Diesel Mechanics (DMT)

DMT 1000
Related Oxyacetylene and Arc Welding
3

Specialty course designed for diesel mechanics, other trade areas, and interested community members. For beginning students. Covers theory and practice of oxyacetylene and arc welding of mild steel. Includes identification of basic and filler metals and melting temperatures of various metals. Emphasis is placed on root penetration and fusion of welded materials. Completers should be able to weld in their professional area. Tool room fee of $19 for equipment applies.

DMT 1005
Basic Shop and Safety Skills
2

Covers the selection and usage of basic occupational hand tools. Presents fastener types and applications. Provides practice on proper drill and tap skills. Includes experience learning correct measuring skills. Addresses manufacturers electronic service literature and search engines. Classifies and employs shop measuring tools with their specific functions. Covers recognition of fundamental heavy truck/equipment engine, power-train and chassis components. Emphasizes shop safety guidelines and proper handling of hazardous materials. Requires safety certification.

DMT 1110
Diesel Engine Overhaul
4
* Corequisite(s): DMT 111L
* Prerequisite(s) or Corequisite(s): DMT 1005

Introduces diesel engine operating principles, factors affecting performance, design variations, and identification of components. Focuses on disassembly and reassembly of diesel engines following industry standard overhaul procedures. Includes the identification, inspection, and measuring of parts to determine condition for reuse. Uses failed components to assist in teaching troubleshooting skills. Provides theory of engine tune-up processes on various engines used by industry. Software fee of $10 applies. Lab access fee of $15 for computers applies.

DMT 111L
Diesel Engine Overhaul Lab
2
* Corequisite(s): DMT 1110
* Prerequisite(s) or Corequisite(s): DMT 1005

Provides hands on experience in diesel engine operating principles, factors affecting performance, design variations, and identification of components. Includes disassembly and reassembly of diesel engines following industry standard overhaul procedures. Focuses the identification, inspection, and measuring of parts to determine condition for reuse. Utilizes failed components to assist in teaching troubleshooting skills. Tool room fee of $19 for equipment applies. Course Lab fee of $22 for materials applies.

DMT 1120
Diesel Engine Operation Tune Up
4
* Prerequisite(s) or Corequisite(s): DMT 1110, DMT 111L, DMT 112L

Covers diesel engine components, controls, operating systems, and performance factors. Addresses engine component replacement, tune-up adjustments, and the requirements for engine dynamo-meter testing. Emphasizes basic engine operating factors and troubleshooting complaints such as: low power, smoke conditions, and engine faults. Software fee of $10 applies. Lab access fee of $15 for computers applies.

DMT 112L
Diesel Engine Operation Tune up Lab
2
* Corequisite(s): DMT 1120

Examines diesel engine components, operating systems, and performance factors. Provides opportunity to perform hands on component replacement and tune-up adjustments. Provides the opportunity to run an engine under load in a dynamometer test cell. Troubleshoots common engine operating complaints, such as low power, smoke conditions, engine faults, etc. Tool room fee of $19 for equipment applies. Course Lab fee of $27 for materials applies.

DMT 1510
Electrical Systems I
4
* Prerequisite(s): AUT 1260 (or any MAT or MATH course 1000 or higher) with a C- or better
* Corequisite(s): DMT 151L

Teaches the definition of electricity: voltage, current, and resistance as well as the electrical rules of Ohm's law, Watt's law, Kirchhoff's circuit laws. Provides examples of the application of the above laws in both series and parallel circuits. Includes instruction on the proper use of DVOM's and their function in diagnosing and troubleshooting electrical circuitry on heavy trucks and equipment. Teaches electrical components and symbols. Teaches correct repair procedures for wiring, fuses, and connectors. Addresses starting and charging system operation and testing. Emphasizes all safety procedures practices. Software fee of $10 applies. Lab access fee of $15 for computers applies.

DMT 151L
Electrical Systems I Lab
2
* Prerequisite(s): AUT 1260 (or any MAT or MATH course 1000 or higher) with a C- or better
* Corequisite(s): DMT 1510

Provides hands-on experience using a DVOM on series and parallel circuits. Identifies electrical components and examines their functions. Describes testing batteries, starting systems, and charging systems. Identifies the correct repairs on these systems and when applicable. Provides practice in electrical safety and preventative maintenance. Covers basic electrical repair techniques. Tool room fee of $19 for equipment applies. Course Lab fee of $30 for materials applies.

