



Diesel Mechanics

Program Information

The Diesel Mechanics Program at Trenholm State Community College is designed to teach a student the basic principles required in the repair and maintenance of components in the trucking, equipment, and farm related industries. The student will gain hands-on experience repairing, troubleshooting, and rebuilding various components in these areas.

Occupational Choices

Employment of diesel service technicians and mechanics is projected to grow 9 percent from 2016 to 2026, about as fast as the average for all occupations. As more freight is shipped across the country, additional diesel-powered trucks will be needed to carry freight wherever trains and pipelines are not available or economical. In addition, diesel cars and light trucks are becoming more popular, and more diesel technicians will be needed to maintain and repair these vehicles. Workers who have completed postsecondary education should have the best job opportunities, followed by graduates of accredited high school automotive programs.

Source: Bureau of Labor and Statistics Occupational Outlook Handbook, 2016-2026 Edition, 2018 Survey

Average Full-Time Wage

The median annual wage for diesel service technicians and mechanics was \$46,360 in May 2017. The median wage is the wage at which half the workers in an occupation earned more than that amount and half earned less. The lowest 10 percent earned less than \$30,400, and the highest 10 percent earned more than \$69,870.

Source: Bureau of Labor and Statistics Occupational Outlook Handbook, 2016-2026 Edition, 2018 Survey

Awards Available

Certificate
Diesel Mechanics

Short Term Certificate
Diesel Mechanics
Drive Train Concentration
Electrical/Electronics Concentration
Engine Rebuild Concentration

Program Contact

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Program Coordinator/Instructor
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Location: Patterson Site - Bldg. L

As part of ongoing planning and evaluation, the College regularly evaluates student learning outcomes for each program.

Estimated Program Length & Cost *

Award	Length	Credit Hours	Tuition Fees	Books	Tools	Supplies
Certificate	3 Terms	43	\$6,665	\$156	\$600	\$0
Short Term Certificate	1 Term	13	\$2,015	\$156	\$600	\$0

Estimated cost of books (CDX Online Annual Subscription) for total program will be \$156.

* Tax not included. Prices are subject to change without prior notice; cost of books may vary considerably among suppliers. Cost of general education books is in addition to the total listed above. The length of the program is based on full-time status of 12-15 credit hours per term. Enrollment in transitional level general education courses will alter the length of the program.

Certificate Diesel Mechanics

General Education Requirements (6 hours)

Area I - Written Composition (3 hours)

ENG-100	Vocational Technical English I *	3
ENG-101	English Composition I	3
ENG-102	English Composition II	3
ENG-130	Technical Report Writing	3

Area II - Humanities & Fine Arts (0 hours)

(Humanities and Arts disciplines include but are not limited to: Area/Ethnic Studies, Art and Art History, Foreign Languages, Music and Music History, Philosophy, Ethics, Religious Studies, Theater and Dance.)

Note: If SPH-103, SPH-106, SPH-107, SPA-101 or SPA-102 has been taken an additional 3 semester hours in Humanities and Fine Arts must be taken to satisfy requirements in Area II.

Arts:

ART-100	Art Appreciation	3
MUS-101	Music Appreciation	3

Humanities:

PHL-106	Intro to Philosophy	3
PHL-200	Ethics in the Workplace	3
PHL-206	Ethics & Society	3
PHL-210	Ethics and the Health Sciences	3
REL-100	History of World Religions	3
REL-151	Survey of Old Testament	3
REL-152	Survey of New Testament	3
SPA-101	Intro Spanish I	3
SPA-102	Intro Spanish II	3
SPH-103	Oral Communication Skills	3
SPH-106	Fundamentals of Oral Comm	3
SPH-107	Fundamentals of Public Speaking	3

Literature:

ENG-251	American Literature I	3
ENG-252	American Literature II	3
ENG-261	English Literature I	3
ENG-262	English Literature II	3
ENG-271	World Literature I	3
ENG-272	World Literature II	3

Area III - Natural Science & Mathematics (3 hours)

(In addition to Mathematics, disciplines in the Natural Sciences include: Astronomy, Biological Sciences, Chemistry, Geology, Physical Geography, Earth Science, Physics, and Physical Science.)

