**Appendix A**

**wORK pROCESS SCHEDULE**

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**oN-THE-JOB tRAINING oUTLINE**

**rELATED iNSTRUCTION oUTLINE**

**Appendix A**

**WORK PROCESS SCHEDULE**

**Bus and Truck Mechanics and Diesel Engine Specialists**

**Job Title: Diesel Mechanic**

O\*NET-SOC CODE: 49-3031.00 RAPIDS CODE: 0124

This schedule is attached to and a part of these Standards for the above identified occupation.

# APPRENTICESHIP APPROACH

[x]  Time-based [ ]  Competency-based [ ]  Hybrid

# TERM OF APPRENTICESHIP

The term of the apprenticeship is 3 years with an OJL attainment of 6000 hours, supplemented by the minimum required 436 hours of related instruction.

# RATIO OF APPRENTICES TO JOURNEYWORKERS

The apprentice to journey worker ratio is: 1 Apprentice(s) to 1 journey worker(s).

# APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages based on either a percentage or a dollar amount of the current hourly journey worker wage rate, which is: $ *##*

|  |
| --- |
| Period 1, 2000 hours - Period 2, 2000 hours - Period 3, 2000 hours -  |

# PROBATIONARY PERIOD

Every applicant selected for apprenticeship will serve a probationary period of 90 days.

# SELECTION PROCEDURES

**Application Procedures:**

* Open positions will be posted internally by the company. The diesel mechanic apprenticeship is open to internal candidates who have at least one year experience with US Foods.
* Interested candidates will be asked to complete a standardized job application.
* Candidates meeting or exceeding the minimum qualifications will be invited to an interview.
* All completed applications are tracked and managed internally by Human Resources (HR) utilizing the Workday tracking system.
* Applicants invited to participate in the selection process will be notified via text, email, or telephone.
* Applicants who do not meet the minimum qualifications will be receive a letter from HR notifying them that they were not selected for an interview.

**Selection Process:**

* Interviews will be scheduled by the Human Resources Department.
* Applicants will be interviewed by two managers/supervisors.
* All applicants will be asked the same questions as outlined in the US Foods Interview Guide for this position and scored on the same standardized scoring system.
* All interview questions are situational questions.  Topics, based on critical competencies and the company’s Cultural Beliefs include:

|  |
| --- |
| Work Experience/Job Fit |
| Customer Service |
| Diligence/Initiative |
| Quality/Work Standards/Decision Making |
| Safety |
| Communication/Teamwork |
| Technical Skills |

Expected responses should be given in this format:

|  |  |  |
| --- | --- | --- |
| Situation/Task | Action | Result |
|  |  |  |

The rating scale is:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Rating Scale:*(Circle One)* | 1-Not an area of strength | 2-Limited skill in this area | 3-Sufficient skill in this area | 4-Excels in this area |

* The applicant’s completed Interview Guide is kept on file for five years.
* All interviewers come together to discuss the candidates as soon as possible after the interview using the completed interview guide in conjunction with the Candidate Discussion Tool to facilitate the discussion and decision on candidate requisition.
* A minimum average score of 3 is on all questions is required for the candidate to be considered for the position.
* Selected candidates will be notified verbally, then a written job offer will be sent via email or USPS upon request.
* Upon acceptance, candidates will go to a third-party background screening vendor to complete the drug screening, background check and motor vehicle record check.
* The hiring manager will perform an informal reference check with the candidate’s prior manager.

**Appendix A**

**ON-THE-JOB TRAINING OUTLINE**

**Bus and Truck Mechanics and Diesel Engine Specialists**

**Job Title: Diesel Mechanic**

O\*NET-SOC CODE: 49-3031.00 RAPIDS CODE: 0124

**Occupational Description**: Diagnose, adjust, repair, or overhaul buses and trucks, or maintain and repair any type of diesel engines. Includes mechanics working primarily with automobile or marine diesel engines.

