

Minnesota North College - Hibbing Campus
Diesel Mechanics/Heavy Equipment Maintenance

Academic Year 2023-24
AAS Degree (75 credits)

FIRST YEAR		CREDITS	HOURS LEC/LAB
FALL SEMESTER 2023 – 17 Credits			
DSL 1501	General Shop Practices 1	2	1/2
DSL 1510	Diesel Engines 1	4	1/6
DSL 1519	Heavy Equipment Hydraulics 1	2	1/2
DSL 1531	Heavy Duty Air Brakes	3	1/4
DSL 1537	Electronics/Electrical Systems 1	3	1/4
ENGL 1110	Professional Organization Writing	3	3/0
SPRING SEMESTER 2024 – 19 Credits			
DSL 1511	Diesel Engines 2	4	2/4
DSL 1512	Diesel Sub Systems	1	.5/1
DSL 1530	Heavy Equipment Hydraulics 2	2	1/2
DSL 1538	Electronics/Electrical Systems 2	3	1/4
DSL 1560	Heavy Equipment Air Conditioning	3	1/4
COMM 1210	Introduction to Communication (MNTC 1)	3	3/0
General Education Electives from MNTC*		3	
SECOND YEAR			
FALL SEMESTER 2024 – 20 Credits			
DSL 2500	General Shop Practices 2	1	0/2
DSL 2515	Machine Tool Technology	3	2/2
DSL 2524	Powershift Transmissions and Torque Converters	3	1/4
DSL 2535	Undercarriage	1	1/0
DSL 2540	Standard Transmissions/Clutches	4	2/4
DSL 2545	Steering and Alignment	2	1/2
General Education Electives from MNTC*		3	
General Education Electives from MNTC 5		3	
SPRING SEMESTER 2025 – 19 Credits			
DSL 2533	Electronics/Electrical Systems 3	4	2/4
DSL 2536	Heavy Equipment Hydraulics 3	4	2/4
DSL 2543	Differentials/Drivelines	3	2/2
DSL 2550	Customer Repair Internship	5	0/10
General Education Electives from MNTC*		3	

* 9 of the required 15 MNTC credits must be selected from a minimum of 2 of the following goal areas:

- Goal 1: Communication
- Goal 3: Natural Sciences
- Goal 4 Math/Logical Reasoning
- Goal 6: Humanities and Fine Art

PROGRAM DESCRIPTION

Heavy equipment mechanics repair all parts of large trucks, buses, construction, and earth moving equipment. They inspect, test and repair heavy equipment systems, including hydraulics, pneumatics and electrical. Students in the Diesel Mechanics program develop the skills to troubleshoot and repair a Diesel engine through our hands-on learning approach.

MNC’s Diesel and Heavy Equipment program provides a modern equipped diesel shop including a fuel injector room and use of an engine dynamometer. Students learn theory and application of 2-cycle and 4-cycle engines, electrical and hydraulic systems, fuel injection, turbochargers, clutches, heavy equipment, recordkeeping, power transmissions, and steering, brakes, and tires.

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PROGRAM ELECTIVES

- WELD 1527 Welding for Auto and Diesel, 2 credits

PROGRAM OUTCOMES

Upon completion of the Diesel Mechanics and Heavy Equipment Maintenance program, graduates will be able to:

1. Demonstrate professional behavior that reflects integrity, accountability, responsibility, and ethical practice.
2. Work collectively and collaboratively, exhibiting skills in leadership, perseverance, and integrity.
3. Demonstrate the ability to work safely and recognize safety hazards.
4. Establish a basis of using test equipment for troubleshooting Mechanical situations.
5. Demonstrate knowledge of the operation of a diesel engine.
6. Exhibit basic troubleshooting of electrical systems used in heavy equipment and their repair.
7. Demonstrate the ability to troubleshoot hydraulic systems.
8. Demonstrate the ability to troubleshoot heavy duty air and hydraulic brake systems.
9. Exhibit the use of precision measuring tools.
10. Demonstrate the operation of manual and automatic transmissions.
11. Demonstrate the repair of differentials and planetary axles.
12. Establish the necessary skills for undercarriage repair.
13. Demonstrate the operation of steering systems.

ARTICULATION AGREEMENTS

- Minnesota State University, Moorhead
- Bemidji State University

PROGRAM NOTES

- All Diesel students must pass a pre-enrollment drug test. All tests will be screened through a facility designated by Minnesota North College.
- Differential tuition is assessed for the DSL and WELD courses.

EMPLOYMENT OPPORTUNITIES

Diesel mechanics and heavy equipment mechanics secure jobs with road construction companies, trucking companies, the mining industry, bus lines and logging and diesel equipment dealers. Government agencies hire mechanics to maintain their diesel-powered equipment.

PROGRAM FACULTY

- Bright, John R john.bright@minnesotanorth.edu
- Brownlee, Forrest A forrest.brownlee@minnesotanorth.edu



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