Note: 3 semester hours in MTH must be completed.

Mathematics:

MAH-101	Introductory Mathematics I *	3
MTH-100	Intermediate Algebra	3
MTH-103	Intro to Technical Mathematics	3
MTH-104	Plane Trigonometry	3
MTH-110	Finite Mathematics	3
MTH-112	Precalculus Algebra	3
MTH-116	Mathematical Applications	3

Natural Sciences:

BIO-101	Introduction to Biology I	4
BIO-102	Introduction to Biology II	4
BIO-103	Principles of Biology I	4
BIO-104	Principles of Biology II	4
BIO-201	Human Anatomy & Physiology I	4
BIO-202	Human Anatomy & Physiology II	4

PHS-111	Physical Science I	4
PHS-112	Physical Science II	4
PHY-120	Introduction to Physics	4

Area IV - History, Social & Behavioral Sciences (0 hours):

(Social and Behavioral Sciences include, but are not limited to: Anthropology, Economics, Geography, Political Science, Psychology, and Sociology.)

History:

HIS-101	Western Civilization I	3
HIS-102	Western Civilization II	3
HIS-121	World History I	3
HIS-122	World History II	3
HIS-201	United States History I	3
HIS-202	United States History II	3

Social and Behavioral Sciences:

PSY-200	General Psychology	3
PSY-210	Human Growth and Development	3
SOC-200	Introduction to Sociology	3
POL-200	Introduction to Political Science	3
POL-211	American National Government	3

* These courses are required for students without a high school diploma or GED.

Area V: Pre-Professional/College Requirements:
(Courses appropriate to the degree requirements and major of the individual student and electives.)

College Requirements:

ORI-101	Orientation to College	1
DEM-119	Bearings and Lubricants	3
DEM-122	Heavy Vehicle Brakes	3
DEM-123	Pneumatics and Hydraulics	3
DEM-125	Heavy Vehicle Drive Trains	3
DEM-128	Power Train Lab	3
DEM-129	Diesel Engine Lab	3
DEM-130	Electrical / Electronic Fundamentals	3
DEM-145	Electrical Schematics and Symbols	3
DEM-146	Engine Fundamentals	3
DEM-147	Fuel and Ignition Systems	3
DEM-181	Special Topics in Electrical	3
DEM-191	Special Projects	3

Electives:

CIS-103	Introductory Computer Skills	3
CIS-146	Microcomputer Applications	3
CIS-149	Introduction to Computers	3

Area V Credit Hours: 37

Total Credit Hours: 43

**Short Term Certificate
Diesel Mechanics
Drive Train Concentration**

Area V: Pre-Professional/College Requirements:
(Courses appropriate to the degree requirements and major of the individual student and electives.)

College Requirements:

ORI-101	Orientation to College	1
DEM-122	Heavy Vehicle Brakes	3
DEM-123	Pneumatics and Hydraulics	3
DEM-125	Heavy Vehicle Drive Trains	3
DEM-128	Power Train Lab	3

Total Credit Hours: 13

**Short Term Certificate
Diesel Mechanics
Engine Rebuild Concentration**

Area V: Pre-Professional/College Requirements:
(Courses appropriate to the degree requirements and major of the individual student and electives.)

College Requirements:

ORI-101	Orientation to College	1
DEM-119	Bearings and Lubricants	3
DEM-129	Diesel Engine Lab	3
DEM-146	Engine Fundamentals	3
DEM-147	Fuel and Ignition Systems	3

Total Credit Hours: 13

**Short Term Certificate
Diesel Mechanics
Electrical/Electronics Concentration**

Area V: Pre-Professional/College Requirements:
(Courses appropriate to the degree requirements and major of the individual student and electives.)

