

should obtain experience in establishing and accomplishing individualized work objectives that improve work performance. May be repeated for a maximum of 8 credits toward graduation.

DGM 496R

Information Management Seminar

1 to 3:1 to 3:0 to 6 On Sufficient Demand

• Prerequisite(s): Instructor/department chair approval

Provides short courses, workshops, and special programs in information management or current business topics. Repeatable for up to six credits.

DGM 497R

Independent Study

1 to 3:0 to 3:0 to 9

Su, F, Sp

• Prerequisite(s): Department chair approval

For bachelor's degree students and other interested persons. Offers independent study as directed in reading or in individual projects; offered at the discretion and approval of the department chairperson. May be repeated for a maximum of six credits toward graduation.

DMT—DIESEL MECHANICS TECHNOLOGY

DMT 1010

Diesel Apprentice Electrical IA

5:5:0 On Sufficient Demand

Studies PC computers for managing shop information, work orders and reports. Uses word processing, data management and typical shop management software. Teaches theory of operation and troubleshooting/repair skills in automotive electrical systems using state-of-the-art testing equipment. Includes safety and environmental awareness.

DMT 1020

Diesel Apprentice Engine Overhaul IB

5:5:0 On Sufficient Demand

Covers basic operating principles and technical information. Focuses on engine rebuilding nomenclature, precision measuring, cooling systems, lubricating systems, induction and exhaust systems. Provides theory and lab experiences on diesel engines.

DMT 1030

Diesel Apprentice Governor Systems 2A

3.5:3.5:0 On Sufficient Demand

• Prerequisite(s): DMT 1020

For second semester advanced Diesel Technology students and other interested community members. Provides theory with heavy duty on and off road diesel fuel systems. Covers tune up procedures, fuels, proper engine oils, overview of mechanical governors, testing and adjusting. Includes dynamometer operations, maintenance procedures, and emission controls. Emphasizes ethics, safety, and electrical

review.

DMT 1040

Diesel Apprentice Engine Controls 2B

3.5:3.5:0 On Sufficient Demand

• Prerequisite(s): DMT 1030

For second semester Diesel Technology students and other interested community members. Provides theory with mechanical and electronic engine controls on heavy duty diesel engine systems. Covers tune-up procedures, electronic fuel control and governor system for Detroit Diesel, Cummins and Caterpillar engines. Emphasizes testing, adjusting, maintenance procedures, emission controls, work ethics and safety.

DMT 1050

Diesel Apprentice Engine Diagnostics and Air Conditioning 2C

3.5:3.5:0 On Sufficient Demand

• Prerequisite(s): DMT 1040

For second semester Diesel Technology students and other interested community members. Provides theory with on and off road heavy duty systems including computerized engine diagnostics and air conditioning. Covers tune-up procedures, electronic HUEI, Bosch distributor and inline fuel system. Includes testing, adjusting, maintenance procedures, air-conditioning and heating. Emphasizes work ethics and safety.

DMT 1060

Diesel Apprentice Fluid Power 3A

5:5:0 On Sufficient Demand

Provides instruction in theory and application of fluid power (hydraulics) as used in modern mobile equipment. Includes practical theory related to the operation and repair of hydraulic and pneumatic components, and hydraulic systems. Emphasizes testing, troubleshooting, design and use of hydraulic schematics, and electric over hydraulic systems.

DMT 1070

Diesel Apprentice Power Transmission 3B

5:5:0 On Sufficient Demand

• Prerequisite(s): DMT 1060

Provides instruction on theory and operation of torque converters, powershift and automatic transmissions, electronic control systems for transmissions, and service of hydraulic brake systems. Emphasizes troubleshooting, repair procedures, the use of service manuals and schematics.

DMT 1080

Diesel Apprentice Chassis 4A

5:5:0 On Sufficient Demand

• Prerequisite(s): DMT 1020

Provides theory on maintenance and repair of heavy duty chassis systems. Covers air brake systems, ABS, steering geometry, front end and tandem alignment, steering and load carrying suspensions and frame maintenance. Emphasizes troubleshooting,

highway safety and preventative maintenance.

DMT 1090

Diesel Apprentice Power Trains 4B

5:5:0 On Sufficient Demand

• Prerequisite(s): DMT 1020

Provides theory of maintenance and repair of heavy duty power trains systems. Covers 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.

DMT 1110

Diesel Engine Overhaul

4:4:0 F, Sp

• Prerequisite(s): Minimum ACT Reading score of 16 or Compass Reading score of 55

• Corequisite(s): DMT 111L Recommended

Studies diesel engine operating principles, factors affecting performance, design variations, and identification of components. Involves theory of disassembly and reassembly of diesel engines following industry standard overhaul procedures. Covers 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. Offered on the block.

DMT 111L

Diesel Engine Overhaul Lab

2:0:6

Provides hands on experience in diesel engine operating principles, factors affecting performance, design variations, and identification of components. Requires disassembly and reassembly of diesel engines following industry standard overhaul procedures. Covers the identification, inspection, and measuring of parts to determine condition for reuse. Utilizes failed components to assist in teaching troubleshooting skills.

