

DIESEL MECHANICS (DMECH)

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

Journeyman-level diesel and truck mechanics are well sought after, highly respected, technical experts. Mechanics work independently, repairing and maintaining vehicles and equipment using professional judgment, advanced electronic diagnostic equipment, and computer resources.

The DMECH program prepares students to enter the job market as beginning mechanics or apprentices in this field, and allows students to earn a certificate and their A.S. degree. Opportunities exist in industry to broaden your skills and education in areas of management and advanced technology. Instruction progresses through principles of engines, drive trains, and chassis theory, operation, maintenance and repairs.

DMECH 11 Heavy-Duty Truck Chassis, Transmission, and Drive Axles

6 units, 6 hours lecture (GR)

Also offered as Appr 451. Not open for credit to students who have completed or are currently enrolled in Appr 451.

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)

Also offered as Appr 452. Not open for credit to students who have completed or are currently enrolled in Appr 452.

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)

Also offered as Appr 453. Not open for credit to students who have completed or are currently enrolled in Appr 453.

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

Also offered as Appr 454. Not open for credit to students who have completed or are currently enrolled in Appr 454.

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



DIESEL MECHANICS

ASSOCIATE OF SCIENCE *or* CERTIFICATE OF ACHIEVEMENT

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.

Career Opportunities

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.

Helpful Qualities for Success in the Program

- Proficiency in basic math, reading, communication and personal computers.
- Experience in High School auto shop.
- Self-discipline, Mechanical aptitude, and ability.
- Good physical condition and coordination.
- Commitment to continuing education in advancing technologies.

Registered students will receive a list of required basic tools for classes to prepare them to enter the trade, adequately prepared upon graduating.

Program Learning Outcomes

Upon completion of this program a student will be able to:

- 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 and inspections including engine tune-ups, front-end alignments, and brake service.
- 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.

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)