

# Automotive & Diesel Technology

## [AUTO 133 Automotive Suspension/Steering \(3.5 credit, 2 lecture, 3 lab\)](#)

Instruction in skills needed to diagnose, service, and repair modern automotive suspension/steering systems. Suspension/steering designs, geometry, diagnosis, service, repair and four-wheel alignment procedures. Live vehicles and laboratory units.

## [AUTO 134 Automotive Brakes \(3.5 credit, 2 lecture, 3 lab\)](#)

Instruction in the skills needed to diagnose, service, and repair modern automotive brake systems. Brake system fundamentals; designs; laws of hydraulics and their applications; diagnosis; and service procedures, including brake machining processes. Live vehicles and laboratory units.

## [AUTO 136 Automotive Electrical/Electronics \(3 credit, 2 lecture, 2 lab\)](#)

Fundamental theories of electricity/electronics essential to diagnose, repair, and maintain today's automobile. Special emphasis placed on meter usage and diagnostic procedures including actual diagnosis and testing of the battery, charging, starting and ignition systems. Hands-on experience on both laboratory components and complete vehicles included.

## [AUTO 137 Manual & Automatic Transmissions \(3 credit, 2 lecture, 2 lab\)](#)

The study of various types of manual and automatic transmissions for the understanding of disassembly, assembly, function, construction, operation service and troubleshooting procedures.

## [AUTO 191 Introduction to Auto Technology \(3.5 credit, 2 lecture, 3 lab\)](#)

Provides the student with the opportunity to orientate, prepare, and perform routine service operations and job skills in auto technology. Personal and environmental safety practices, fasteners, gaskets, and sealants; thread and electrical connector repair; measuring instruments and common hand tools; and personal care of automobiles. Auto service and maintenance operations including lifting and vehicle support procedures.

## [AUTO 193 Automotive Engine Fundamentals \(3.5 credit, 2 lecture, 3 lab\)](#)

A study of modern automotive engine designs, construction, operating principles, and related subsystems. Skills in engine disassembly using approved procedures, inspection for wear and damage, identification of design features, and reassembly of the engine to operating condition. Basic theory and diagnosis of the fuel, lubrication, and cooling systems included. **Pre-Requisite:** AUTO 191-Introduction to Auto Technology.

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## AUTO 211 Automotive Engine Repair (5 credit, 3 lecture, 4 lab)

Provides the opportunity to develop skills and service techniques essential to performing quality engine repair and overhaul. Factors which determine engine component wear and the appropriate service techniques which will return the engine to satisfactory operating condition covered. This course is offered as a variable credit and may be repeated three times. **Pre-Requisite:** AUTO 191-Introduction to Auto Technology and AUTO 193-Automotive Engine Fundamentals.

## AUTO 232 Engine Overhaul (3 credit, 1 lecture, 4 lab)

All phases of overhaul of automotive engines. **Pre-Requisite:** DSL 157-Basic Internal Combustion Engine.

## DSL 130 Basic Mechanical Skills (3 credit, 1 lecture, 4 lab)

A combination of the various skills needed for success in diesel technology occupations. Safety practices emphasized on hand metal working tools, threaded fasteners, arc and gas welding methods, measuring tools, and maintenance operations required for daily productions.

## DSL 131 Engine Electronics I (3 credit, 2 lecture, 2 lab)

Fundamental theories of electricity/electronics essential to diagnose, repair, and maintain today's diesel engine. Special emphasis placed on meter usage and diagnostic procedures including actual diagnosis and testing of the battery, charging, starting and ignition systems. Hands-on experience on both laboratory components and complete diesel vehicles included.

## DSL 132 Engine Electronics II (3 credit, 2 lecture, 2 lab)

Advanced fundamental theories of electricity/electronics essential to diagnose, repair, and maintain today's diesel engine. Hands-on experience on both laboratory components and complete diesel vehicles included. **Pre-Requisite:** DSL 131.

## DSL 133 Preventative Maintenance (4 credit, 1 lecture, 6 lab)

Introductory course in the maintenance of diesel powered equipment. It is intended to demonstrate the proper procedure to maintain, evaluate and perform basic maintenance to a unit of this type. Emphasis is placed on good record keeping and timely performance of required tasks.

## DSL 151 Heavy Equipment Operation & Safety (1 credit, 0.5 lecture, 1 lab)

Proper use and safe operation of heavy equipment, including backhoes, trackhoes, and dozers. This course is repeatable up to three times.