College Requirements:

ORI-101	Orientation to College	1
DEM-130	Electrical / Electronic Fundamentals	3
DEM-145	Electrical Schematics and Symbols	3
DEM-181	Special Topics in Electrical	3
DEM-191	Special Projects in Diesel Mechanics	3

Total Credit Hours: 13

Course Descriptions Diesel Mechanics

Course #	Course Title	Credit Hours
DEM-119	BEARINGS AND LUBRICANTS PREREQUISITE: None This course focuses on roller, ball and shell bearing design and application. Topics include vehicle and industrial bearings and lubrication requirements. Upon course completion, students should diagnose related problems and service and replace bearings.	3
DEM-122	HEAVY VEHICLE BRAKES COREQUISITE: DEM-125 This course covers the theory and repair of braking systems used in medium and heavy duty vehicles. Topics include hydraulic and ABS system diagnosis and repair. Upon completion, students should be able to troubleshoot, adjust, and repair braking systems on medium and heavy duty vehicles. This is a CORE course.	3
DEM-123	PNEUMATICS AND HYDRAULICS PREREQUISITE: None This course provides instruction in the identification and repair of components found in hydraulic systems. Topics include schematics circuits and symbols used in fluid power transmission and the troubleshooting of components in these systems. Upon completion, students should be able to diagnose, adjust, and repair hydraulic system components.	3
DEM-125	HEAVY VEHICLE DRIVE TRAINS PREREQUISITE: None This course introduces the operating principles of mechanical medium and heavy duty vehicle transmissions. Topics include multiple counter shafts, power take-offs, slider idler clutches, friction clutches, mechanical transmission power components, and hydraulics. Upon completion, students should be able to diagnose, inspect, and repair mechanical transmissions. This is a CORE course.	3
DEM-128	HEAVY VEHICLE DRIVE TRAIN LAB COREQUISITE: DEM-125 PREREQUISITE: None This lab provides reinforcement of material covered in DEM 125. The students will apply the knowledge they learned on driveshafts, power take-offs, standard transmissions, fluid drives, torque converters, clutch assemblies, drive axles, and special drives through experiential learning techniques. Upon completion, students should be able to diagnose, inspect, remove, repair or replace, and install heavy vehicle drive train components.	3
DEM-129	DIESEL ENGINE LAB PREREQUISITE: None This lab allows the student to refine the skills required to repair diesel engines.	3
DEM-130	ELECTRICAL / ELECTRONIC FUNDAMENTALS PREREQUISITE: None This course introduces the student to basic Electrical / Electronic concepts and fundamentals. It provides the principles of electricity, magnetism, and Ohm's Law. Emphasis is placed on batteries, starting, charging, and lighting circuits, which include series, parallel, and series-parallel circuits. Troubleshooting and repair of wiring harnesses, starting motors, charging systems, and accessories are included along with the computerized monitoring of vehicle systems. Upon completion, students should be able to identify components, test systems, and repair minor electrical problems according to manufacturer's literature. This is a CORE course.	3
DEM-145	ELECTRICAL SCHEMATICS AND SYMBOLS PREREQUISITE: None This course introduces the student to electrical symbols and schematics. It prepares the student to utilize wiring diagrams and schematics to troubleshoot electrical problems. Upon completion students should be able to understand electrical circuits by reading wiring diagrams.	3
DEM-146	ENGINE FUNDAMENTALS PREREQUISITE: None This course introduces students to procedures and components of spark ignition engines.	3

DEM-147 FUEL AND IGNITION SYSTEMS 3

PREREQUISITE: None

This course introduces the student to the operating principles and concepts related to fuel and ignition systems.

DEM-181 SPECIAL TOPICS IN ELECTRICAL 3

PREREQUISITE: None

This course provides specialized instruction in various areas related to the electrical systems of the diesel mechanics industry. Emphasis is placed on meeting students' needs.

DEM-191 SPECIAL PROJECTS IN DIESEL MECHANICS 3

PREREQUISITE: None

This course provides information on current trends in diesel mechanics as they relate to employment responsibilities. Topics may vary by term to reflect relevant training needs by the industry.