

DIESEL MECHANICS (DMECH)

Prepare for a well-paying career in Diesel and Truck Mechanics!

Journey-level diesel and truck mechanics are highly respected technical experts in their field. They work independently to solve problems using professional judgment, and take responsibility for the safe operation of the equipment that they repair and maintain.

Diesel and truck mechanics also specialize in a particular field. Areas of specialization include trucks, buses, boats, ships, locomotives, construction machines, and all classifications of support equipment. On the job, diesel and truck mechanics perform a range of duties including the following:

- Diagnosing problems in mechanical, electrical, and electronic systems that require the use of sophisticated computers and other diagnostic test equipment.
- Troubleshooting electronic controls that govern engine performance and horsepower. Transmissions and brake systems are increasingly controlled by electronic systems that interface with engine function.
- Troubleshooting steering, hydraulic, and pneumatic systems as well as brakes, axles, differentials, electric motors, and compressors.

Technical and Professional Skills Developed in the Program (Program Learning Outcomes)

- Apply safe work habits and practices.
- Troubleshoot and perform repairs in mechanical, electrical, and electronic systems.
- Use computers to diagnose equipment and research information.
- Perform preventative maintenance such as engine tune-ups, front-end alignments, and brake adjustments.
- Operate shop machinery and equipment including hoists, overhead cranes, forklifts, hydraulic jacks, steam cleaners, floor jacks, disassembly stands, grinders, drill presses, hydraulic presses, and bead blasters.
- Select and use precision tools such as torque wrenches, micrometers, dial indicators, tap and dies, and bore gauges.
- Maintain professional attitude in challenging working conditions.
- Develop self-confidence and pride in workmanship.
- Think analytically and make professional decisions.

Skills, Background, and Personal Qualities Helpful for Success in the Program

- Proficiency in basic math, reading, communication and personal computers.
- Completion of high school courses in auto, metal, machine shop, and science.
- Mechanical aptitude and ability.
- Self-discipline to learn to carry out precision work to industry standards.
- Good physical condition and coordination.
- Commitment to lifelong learning to keep pace with new technology.
- Experience with equipment and tools.

The Diesel Mechanics program in heavy duty truck and diesel mechanics prepares students to enter the job market as beginning mechanics or apprentices in this field, and allows students to continue their education toward the Baccalaureate degree in advanced schools of technology or as teachers in this field of specialization, or to broaden their skills in areas of management. Instruction includes the use of hand and power tools, elementary through advanced principles of diesel engines theory and operation; maintenance and repair of automotive and marine-type diesel engines and auxiliary equipment; and use of testing equipment.

Upon registering for a class in Diesel Mechanics, the student will receive a list of required basic tools. **In addition, the student will be expected to provide tools that relate to the particular course in which he/she has enrolled.** The purpose of this requirement is to assure that students graduating from the program possess tools in sufficient quantity to enter the trade adequately prepared.

A **Certificate of Achievement in Diesel Mechanics** will be awarded upon satisfactory completion of the major course requirements listed below.

The **AS degree** will be awarded upon completion of the major course requirements listed below and the General Education requirements for the Associate in Science Degree listed in the Degrees and Programs section of this Catalog.

Degree Major/Certificate Requirements:

Dept/No.	Title	Units
FIRST SEMESTER		
DMECH 11	Truck Mechanics Chassis Systems I	6
DMECH 20A	Truck Mechanics I	<u>4</u>
	Semester Total	10
SECOND SEMESTER		
DMECH 12	Truck Mechanics Chassis Systems II	6
DMECH 20B	Truck Mechanics II	4
AUTOB 12	Service Welding for Transportation Technology	<u>2</u>
	Semester Total	12
THIRD SEMESTER		
DMECH 14	Diesel Engines I	4
DMECH 21A	Diesel Engines Lecture/Laboratory	6
ATECH 23	Automotive Air Conditioning	<u>4</u>
	Semester Total	14
FOURTH SEMESTER		
DMECH 15	Diesel Engines II	4
DMECH 21B	Diesel Engines Lecture/Laboratory	<u>6</u>
	Semester Total	10
	Total Required Units:	46

Recommended:

Students may wish to take additional courses from the following, in consultation with a counselor:

- Dmech 20C, Truck Mechanics III (4)
- Dmech 20D, Truck Mechanics IV (4)
- Dmech 21C, Diesel Engines Lecture/Laboratory (6)
- Dmech 21D, Diesel Engines Lecture/Laboratory (6)

DMECH 11

Heavy-Duty Truck Chassis, Transmission, and Drive Axles

6 units, 6 hours lecture (GR)

Acceptable for credit: CSU

Operation, service, maintenance, and problem solving of heavy-duty truck chassis systems: Clutches, transmission, rear axles, and front-end alignment; uses Internet- and factory-based computerized research materials. 0947.00

DMECH 12

Heavy-Duty Truck's Electrical System and Brake System

6 units, 6 hours lecture (GR)

Acceptable for credit: CSU

Operation, service, and maintenance of heavy-duty truck brake and electrical systems: Emphasis on critical thinking and problem solving of the air brake and electrical systems, including computer diagnostics and computer on-board networking programs. 0947.00

DMECH 14

Diesel Engines I

4 units, 4 hours lecture (GR)

Acceptable for credit: CSU

Theory and operation of truck diesel engines and related sub-systems: Newest available technology on the commercial market. 0947.00

DMECH 15

Diesel Engines II

4 units, 4 hours lecture (GR)

