instructor		0:00	
Topic 4-2: Monitoring Environmental Safety Compliance			
Lecture	1:00		
Activity 4-2: Determined by instructor		0:00	
Unit 4 Totals	3:00	0:00	3:00

Fleet Specifications and Records Module

Segment	Lecture Time	Activity Time	Total Unit Time
Unit 5: Outsourced Repair Quality Control			
Topic 5-1: Monitoring Outsourced Repairs			
Lecture	0:30		
Activity 2-1: Determined by instructor		0:00	
Topic 5-2: Inspecting Completed Vehicles			
Lecture	1:00		
Activity 5-2: Inspecting Completed Vehicles		1:30	
Unit 5 Totals	1:30	1:30	3:00
Unit 6: Inventory Control			
Topic 6-1: Monitoring Inventory Levels			
Lecture	0:45		
Activity 6-1: Forecasting Inventory Needs		0:15	
Topic 6-2: Ordering Parts			
Lecture	0:00		
Activity 6-2: Ordering Inventory		0:30	
Unit 6 Totals	0:45	0:45	1:30
Unit 7: Documentation			
Topic 7-1: Preparing Estimates			
Lecture	0:30		
Activity 7-1: Preparing Estimates		0:30	
Topic 7-2: Adhering to Repair and Maintenance Schedules			
Lecture	1:30		
Activity 7-2: Scheduling Maintenance and Repairs		1:00	
Topic 7-3: Documenting Warranty Repairs			
Lecture	1:00		
Activity 4-3: Determined by instructor		0:00	
Topic 7-4: Creating Work Orders			

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Lecture	1:00		
Activity 4-4: See recommended activity		0:30	
Topic 7-5: Validating Maintenance Records			
Lecture	1:00		
Activity 4-5 Determined by instructor		0:00	
Topic 7-6: Developing Apparatus Specifications			
Lecture	2:30		
Activity 4-6: Determined by instructor		0:00	
Unit 7 Totals	7:30	2:00	9:30
Total Lecture, Activity, and Unit Totals:	18.75	6.25	25:00

Course Totals

Segment Type	Time
Total Lecture Time (LT)	18:45
Total Activity Time (AT)	6:15
Total Testing Time (TT)	3:00
Total Course Time	28.00