DMT 1120

Diesel Engine Operation/Tune Up

4:4:0 F, Sp

• Prerequisite(s): DMT 1110

• Corequisite(s): DMT 112L Recommended

Continues the study of engine components and controls, operating systems, as well as performance factors. Provides the opportunity to study component replacement, tune-up adjustments, and preparing to run an engine under load in a dynamometer test cell. Emphasis on basic engine operating factors, and troubleshooting complaints such as low power, smoke conditions, engine faults, etc. Offered on the block.

DMT

Course Descriptions

DMT 112L

Diesel Engine Operation/Tune-up Lab 2:0:6

Continues the the study of 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. Emphasizes basic engine operating factors and troubleshooting complaints, such as low power, smoke conditions, engine faults, etc.

DMT 1400

Industrial Maintenance IA

5:5:0 On Sufficient Demand

• Prerequisite(s): Departmental written approval
A general maintenance course for Industrial Maintenance apprentices. Teaches environment protection systems fundamentals, safety and emergency procedures.

DMT 1410

Industrial Maintenance IB

5:5:0 On Sufficient Demand

• Prerequisite(s): Departmental written approval
A power transmission course for Industrial Maintenance apprentices. Teaches power transmission safety, OSHA guidelines, gearing and gear boxes.

DMT 1430

Industrial Maintenance 2B

5:5:0 On Sufficient Demand

• Prerequisite(s): Departmental written approval
A hydraulics course for Industrial Maintenance apprentices. Teaches hydraulics principles and power, fluids and conductors, cylinders, reservoirs, basic industrial systems. Covers hydraulic safety and OSHA guidelines, troubleshooting and repair of hydraulic valves.

DMT 1440

Industrial Maintenance 3B

5:5:0 On Sufficient Demand

• Prerequisite(s): Departmental written approval
An electrohydraulics and pneumatics course for Industrial Maintenance apprentices. Teaches pumps, circuits, and symbols (I.S.O.), troubleshooting, industrial systems including hydrostatic drives, basic pneumatics, circuits and components, and pressure vessel code. Covers troubleshooting of compressors, aftercoolers, dryers, oilers, valves, filters, separators, pneumatic or nitrogen operated system controls, machinery lube systems and steam systems.

DMT 1510

Electrical Systems Theory

4:4:0 F, Sp

• Prerequisite(s): AUT 1260 with C- or better
• Corequisite(s): DMT 151L Recommended
Studies theory of operation, troubleshooting and adjustment of heavy duty mobile electrical systems. Uses state-of-the-art testing equipment. Includes

safety and environmental awareness. Offered on the block.

DMT 151L

Electrical Systems Lab

2:0:6

• Prerequisite(s): AUT 1260 with C- or better
• Pre- or Corequisite(s): DMT 1510
Provides hands-on experience in basic circuitry, digital volt/ohm meter usage. Studies electrical component identification, troubleshooting and repair, charging system troubleshooting and repair, starting system troubleshooting and repair, electrical safety, and preventative maintenance.

DMT 1520

Engine Electronics and Diagnostics Theory

4:4:0 F, Sp

• Prerequisite(s): AUT 1260 with C- or better
• Corequisite(s): DMT 152L Recommended
Studies operation and troubleshooting of late model electronic controls for diesel engines. Utilizes factory methodology and approved test equipment. Discusses dynamometer testing and adjustment. Covers DOT vehicle lighting installation, troubleshooting and repair. Offered on the block.

DMT 152L

Engine Electronics and Diagnostics

2:0:6

For Second and Third semester students. Provides hands-on experience in troubleshooting and repair of heavy duty electrical systems and electronic engine management. Covers heavy duty truck and trailer lighting, monitoring and control systems. Emphasizes DOT safety regulations requirements. Teaches mechanical fuel injection pumps, fuel injectors and speed governing. Studies electronic engine diagnostic tools, engine sensors, and circuitry.

DMT 2230

Climate Control Theory

2:2:0

• Corequisite(s): DMT 223L Recommended
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.

DMT 223L

Climate Control Lab

1:0:3

Provides hands-on opportunity to locate, identify, test, service, and troubleshoot different types of mobile AC systems using EPA approved equipment and procedures. Students will demonstrate their proficiency using recovery recycling, evacuating, and charging equipment for both R-12 and R-

134A refrigerants. Also provides hands-on experience with auxillary power units used on highway trucks.

DMT 2310

Fluid Power Theory

4:4:0

F, Sp

• Corequisite(s): DMT 231L Recommended
Teaches the fundamental principles of fluid power (hydraulics). Emphasizes the relationships between pressure, force, area, and resistance as well as rpm, torque, hydraulic horsepower, and energy. Covers the application and operation of all of the essential components found in a hydraulic system. Introduces various types of circuit designs and schematic symbols.

DMT 231L

Fluid Power Lab

2:0:6

Pre- or Corequisite(s): DMT 2310
Provides practical lab experience related to the identification, operation, and repair of basic hydraulic system components and circuits. Utilizes various lab equipment or machinery to familiarize students with basic system designs and use of schematics. Emphasizes the use of tools and diagnostic equipment for component and system testing. Offered in a seven and one-half (7 1/2) week block.

