

MECHANICS-DIESEL/HEAVY EQUIPMENT (MECN)

MECN F103 Advanced Electrical Systems

3 Credits

Offered Fall

Theory, operation, and repair of starting and charging systems, diagnostic methods and specifications that are standard in the industry. Diagnosis and repair of common sensors, actuators, electronic fuel injectors and systems will be covered, as well as electronic scan tools, multiplexing, and CAN Bus network diagnosis and repair.

Lecture + Lab + Other: 1 + 4 + 0

MECN F104 Mobile Equipment Maintenance

1 Credit

Offered As Demand Warrants

Technical, financial and legal aspects of mobile equipment maintenance. Students will work in groups to perform a maintenance operation and create maintenance records on a variety of vehicle types.

Lecture + Lab + Other: 0.5 + 1 + 0

MECN F112 Basic Auto Maintenance

1 Credit

Offered As Demand Warrants

Covers basic automobile system functions, owner maintenance of electrical, cooling and fuel systems, auto lubricants and fluids, tires and wheels, tune-ups, and cold weather maintenance and operation. For the person without mechanical experience.

Lecture + Lab + Other: 1 + 0 + 0

MECN F154 Diesel Fuel Injection

2 Credits

Offered As Demand Warrants

Lecture + Lab + Other: 0 + 0 + 0

MECN F159 Manual Transmissions and Clutches

2 Credits

Offered As Demand Warrants

Two major areas of automotive maintenance and repair: inspection and replacement of common clutch types; and maintenance, inspection and overhaul of automotive manual transmissions.

Lecture + Lab + Other: 1 + 2 + 0

MECN F201 Advanced Automobile Equipment Electronics

2 Credits

Offered As Demand Warrants

Troubleshooting and repairing a wide range of electronic systems found in both light and heavy equipment including, but not limited to, load moment limiting, motor speed control, electronic control of hydraulic systems and electronic governors for power generation.

Lecture + Lab + Other: 1 + 2 + 0

MECN F202 Principles of Electric Drive Vehicles

2 Credits

Offered As Demand Warrants

In-depth study of batteries: design, construction, testing and charging, currents and maintenance. Knowledge applied to DC motors, electronic controls and electronic traction motor controls. The in-shop training discusses environmental impacts of electric drive vehicles.

Lecture + Lab + Other: 2 + 0 + 0

MECN F203 Basic Power Generations

3 Credits

Offered As Demand Warrants

Portable and stationary electric power generators and the relationship of magnetism, AC/DC currents, motors, generators, transformers and electrical distribution.

Recommended: AUTO F110.

Lecture + Lab + Other: 2 + 2 + 0

MECN F204 Basic Alternating Current Electrician Skills

2 Credits

Offered As Demand Warrants

Basic residential and commercial electrician skills; current theory and applications; electrical measurement and circuitry.

Lecture + Lab + Other: 1 + 2 + 0

MECN F205 Uninterruptible Power Supplies

1 Credit

Offered As Demand Warrants

Residential and commercial power supplies; troubleshooting batteries; electronic components; reading UPS schematics.

Lecture + Lab + Other: 0.5 + 1 + 0

MECN F206 Emergency Backup Power Generation

1 Credit

Offered As Demand Warrants

Language and fundamentals of electricity; circuitry; conductor types and sizes; writing methods; system requirements of power generation.

Lecture + Lab + Other: 0.5 + 1 + 0

MECN F207 Power Generation Governors

2 Credits

Offered As Demand Warrants

Mechanically and electrically controlled engines with emphasis on what is a governor and what is its function in power generation will be covered in the hands-on diagnostic training.

Lecture + Lab + Other: 1 + 2 + 0

MECN F208 Alternative Fuels

2 Credits

Offered As Demand Warrants

History of fuels with emphasis on the known alternative fuels: natural gas, methanol, ethanol and propane. A research project is required.

Lecture + Lab + Other: 1 + 2 + 0

MECN F210 Hydraulics

3 Credits

Offered Spring

Theory of fluid power and the components that make up a hydraulic system found on heavy equipment. Identification and description of hydraulic cylinders, motors, directional valves commonly found on heavy equipment. Includes testing of equipment and performing hydraulic pressure and flow tests.

Prerequisites: DSLT F101; DSLT F103; DSLT F105.

Lecture + Lab + Other: 1 + 4 + 0