DMT 1520
Electrical Systems II
2
* Corequisite(s): DMT 152L
* Prerequisite(s) or Corequisite(s): DMT 1510 and DMT 151L

Covers heavy and medium duty vehicle electrical systems including lighting, climate control, computer controls and accessories. Emphasizes DOT lighting regulations for vehicles and trailers. Introduces fundamentals of electrical circuitry and schematics. Examines the computer controls on modern vehicle electrical systems. Software fee of $10 applies. Lab access fee of $15 for computers applies.

DMT 152L
Electrical Systems Lab II
1
* Corequisite(s): DMT 1520
* Prerequisite(s) or Corequisite(s): DMT 1510 and DMT 151L

Focuses on lab work for the troubleshooting and repair of heavy/medium duty electrical systems and electronic engine management. Includes vehicle and trailer lighting, monitoring, and control systems. Emphasizes DOT safety regulations requirements. Tool room fee of $19 for equipment applies. Course Lab fee of $25 for materials applies.

DMT 2230
Heating Ventilation Air Conditioning and Refrigeration Theory
2
* Corequisite(s): DMT 223L
* Prerequisite(s) or Corequisite(s): DMT 1510 and DMT 151L

Teaches the principles of heat transfer using refrigerant as the medium. Emphasizes the identification and operation of individual system components. Discusses the different types of refrigerants used in the mobile industry as well as recovery, recycling, storage, handling, and disposal. Also covers the theory and operation of auxiliary power units used on highway trucks. Software fee of $10 applies. Course fee of $10 for materials applies. Lab access fee of $15 for computers applies.

DMT 223L
Heating Ventilation Air Conditioning and Refrigeration Lab
1
* Corequisite(s): DMT 2230
* Prerequisite(s) or Corequisite(s): DMT 1510 and DMT 151L

Teaches correct use of modern HVACR testing and repair equipment. Provides hands-on opportunity to troubleshoot and service modern HVACR systems. Examines and practices EPA approved handling of current refrigerants used in current vehicles and equipment. Provides hands-on opportunity to locate, identify, test, service, and troubleshoot different types of mobile AC systems using EPA approved equipment & procedures. Also provides hands-on experience with auxiliary power units used on highway trucks. Tool room fee of $19 for equipment applies. Course Lab fee of $19 for materials applies.

DMT 2310
Fluid Power I Theory
4
* Prerequisite(s): AUT 1260 (or any MATH MAT course 1000 or higher) with a C- or better
* Corequisite(s): DMT 231L

Outlines the fundamental principles of fluid power (hydraulics). Emphasizes the relationship between pressure, force, area, and resistance. Covers Bernoulli's principle in connection with hydraulic: flow, horsepower torque and the conservation of energy. Illustrates the application and operation of all of the essential components and valving found in in a hydraulic system. Identifies types of circuit designs and schematic symbols. Software fee of $10 applies. Lab access fee of $15 for computers applies.

DMT 231L
Fluid Power I Lab
2
* Prerequisite(s): AUT 1260 (or any MATH MAT course 1000 or higher) with a C- or better
* Corequisite(s): DMT 2310

Provides practical lab experience for the identification, operation, and repair of basic hydraulic system components and circuits. Utilizes various lab equipment and machinery to highlight basic system designs and use of schematics. Emphasizes the safe and proper usage of hydraulic diagnostic equipment or tools necessary for component and system testing. Tool room fee of $19 for equipment applies. Course Lab fee of $17 for materials applies.

DMT 2320
Fluid Power II Theory
4
* Prerequisite(s) or Corequisite(s): DMT 2310, DMT 231L, DMT 232L

Covers the design and operation of variable displacement pumps and motors, emphasizing those that are load sensing and pressure compensating. Focuses on the electronic controls of fluid power systems including open and closed loop circuits. Analyzes corresponding electronic controls on hydraulic schematics. Presents the theory and operation of hydrostatic and automatic transmissions used with heavy equipment and medium/heavy duty trucks. Emphasizes component operation, maintenance, repair, testing, and troubleshooting. Software fee of $10 applies. Lab access fee of $15 for computers applies.

DMT 232L
Fluid Power II Lab
2
* Corequisite(s): DMT 2320

Focuses on the use of hydraulic test equipment to diagnose and troubleshoot systems using electronic, proportional or load sensing components. Covers the testing and correct adjustment of load sensing/pressure compensated pumps. Provides for the disassembly, inspection, reassembly and testing of hydrostatic transmissions. Provides experience to build and troubleshoot electronically controlled hydraulic circuits, troubleshoot electronically controlled hydrostatic transmissions as well as Allison transmissions. Emphasizes the use of diagnostic tools and service manuals. Tool room fee of $19 for equipment applies.