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## DSL 153 Introduction to Small Engine Repair (3 credit, 2 lecture, 2 lab)

Introduces the concepts of repairing small engines. Engine identification and inspection, basic engine principles and design, principles of operation of two and four stroke engines, basic electricity involving ignition systems, charging systems, and starting systems, lubrication, cooling systems, fuel systems, governor systems, exhaust systems, troubleshooting, and overhaul.

## DSL 157 Basic Internal Combustion Engine (3 credit, 2 lecture, 2 lab)

Principles of four-cycle internal combustion engines. Troubleshooting and overhauling gasoline engines with all operations of disassembly, repair or replacement, and reassembly.

## DSL 158 Hydraulics I (3 credit, 1 lecture, 4 lab)

Hydraulic systems both open and closed. The various components of hydraulics systems, such as pumps, valves, and actuators (both cylinders and motors) studied. Troubleshooting and testing hydraulic circuits introduced.

## DSL 171 Hydraulics II (3 credit, 1 lecture, 4 lab)

Hydraulic systems will be covered with an emphasis on whole systems and troubleshooting hydraulic circuits. **Pre-Requisite:** DSL 158.

## DSL 172 Internship (5 credit, 0 lecture, 25 lab)

A work experience program in which the student is employed in a diesel technology field for the summer months to acquire skills. This program will be coordinated with class work through the summer. May be offered as variable credit and repeated three times.

## DSL 230 Diesel Brakes (4 credit, 3 lecture, 2 lab)

Provides the theory and practical servicing of hydraulic brakes, air brakes, parking brakes, and anti-lock brake systems (ABS).

## DSL 232 Diesel Suspension & Steering (4 credit, 2 lecture, 4 lab)

Provides the theory and practical servicing of diesel suspension and steering designs, geometry, diagnosis, service, repair and wheel alignment procedures.

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## DSL 233 Electrical Diagnosis (5 credit, 2 lecture, 6 lab)

A continuation of DSL 132, troubleshooting procedures using volt/ohm meters and wiring diagrams with strong emphasis on scan tools and scan tool usage. **Pre-Requisite:** DSL 131 and DSL 132 or instructor consent.

## DSL 234 Truck Transmissions & Drive Trains (4 credit, 3 lecture, 2 lab)

Development of diagnostic and repair skills as they relate to modern truck transmissions and power trains. Provides the student technician with an understanding of how these systems work, the varied systems that are used, and the foundation to diagnosis and repair problems that occur on these units.

## DSL 235 Diesel Heating & Air Conditioning (4 credit, 1.5 lecture, 5 lab)

Provides the theory and practical servicing of diesel air conditioning systems, heating and cooling systems, temperature controls, and refrigerant recovery, recycling and handling.

## DSL 237 Engine Diagnostics & Performance (3 credit, 2 lecture, 2 lab)

This course covers electronic control systems, electronic fuel systems, and electronic diagnostic tools, testing and adjusting fuel systems, component replacement and troubleshooting. **Pre-Requisite:** DSL 131, DSL 132, DSL 233.

## DSL 238 Final Drive Tracks & Undercarriage (3 credit, 2 lecture, 2 lab)

Final drives, track systems, and undercarriage components will be studied as to their proper functions, maintenance, and repair. **Pre-Requisite:** DSL 277.

## DSL 275 Diesel Engines (4 credit, 1 lecture, 6 lab)

Introduces the procedure for complete diesel engine rebuild. Includes a discussion of combustion chamber types, major components and component disassembly inspection, and repair. **Pre-Requisite:** DSL 157.

## DSL 276 Diesel Fuel Systems (3 credit, 2 lecture, 2 lab)

Introduction to basic fuel chemistry, fuel sub-systems and general objectives of diesel fuel systems. **Pre-Requisite:** DSL 275 or instructor consent.

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## DSL 277 Power Train Fundamental (3 credit, 1 lecture, 4 lab)

Transmissions and final drives to various tractors and farm equipment will be studied as to their proper functions, maintenance, and repair.

## DSL 290 Selected Topics in Diesel Technology (3 credit, 3 lecture, 0 lab)

An in-depth study of topics in the diesel technology field. The exact content will vary from semester to semester depending on the subject studied. This course may be repeated three times if different topics are considered, but cannot exceed a total of six (6) credit hours toward graduation. **Pre-Requisite:** Instructor consent.