

DEALER SERVICE TECHNOLOGY

Rock Creek Campus
Building 2, Room 230
971-722-7465

www.pcc.edu/thinkbig

CAREER AND PROGRAM DESCRIPTION

This program is a partnership between Portland Community College, Caterpillar Corp and the five Northwest Caterpillar dealerships. It is an industry specific two-year associate degree program with required on-the-job training/internships at a sponsoring Caterpillar dealership. It is designed to prepare individuals to become qualified Caterpillar service technicians. Students learn how to work on many types of Caterpillar equipment including agricultural, construction, forestry and earthmoving equipment. The Dealer Service Technology Program combines technical and academic education with real world experience through paid on the job training. Students learn about engine fundamentals, machine hydraulics, fuel systems, electrical systems, transmissions, torque converters, undercarriage, final drives and more. During the four paid internships students have the opportunity to experience a future career firsthand through on-the-job training. Upon completion of the program students will earn an Associate of Applied Science Degree from Portland Community College.

DEGREES AND CERTIFICATES OFFERED

Associate of Applied Science Degree

Dealer Service Technology

PREREQUISITES AND REQUIREMENTS

Applicants must take the placement test administered through the testing center at PCC, or a center provided by their CAT dealer contact person. Prospective students must sign a release of information form to allow their CAT dealership access to their educational records and PCC the ability to share information with the dealership. To begin the program students must secure a paid CAT dealership internship (required to stay in program). Final selection for this program is based on the capacity of each CAT dealership's allotted seats in the program and actual hire as a CAT intern by a sponsoring CAT dealership. This is a two year, nine term program (24 months). Students must meet General Education and Comprehensive Degree requirements. Required minimum program entrance level requirements: Placement into WR 115 or higher, placement into RD 115 or higher and placement into MTH 60 or higher.

Application and Acceptance Process: All prospective students must apply to PCC and their prospective sponsoring CAT dealership. For details on final program acceptance and other information contact 971-722-7465.

DEALER SERVICE TECHNOLOGY AAS DEGREE

Minimum 101 credits. Students must also meet Associate Degree Comprehensive Requirements and Associate of Applied Science Requirements. Students must complete a total of sixteen credits of General Education. Students should consult with program advisors for course planning.

Dealer Service Technology Degree Credit Summary

DST	78
General Education	16
WR	4
WLD	3

Credit Total 101

COURSE OF STUDY

The coursework listed below is required. The following is an example of a term-by-term breakdown.

First Term

DST	110	Caterpillar Engine Fundamentals	8
DST	111	Introduction to Caterpillar Service Industry	3
WLD	217	Diesel Welding	3

Second term

DST	150	Caterpillar Service Technology Internship (Part I)	6
General Education			4

Third Term

DST	112	Fundamentals of Hydraulics	4
DST	113	Caterpillar Engine Fuel Systems	4
DST	114	Fundamentals of Electrical Systems	4

Fourth Term (1st Module)

DST	150	Caterpillar Service Technology Internship (Part II)	6
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Fourth Term (2nd Module)

DST	115	Air Conditioning	3
DST	116	Fundamentals of Transmissions and Torque Converters	4
DST	117	Caterpillar Machine Hydraulic Systems	4
General Education			4

Fifth Term

DST	150	Caterpillar Service Technology Internship (Part III)	6
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Sixth Term

DST	200	Undercarriage and Final Drive	4
DST	201	Machine Electronic Systems	4
General Education			8

Seventh Term

DST	150	Caterpillar Service Technology Internship (Part IV)	6
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Eighth Term

DST	202	Caterpillar Engine Performance	3
DST	203	Caterpillar Machine Diagnostic	3
DST	204	Machine Specific Systems	6
WR	121	English Composition	4

COURSE DESCRIPTIONS

DST 110 Caterpillar Engine Fundamentals 8.00 This course introduces the student to Caterpillar basic diesel engine theory and service procedures. The principles of compression ignited internal combustion engines are taught and variations in design are discussed. Caterpillar engines are used for lab disassembly and assembly. Prerequisites: Provide a dealer letter indicating secured internship at a participating Caterpillar Dealership. Audit available.

DST 111 Introduction to Caterpillar Service Industry 3.00 This course introduces the student to the Caterpillar Organization and provides instruction and lab experience in shop safety, shop operation, service tools, and how to obtain Caterpillar Service Information. (SIS) Prerequisites: Provide a dealer letter indicating secured internship at a participating Caterpillar Dealership. Audit available.

DST 112 Caterpillar Hydraulic Fundamentals 4.00 This course is designed to teach the basic hydraulic fundamentals used in Caterpillar products, to identify and state the function of the various valves used in Caterpillar hydraulic systems, to identify and state the function of vane pumps, gear pumps and piston pumps, to disassemble and assemble hydraulic components, to identify and state the function of ISO hydraulic symbols and to trace the oil flow and state the operation of various hydraulic systems. Prerequisite: Provide a dealer letter indicating secured internship at a participating Caterpillar Dealership. DST 110 and DST 111. Audit available.

