MECHANICS-DIESEL/HEAVY EQUIPMENT (MECN)

Community and Technical College
Diesel/Heavy Equipment
907-455-2800

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;
commonality of UPS 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