



COURSE CATALOG



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OPERATOR
TRAINING



PARTS
TRAINING



SAFETY
TRAINING



SALES
TRAINING



SERVICE
TRAINING



TECHNICIAN
TRAINING

PM110 – PREVENTIVE MAINTENANCE



Course Name	Preventive Maintenance – PM110
Course Type	Instructor-Led
Instructor Name	Multiple
Course Length	2 Days
Participants (min. / max.)	4 / 8
Location	Salem, Richmond
Course Overview	80% Theory, 20% Practical Labs
Tooling Required	None
Description	Intended for service technicians that perform preventive maintenance on Cat® equipment, this course will familiarize the participant with information on performing specific maintenance tasks, inspection procedures, and related safety requirements for Cat construction equipment.
E-Learning Courses	Caterpillar University (DPC) – Web Based Training 30280 Basic Preventive Maintenance
Course Outline	<ul style="list-style-type: none"> • Safety/PPE • ISO Symbols • Contamination Control • PM Tasks • PM Walk-Around Inspections • Schedules • Components/Parts



HAC110 – HVAC FUNDAMENTALS/EPA609



Course Name	HAC110CUST – Mobile HVAC Systems
Course Type	Instructor-Led
Course Length	3 Days
Participants (min. / max.)	4 / 8
Course Overview	60% Theory, 40% Practical Labs
Intended Audience	Service Training Instructors, Technical Communicators, Service Technicians
Suggested Prerequisites	Caterpillar University (DPC) – Web Based Training <ul style="list-style-type: none"> • The Caterpillar 7-Step Diagnostic Process (26917) • AC C01 – Basic Air Conditioning Theory and Service (21471) • AC C02 – HVAC System Electronics (21472) • AC Diagnostic Exercise (26849)
Description	This instructor-led course is designed to give technicians an understanding of the system operation, diagnostics and service procedures for 3 types of air condition systems used in Caterpillar machines and on-highway trucks.
Course Outline	A. Principles of air conditioning B. System Components C. HVAC Tooling D. Service Procedures E. Troubleshooting mobile HVAC systems
Objectives	Upon completion of this training, the learner will be able to: <ul style="list-style-type: none"> • Describe the principles of operations of air conditioning systems • Understand all applicable safety precautions • Knowledgeable in the laws and regulations regarding service of mobile HVAC systems • Be capable of safely recovering refrigerant using the required tooling and procedures • Recharge an HVAC system on Caterpillar machines using the required method and tooling to meet the Caterpillar specifications • Understand how to troubleshoot and repair HVAC systems on Caterpillar machines
Tooling Required	Usual pressure gauges, tool box and ET-software + comm adapter.
Additional Information	This class also includes the test for EPA609 Certification required for mobile equipment.



ELE110 – ELECTRICAL FUNDAMENTALS



Course Name	Electronics 1 – ELE110
Course Type	Instructor-Led
Instructor Name	Multiple
Course Length	4 Days
Participants (min. / max.)	4 / 8
Location	Salem, Williamsburg
Course Overview	80% Theory, 20% Practical Labs
Tooling Required	None
Description	This course is intended for service technicians that work on Cat® equipment and have a basic understanding of electrical systems, Cat Service Information System (SIS Web), and a fundamental understanding of how to navigate Cat Electronic Technician (ET). This course will familiarize the participant with specific electrical/electronic troubleshooting and repair techniques to supplement information covered in the e-learning component of this training. The hands-on component of this course allows service technicians to practice and demonstrate lessons learned, focusing on the inspection, service, and equipment required to perform electrical/electronic repairs. Topics include diagnosing electrical/electronic concerns, demonstrating diagnostic procedures, and repair techniques.
Suggested E-Learning Courses <i>(may serve as pre-requisite learning for lesser experienced technicians)</i>	Caterpillar University (DPC) – Web Based Training ELE C01 Key Features of Electricity (40113) ELE C02 Electrical Schematics (40114) ELE C03 Measuring Electrical Circuits (40115) ELE C04 Electrical Circuit Types (40018) ELE C05 Electrical Circuit Faults (40017) ELE C06 Wire Connectors (40016) ELE C07 Wire Types, Terminals, and Harnesses (40015) ELE C08 Circuit Devices (40013) ELE C09 Circuit Protection Devices (40014) ELE C10 Electrical Motors (40028) ELE C15 Battery System (40026) ELE C16 Starting System (40041) ELE C17 Charging System (40062)
Objectives	<p>Upon successful completion of this course, the technician will be able to demonstrate their ability to:</p> <ul style="list-style-type: none"> • Assemble electrical circuits on a training aid and measure electrical circuits using a DMM • Identify basic components and apply Ohm’s Law to solve unknown circuit values • Identify and service connectors • Diagnose basic circuit faults • Navigate and interpret schematics • Identify inputs and outputs and measure their signals • Explain pull-up voltage and its function in a circuit • Use service resources to correctly troubleshoot diagnostic codes and diagnose input/output faults • Use service resources to correctly diagnose battery, starter, and alternator faults