DMT 2410
Chassis Theory
4
* Corequisite(s): DMT 241L

Provides theory on maintenance and repair of heavy duty chassis systems. Covers air brake systems, ABS systems, suspension systems, steering geometry, front end and tandem alignment, and frame maintenance. Emphasizes Department of Transportation highway safety requirements, and preventative maintenance. Software fee of $10 applies. Lab access fee of $15 for computers applies.

DMT 241L
Chassis Lab
2
* Corequisite(s): DMT 2410

Covers troubleshooting and repair skills for heavy and medium duty trucks for air brake systems and ABS brake systems. Discusses alignment fundamentals. Uses hands on exercises to develop these skills. Focuses on proper maintenance and adjustment to foundation brakes and wheel ends. Requires performance tasks on various suspension designs and frame maintenance. Tool room fee of $19 for equipment applies. Course Lab fee of $22 for materials applies.

DMT 2420
Power Train Theory
4
* Corequisite(s): DMT 242L

Provides theory in maintenance and repair of heavy duty power trains systems. Teaches clutches, single and multiple counter shaft transmission, computer controlled transmissions, drive line geometry, differentials and Department of Transportation safety requirements. Emphasizes troubleshooting, highway safety, and preventative maintenance. Software fee of $10 applies. Lab access fee of $15 for computers applies.

DMT 242L
Power Train Lab
2
* Corequisite(s): DMT 2420

Provides hands-on experience in maintenance and repair of heavy duty power train systems. Applies tasks for clutches, single and multiple counter shaft transmission, computer controlled transmissions, drive line geometry, differentials and DOT safety requirements. Emphasizes troubleshooting, highway safety, and preventative maintenance. Tool room fee of $19 for equipment applies. Course Lab fee of $22 for materials applies.

DMT 2530
Electronic Engine Management
2
* Prerequisite(s): DMT 1510, DMT 151L, DMT 1520, and DMT 152L
* Corequisite(s): DMT 253L Recommended

Covers electronic fuel systems: parts, component ID, usage and operation. Includes instruction for electronic governors, set up, operation and diagnosis. Analyses advanced electronic fuel injectors and injection systems. Includes examination of sensor types, function and testing. Teaches the operation and component identification of current emission equipment as well as the present EPA emission standards. Lab access fee of $15 for computers applies.

DMT 253L
Electronic Engine Management Lab
1
* Prerequisite(s): DMT 1510, DMT 151L, DMT 1520, and DMT 152L
* Corequisite(s): DMT 2530

Covers the identification, location and function of all electronically controlled fuel system components, including sensors, governors, injectors, pumps, valving, and conductors. Explains the usage of computer based diagnostic equipment for troubleshooting and electronic engine management. Covers the identification, location and function of all emission system related components. Focusses on the proper maintenance and service of these systems.

DMT 281R
Cooperative Work Experience
1 to 8
* Corequisite(s): DMT 285R

Designed for Diesel Mechanics Technology majors. Provides paid, on-the-job work experience in the student's major. Work experience, the correlated class, and enrollment are coordinated by the Cooperative Coordinator. Includes student, employer, and coordinator evaluations, on-site work visits, written assignments, and oral presentations. Provides experience in writing and completing individualized work objectives that improve present work performance. May be repeated for a maximum of 16 credits toward graduation. May be graded credit/no credit.

DMT 285R
Cooperative Correlated Class
1
* Corequisite(s): DMT 281R

Designed for Diesel Mechanics Technology majors. Identifies on-the-job problems through in-class discussion and study. Includes the study of identifying and maximizing service opportunities. Students register for this class with approval of the Cooperative Coordinator. Includes lecture, guest speakers, video tapes, role playing, case analysis, oral presentations, and written assignments. Completers should be better able to perform in their field of work or study.

DMT 291R
Special Projects
1 to 5
* Prerequisite(s): Advisor and Instructor Approval

For students majoring in diesel technology. Involves special projects. Allows independent projects that are designed to enhance beginning or advanced abilities. Repeatable for as many times as desired.

DMT 298R
Technical Workshop
1 to 4

For Diesel Technology students and other interested community members. Tailored to a specific topic, product, component, or vehicle related to the diesel service industry. Its purpose is to update technician training by addressing changes in products or equipment. Topics will vary. May be presented by an OEM, a dealer representative, or faculty member. Repeatable.

DMT 299R
VICA
1

Designed for Diesel Mechanics Technology majors. Supports and facilitates the goals and objectives of Vocational Industrial Clubs of America (VICA). VICA is a pre-professional student organization that develops social awareness, civic, recreational, and social activities. Students may participate in local, state, and national contests.