DST 113 Caterpillar Engine Fuel Systems 4.00 This course introduces the student to the various fuel systems used on Caterpillar engines. The student will become familiar with fuel selection, calibrations, nozzle testing procedures, governor operation, and hydraulic fuel ratio controls. The student will also become familiar with the 1.1 and 1.2 Mechanical Unit Injection (MUI) and Hydraulic Electronic Unit Injection (HEUI) fuel systems, the Electronic Unit Injection (EUI), Nippondenso, and Zexel fuel systems. Prerequisite: Provide a dealer letter indicating secured internship at a participating Caterpillar Dealership. DST 110 and DST 111. Audit available.

DST 114 Fundamentals of Electrical Systems 4.00 This course introduces the student to basic electrical and electronic fundamentals needed by a technician to properly diagnose and repair the complex electrical installed in Caterpillar machines. Prerequisite: Provide a dealer letter indicating secured internship at a participating Caterpillar Dealership. DST 110 and DST 111. Audit available.

DST 115 Air Conditioning 3.00 This course is designed to prepare the servicemen to understand the principles of air conditioning, to identify air conditioning components, to state the component functions, and to service Caterpillar air conditioning systems. This course prepares the student to confidently work on mobile air conditioning systems in an industrial environment. Prerequisite: Provide a dealer letter indicating secured internship at a participating Caterpillar Dealership. DST 114. Audit available.

DST 116 Fundamentals of Transmission and Torque Converters 4.00 This course will discuss the basic components and operation of power train systems used in Caterpillar machines. Included will be basic components, clutches, torque converters, manual shift transmissions, and component functions are explained as they relate to the operation of various power train systems. Prerequisite: Provide a dealer letter indicating secured internship at a participating Caterpillar Dealership. DST 112 and DST 114. Audit available.

DST 117 Caterpillar Machine Hydraulic Systems 4.00 This course is designed to teach the system operations and the testing and adjusting procedures for the pilot operated hydraulic system, the load sensing, pressure compensated (LSPC) hydraulic system used in Caterpillar machines. Prerequisite: Provide a dealer letter indicating secured internship at a participating Caterpillar Dealership. DST 112 and DST 114. Audit available.

DST 150 Caterpillar Service Technology Internship 6.00 Students will work 26.5 hours per week for 8 weeks at an approved Caterpillar dealership. They will be performing service related tasks defined by the instructor, the students mentor and the students' direct supervisor. Although the students will be working in a live shop environment, the tasks assigned will primarily be related to the previous course studied. Prerequisite: Provide a dealer letter indicating secured internship at a participating Caterpillar Dealership. Students must have completed the sequence courses with a minimum C grade, prior to internship. See advisor for proper courses. Audit available.

DST 200 Undercarriage and Final Drive 4.00 This course will discuss methods for transferring power through the mechanical power train and cover differential, brakes, final drives, and under carriage. The content of this course should be treated as general information for power train components in all Caterpillar machines. Prerequisite: Provide a dealer letter indicating secured internship at a participating Caterpillar Dealership. DST 116. Audit available.

DST 201 Machine Electronic Systems 4.00 This course introduces the student to Caterpillar machine electronic systems and diagnostic tooling needed by a technician to properly diagnose and repair the complex electrical/electronic systems installed in Caterpillar machines. Prerequisite: Provide a dealer letter indicating secured internship at a participating Caterpillar Dealership. DST 117. Audit available.

DST 202 Caterpillar Engine Performance 3.00 This course is an in-depth study of engine diagnostics and repair techniques. Much of the class time is spent with on-iron activities, diagnosing and correcting engine problems. Participants learn basic diagnosis and troubleshooting procedures, use of Caterpillar diagnostic tools, an use of Caterpillar reference material. The four major engine systems studied are oil, air, cooling, and fuel. Prerequisite: Provide a dealer letter indicating secured internship at a participating Caterpillar Dealership. DST 110 and DST 113. Audit available.

DST 203 Caterpillar Machine Diagnostic 3.00 This course introduces the student to machine problem identification using diagnostic tooling and reference material to properly diagnose and repair the complex systems installed on Caterpillar machines. The course will concentrate on repair logic and applications, using a troubleshooting and diagnosis process, to solve machine faults in the power train, hydraulic system, and electrical system. The remainder of the course will focus on solving actual machine malfunctions, utilizing all diagnostic principles, tooling, and electronic troubleshooting applications. Prerequisite: Provide a dealer letter indicating secured internship at a participating Caterpillar Dealership. DST 201 and DST 117. Audit available.

DST 204 Machine Specific Systems 6.00 This course introduces the student to Caterpillar machine specific systems. The materials presented in this course are intended to give the student a general knowledge of Caterpillar machine specific systems used in today's products. Prerequisite: Provide a dealer letter indicating secured internship at a participating Caterpillar Dealership. DST 201 and DST 117. Audit available.