HYD110 – HYDRAULIC FUNDAMENTALS



Course Name	Hydraulics 1 – HYD110
Course Type	Instructor-Led
Instructor Name	Multiple
Course Length	4 Days
Participants (min. / max.)	4 / 8
Location	Salem, Richmond
Course Overview	80% Theory, 20% Practical Labs
Tooling Required	None
Description	This course is intended for service technicians that have a basic understanding of hydraulic systems, Cat® Service Information System (SIS Web), as well as a fundamental understanding of how to navigate Cat Electronic Technician (ET). This course will familiarize the participant with specific hydraulic troubleshooting and repair techniques to supplement information covered in the e-learning component of this training. Topics include diagnosing hydraulic concerns, demonstrating diagnostic procedures, and repair techniques. The hands-on component allows service technicians to practice and demonstrate lessons learned throughout the course, such as the inspection, service, and equipment required to perform hydraulic repairs.
Suggested E-Learning Courses <i>(may serve as pre-requisite learning for lesser experienced technicians)</i>	Caterpillar University (DPC) – Web Based Training HYD C01 Basic Hydraulic Systems HYD C02 Hydraulic Schematics HYD C03 Hydraulic Series and Parallel Circuits HYD C04 Fixed Displacement Hydraulic Circuits HYD C05.1 Hydraulic Conductor Components Part 1 HYD C05.2 Hydraulic Conductor Components Part 2 HYD C06 Hydraulic Pumps and Motors HYD C07 Hydraulic Pressure Control Valve HYD C08.1 Directional Control Valves Part 1 HYD C08.2 Directional Control Valves Part 2 HYD C09 Hydraulic Control Circuits HYD C10 Hydraulic Flow Control Valves HYD C11 Hydraulic Cylinders and Accumulators HYD C12 Load Sensing, Pressure Compensated Hydraulic Circuits HYD C13 Load Sensing, Pressure Cutoff Hydraulic Circuits HYD C14 Negative Flow Control Hydraulic Circuits HYD C15 Proportional Priority, Pressure Compensated Hydraulic Circuits HYD C16 Electro-Hydraulic System Circuits
Course Outline	Module 1 ISO Fluid Power Symbols, Schematics Fundamentals Module 2 Mobile Hydraulic Fundamentals Module 3 Mobile Fluid Power Components Module 4 Mobile Fluid Components, Valves Module 5 Hydraulic Fluid Conditioning, Conductors, and Connectors Module 6 Mobile Hydraulic Components, Pumps, and Motors
Objectives	<p>Upon successful completion of this course, the technician will be able to demonstrate their ability to:</p> <ul style="list-style-type: none"> Understand basic fixed displacement load-sensing circuits (Part A) and progress through variable Load Sensing Pressure Compensated (LSPC) circuits to advanced Proportional Priority Pressure Compensated (PPPC), Negative Flow (NFC), and Electrohydraulic (EH) control systems operation (Part B) Implement system pumps, pump controls, and directional control subsystems, components, and operation Identify Cat machine steering, braking, and hydraulic cooling fan subsystems