DMT 2320

Fluid Power Transmission Theory

2:2:0

F, Sp

• Corequisite(s): DMT 232L Recommended
Provides instruction in the theory and operation of hydrostatic and automatic transmissions used with heavy equipment. Emphasizes component operation, maintenance, repair, testing, and troubleshooting.

DMT 232L

Fluid Power Transmission Lab

1:0:3

Provides hands-on experience with hydrostatic and automatic transmissions. Emphasizes disassembly, reassembly, maintenance, repair, troubleshooting, and the use of diagnostic tools and service manuals.

DMT 2410

Chassis Theory

4:4:0

F, Sp

• Corequisite(s): DMT 241L Recommended
For third and fourth semester students. Provides theory on maintenance and repair of heavy duty chassis systems. Covers air brake systems, ABS, steering geometry, front end and tandem alignment, steering and load carrying suspensions, and frame maintenance. Emphasizes troubleshooting, highway safety, and preventative maintenance.

DMT 241L

Chassis Lab

2:0:6

Pre- or Corequisite(s): DMT 2410

For third and fourth semester students. Gives hands-on experience in dealing with the operation of, and troubleshooting and repair of modern truck and equipment air brake systems, ABS brakes, foundation brakes and wheel ends, front end and tandem alignments, steering and load carrying suspensions and frame maintenance.

DMT 2420

Power Trains Theory

4:4:0

F, Sp

• Corequisite(s): DMT 242L Recommended

For third and fourth semester students. Provides theory in maintenance and repair of heavy duty power trains systems. Covers 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.

DMT 242L

Power Trains Lab

2:0:6

Pre- or Corequisite(s): DMT 2420

For third and fourth semester students. Provides hands-on experience in maintenance and repair of heavy duty power trains systems. Covers 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.

DMT 281R

Cooperative Work Experience

I to 8:0:5 to 4:0

F, Sp

• 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.

DMT 285R

Cooperative Correlated Class

I:1:0

F, Sp

• 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

I to 5:0:3 to 1:5

F, Sp

• 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

I to 4:0 to 4:0 to 1:2

F, Sp

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

I:1:0

F, Sp

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.

EART—ELECTRICAL AUTOMATION AND ROBOTICS TECHNOLOGY

EART 1000

Survey of Electrical Automation and Robotics Technology

2:2:0

On Sufficient Demand

An introductory course for those interested in exploring the electrical and robotics field. Familiarizes students with the fundamentals of electricity. Includes career exploration, consumer awareness, manipulative skills, and craftsmanship.

EART 1010

Industrial Maintenance 2A

5:5:0

On Sufficient Demand

• Prerequisite(s): Departmental written approval

An electricity course for Industrial Maintenance apprentices. Teaches fundamentals of electricity and electrical safety, electric motor fundamentals, transformers, rectifiers and inverters. Introduces circuit breakers, wiring diagrams and electronic and computer controls.

EART 1020

Industrial Maintenance 4A

5:5:0

On Sufficient Demand

• Prerequisite(s): Departmental written approval

A basic computers, PLC logic and variable speed drives course for Industrial Maintenance apprentices to troubleshoot, adjust, and repair AC electric motors, motor controls, PLC controls and variable speed drives.

EART 1050

Applied Electrical Math

5:5:0

F

Studies algebra as it applies to the electrical trade. Includes basic operations used in the solution of Ohm's law, series, parallel and combination circuits. Solves basic circuits by finding missing values. Covers the mathematics used to solve problems in series and parallel circuits made up of transformers, inductance, capacitance and resistors. Teaches the use of a calculator in solving problems pertaining to transformers and the right triangle, as it describes the current-voltage relationship in series and parallel circuits made up of inductors, capacitors and resistors. Emphasizes power factor correction. Completers should be able to understand mathematics as applied to DC or AC theory. Includes lecture and demonstrations.

EART 1110

Electrical Apprentice IA

5:5:0

F

For electrical apprentices. Teaches the theory of and includes an introduction to electricity, basic DC theory, voltage, current, resistance, batteries, and magnetism. Covers principles, formulas and math for simple electrical circuits, series, parallel, combination circuits, and power problems.

EART 1120

Electrical Apprentice IB

5:5:0

Sp

• Prerequisite(s): EART 1110 or departmental written approval

For electrical apprentices. Introduces measuring instruments, magnetism, circuits, devices, National Electrical Code, blueprint reading, DC motors, low voltage circuits, DC motor control, DC generators, 3 and 4 way switches, and conduit bending.

EART 1130

Basic Electrical

4:4:0

F

Includes basic DC theory such as voltage, current, resistance, batteries, magnetism, and meters. Emphasizes lectures and films. Covers principles of DC circuits and troubleshooting of these circuits. Studies the application of AC theory to industrial and commercial applications in the electric field. Explains the basic construction and theory of inductance, capacitance and resistors dealing with L.C.R. circuits

EART