Acceptable for credit: CSU

Advanced theory and operation of truck diesel engines and related sub-systems: Newest available technology on the commercial market. 0947.00

DMECH 20A

Truck Mechanics I

4 units, 12 hours laboratory (GR)

Corequisite: Dmech 11

Acceptable for credit: CSU

Hands-on experience in diagnosing, servicing, and maintaining heavy-duty truck chassis systems: Clutches, transmission, rear axles, and front-end alignment; uses Internet- and factory-based computerized support programs. 0947.00

DMECH 20B**Truck Mechanics II**

4 units, 12 hours laboratory (GR)

Corequisite: Dmech 12

Acceptable for credit: CSU

Hands-on experience in diagnosing, servicing, and maintaining heavy-duty truck brake and electrical systems: Emphasizes on problem solving and troubleshooting of heavy-duty brake and electrical systems. 0947.00

DMECH 20C**Truck Mechanics III**

4 units, 12 hours laboratory (GR)

Prerequisite: Dmech 20A and 20B

Acceptable for credit: CSU

Advanced practical application of scientific principles of truck mechanics in servicing and repairing the powertrain: Transmission, clutches, hydraulic and rear-axle systems and other components of the chassis. 0947.00

DMECH 20D**Truck Mechanics IV**

4 units, 12 hours laboratory (GR)

Prerequisite: Dmech 20C

Acceptable for credit: CSU

Advanced practical application of scientific principles of truck mechanics in servicing and repairing truck air brake and electrical systems: Air valves, pots, electrical system, starter lighting, computer engine controls and programming. 0947.00

DMECH 20E**Truck Mechanics V**

4 units, 12 hours laboratory (GR)

Prerequisite: Dmech 11 and 20A and 20C

Recommend Preparation: CIS 205 or equivalent, courses in vocational teaching or physical fitness program: heavy-duty mechanic's job duties often required the lifting of objects and tools that weigh over 100 lbs.

Acceptable for credit: CSU

Students work independently in this advanced lab to develop demonstrations and lesson plans in advanced practical application of scientific principles of truck mechanics in servicing and repairing the powertrain: Transmissions, clutches, hydraulic, rear-axle systems and other components of the chassis
. 0947.00

DMECH 20F**Truck Mechanics VI**

4 units, 12 hours laboratory (GR)

Prerequisite: Dmech 11 and 20B and 20D

Recommend Preparation: CIS 205 or equivalent, courses in vocational teaching or physical fitness program: heavy-duty mechanic's job duties often required the lifting of objects and tools that weigh over 100 lbs.

Acceptable for credit: CSU

Students work independently in this advanced lab to develop demonstrations and lesson plans for advanced practical application of scientific principles of truck mechanics in servicing and repairing truck air brake and electrical system: Air valves, pots, electrical systems, starter lighting, computer engine controls and programming. 0947.00

DMECH 21A**Diesel Engine Lecture/Laboratory**

6 units, 2 hours lecture, 12 hours laboratory (GR)

Corequisite: Dmech 14

Acceptable for credit: CSU

Theory, operation, and practical application of truck diesel engines and related sub-systems: Engine oil and filters, fuel system, air-induction system, cooling system, fan belts, engine tune-up, water pump, fuel injectors, fuel pump, and other related components. 0947.00

DMECH 21B**Diesel Engine Lecture/Laboratory**

6 units, 2 hours lecture, 12 hours laboratory (GR)

Corequisite: Dmech 15

Acceptable for credit: CSU

Theory, operation, and practical application of truck diesel engines and related sub-systems: Cylinder head, pistons and liners, main bearings, turbo/blower, Cummins accessory drive, cam timing, and other related components; engine troubleshooting. 0947.00

DMECH 21C**Diesel Engine Lecture/Laboratory**

6 units, 2 hours lecture, 12 hours laboratory (GR)

Prerequisite: Dmech 21A and 21B

Acceptable for credit: CSU

Advanced theory, operation, and practical application of truck diesel engines and related sub-systems: Engine oil and filters, fuel system, air-induction system, cooling system, fan belts, engine tune-up, water pump, fuel injectors, fuel pump, and other related components. 0947.00

DMECH 21D**Diesel Engine Lecture/Laboratory**

6 units, 2 hours lecture, 12 hours laboratory (GR)

Prerequisite: Dmech 21C

Acceptable for credit: CSU

Advanced theory, operation, and practical application of truck diesel engines and related sub-systems: Replacement and removal of cylinder heads, pistons and liners, main bearings, turbo/blower, Cummins accessory drive, cam timing, and other related components; advanced engine troubleshooting. 0947.00

DMECH 48AA-FZ**Selected Topics in Diesel Mechanics**

.5-9 units, 0-9 hours lecture, 0-27 hours laboratory (GR or P/NP)

Acceptable for credit: CSU

See section on Selected Topics. 0947.00

DMECH 49**Independent Study in Diesel Mechanics**

.5-5 units, .5-5 hours lecture (GR)

Acceptable for credit: CSU

See section on Independent Study. 0947.00

DMECH 202**Forklift Operation and Certification**

1 units, 1 hours lecture, 3 hours laboratory (GR or P/NP)

Training in forklift operations typically used in the warehousing and distribution industries. Training covers operation, inspection, basic maintenance and safety. 0947.00

DMECH 248AA-FZ**Selected Topics in Diesel Mechanics**

.5-9 units, 0-9 hours lecture, 0-27 hours laboratory (GR or P/NP)

See section on Selected Topics. 0947.00