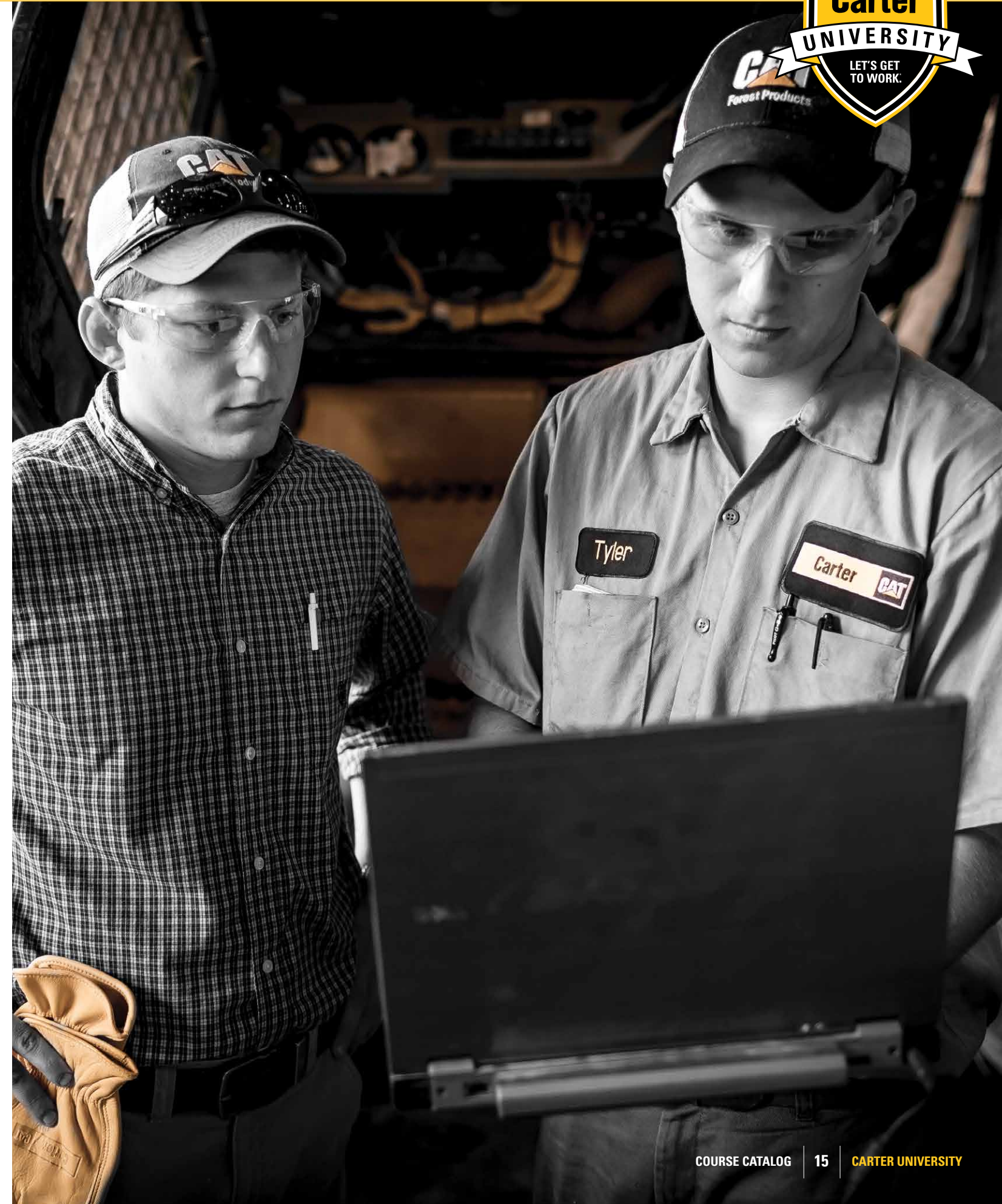
Course Name	SIS/ET Diagnostics (CAT Service Information System and Electronic Technician)
Course Type	Instructor Lead Training
Course Length	2 Days
Participants (min. / max.)	4 / 8
Course Overview	80% Theory, 20% Practical Labs
Pre-course work	None required
Suggested Pre-requisite	DPC – Web Based Training <ul style="list-style-type: none"> Caterpillar Electronic Technician Overview 40258 Cat Electronic Technician
Tooling Required	<ul style="list-style-type: none"> Computer with ET, SIS Web, An Internet connection All students need Caterpillar Corporate Web Security (CWS) login
Description	This instructor-led class is intended for Service Technicians who have a current subscription to Caterpillar Electronic Technician (ET) and Service Information System (SIS). The course will provide the necessary knowledge to be able to use the Caterpillar web information services and software tools (ET). The student will learn how to use each of these tools to find performance specifications, troubleshooting and repair procedures, and parts related information. They will also learn how to use ET to perform diagnostics and troubleshooting for Caterpillar engines/machines.
Course Outline	<ul style="list-style-type: none"> Introduction to SIS Web Lesson 1 - Main Menu Lesson 2 - Parts Search Lesson 3 (Access Methods – Product ID Required) Lesson 4 (Access Methods – Product ID Not Required) Introduction to Cat Electronic Technician (ET) Component based troubleshooting
Objectives	<p>Upon successful completion of this course, the technician will be able to demonstrate their ability to:</p> <ul style="list-style-type: none"> Use SIS Web to find parts, performance specs, and diagnostic/repair procedures. Use Component Based Troubleshooting to find testing and troubleshooting procedures based on diagnostic codes or symptoms. Use ET to diagnose/troubleshoot engine/machine problems and create datalogs. Identify which Caterpillar web based tool to use to find requested information.



TIER 4 FINAL PASSIVE SYSTEMS



Course Name	ESD310 - Tier 4 Final Passive Systems
Course Type	Instructor-Led
Course Length	2 Days
Participants (min. / max.)	4 / 8
Course Overview	60% Theory, 40% Practical Labs
Suggested Pre-requisites:	<p>Caterpillar University (DPC) – Web Based Training</p> <ul style="list-style-type: none"> • Tier 4 Final C1.5 and C2.2 Systems overview 40805 • Tier 4 Final C4.4 and C7.1 Engine overview 42255 • Tier 4 Final C7.1 to C18 Engine Systems Overview 40223 • Tier 4 Final Operator Interface Warnings and Inducements 40917 • Tier 4 Final Overview – Communications and Resources 53786 • Tier 4 Final Overview – General Overview 41493 • Tier 4 Final Overview – Operator Interface 41495 • Tier 4 Final Technology Overview 41494
Description	This training provides a customer-focused overview of Tier 4 emissions Caterpillar engine products and the basic technical learning requisite to properly operate, maintain and service Tier 4 emissions-related systems. A fundamental technical overview of each emissions reduction/control system is provided. Ample opportunity for questions and discussion is provided and encouraged.
Course Outline	<p>A. Tier 4 Interim Machine Engines</p> <p>B. Interim Emissions Maintenance</p> <p>C. LAB - Component ID & Systems Walkthrough</p> <ol style="list-style-type: none"> 1. Emissions Component ID Exercise 2. EGR, Aftertreatment and Fuel System Flow Paths 3. ET Service Software Walkthrough <p>D. Tier 4 Final Machine Engines with SCR</p> <p>E. LAB - DEF Quality, Delayed Engine Shutdown & Wait-to-Disconnect</p> <ol style="list-style-type: none"> 1. DEF Quality Exercise, Tools & Safe Handling 2. Avoiding Damage from Hot Aftertreatment Shutdown 3. Avoiding Problems from Interrupted DEF Purge Sequence
Objectives	<p>Upon completion of this training, the Learner will be able to:</p> <ul style="list-style-type: none"> • Describe Tier 4 diesel engine emission regulations, emission limits and treatment technologies • Identify emission related acronyms and generally define these terms • Identify emission and aftertreatment components on-engine during lab activities • Explain basic emission systems operation for each technology • Follow and understand programmed maintenance intervals and tasks found in the Operation & Maintenance Manuals (OMM) for Tier 4 engines • Describe the operation of Tier 4 Final Selective Catalytic Reduction (SCR) systems and identify the components in the system • Recognize SCR "Operator Inducement" warnings and take the appropriate response to this set of operating conditions when they occur • Explain Diesel Exhaust Fluid (DEF) safety, storage and handling requirements and perform the Caterpillar DEF Quality Test when needed • Explain the requirements for proper Hot Aftertreatment Safe Shutdown and DEF Purge Sequence to avoid potential engine or aftertreatment damage or reduced life
Tooling Recommended (Not Required)	<ul style="list-style-type: none"> • PC with Caterpillar Customer Electronic Technician (ET) installed and licensed • Ability to connect PC to the Internet and SISWeb (CMCo Guest Connection) • Students will benefit from having a Caterpillar Corporate Web Security (CWS) login with which to connect and practice utilizing these tools.





PAYMENT

- A purchase order or credit card is required at the time of enrollment. The cost will be invoiced at the end of the class.
- Cancellations within 30 days of the class will be invoiced at full price. Substitutions are allowed up to 24-hours before the start of class.
- Travel arrangements are the responsibility of the attendee. The cost per class DOES NOT include any travel or hotel expenses.

PRICING

- **Annual Subscription to Carter University Online** (per user/per year) – \$325
- **Cost for 2-day class** – \$ 595/person
- **Cost for 3-day class** – \$ 895/person
- **Cost for 4-day class** – \$1,295/person

** Class length subject to change*

PARTICIPATION

- Steel toe shoes, safety glasses, and mechanic gloves are required to attend all classes.
- Attendees must comply with all Carter safety policies while on site.
- Tests and exams are incorporated into some classes. In order to receive a certificate of completion, participants must receive a minimum average score of 80% on assessments - NO EXCEPTIONS.
- Snacks, drinks, and lunches are provided for registered course participants.

CONTACT INFORMATION

DPC Subscription and Class Enrollment

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