**Work Process Schedule: Approximate Hours: 6000**

|  |  |
| --- | --- |
| **Diesel Engine Repair** | **3,000** |
| * Four-cycle engines
 |  |
| * Pistons, rings, valves and bearings
 |
| * Scavenging systems
 |
| * Starting systems – Electric and Compressed Air
 |
| * Cooling systems
 |  |
| * Lubricating systems
 |
| * Set boards building circuits, measurements with a multi-meter, volt drop, ohms voltage
 |
| * Batteries, alternators, starters and testing
 |
| * Data signals and processing, start using laptom and comm adapter
 |
| * Rebuilding engines, tear down and assembly, measuring parts, parts identification
 |
| * Fuel analysis and contamination, compression testing, leak down testing
 |
| * Attach test instruments to equipment and read dials and gauges to diagnose malfunctions
 |
| * Inspect, test, and listen to defective equipment to diagnose malfunctions using test instruments such as handheld computers, motor analyzers, chassis charts, or pressure gauges
 |
| * Recondition and replace parts, pistons, bearings, gears and valves
 |
| * Rewire ignition systems, lights, and instrument panels
 |
| * Disassemble and overhaul internal combustion engines, pumps, generators, transmissions, clutches and differential units
 |
| * Diagnose and repair vehicle heating and cooling systems
 |
| * Rewire electrical or electronic systems
 |
| **Drive Systems** | **500** |
| * Clutch inspection and identification, changing u-joints, measuring driveline angles
 |  |
| * Transmission and transfer cases and power take-off
 |
| * Final drives
 |
| * Rear wheels
 |
| * Tracks and track suspension systems
 |  |
| * Set up differentials, hub removal and installation, disassemble torque converters, inspect and assemble
 |  |
| **Steering Systems** | **200** |
| * Inspect steering systems to ensure no play in kingpin, draglink and tie rod
 |  |
| * Examine and adjust protective guards, loose bolts and specified safety devices
 |
| **Brake Systems** | **300** |
| * Inspect brake systems, steering mechanisms, wheel bearing and other important parts to ensure that they are in proper working condition
 |  |
| * Air brakes adjustment, inspection and replacement
 |
| * Adjust and reline brakes, align wheels, tighten bolts and screws and reassemble equipment
 |
| * Inspect and verify dimensions and clearance of parts to ensure conformance to factory specifications
 |
| * Replace worn, damaged or defect mechanical parts
 |

|  |  |
| --- | --- |
| **Chassis and Springs** | **400** |
| * Alignment check (basic method)
 |  |
| * Frame inspection and squareness measurements and evac and recharge AC systems
 |  |
| * Align front ends and suspension systems
 |
| **Lubrication and Lubrication Systems of All Equipment** | **500** |
| * Perform routine maintenance such as changing oil, checking batteries, and lubricating equipment
 |  |
| * Lubricate equipment to allow proper functioning
 |
| **Hydraulic Pumps** | **300** |
| * Inspect, repair and maintain automotive and mechanical equipment and machinery such as pumps and compressors
 |  |
| **Welding** | **100** |
| * Inspection and repair of rear trailer ramp to maintain structural integrity
 |  |
| **Refrigeration** | **700** |
| * Perform basic principles of refrigeration and multitemperature climate control systems
 |  |
| * Diagnose systems, complete service and repair procedures
 |
| * Demonstrate the fundamentals of electrical systems and diagnostic techniques
 |
| * Implement microprocessor control systems service, basic diagnostics and applications
 |

**Appendix A**

**RELATED INSTRUCTION** **OUTLINE**

**Bus and Truck Mechanics and Diesel Engine Specialists**

**Job Title: Diesel Mechanic**

**O\*NET/SOC CODE: 49-3031.00 RAPIDS CODE: 0124**

**White Mountains Community College**

 

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|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Class Number** | **Class Name** | **Credits** | **Hrs/Wk****Class** | **Hrs/Wk****Lab** | **Total****Hours** |
| DSL111W | Introduction to Diesel Heavy Equipment Technology | - | 1.45 | - | 25.0 |
| DSL113W | Heavy-Duty Electrical Systems | - | 2.50 | - | 37.5 |
| DSL211W | Heavy-Duty Power Trains | - | 2.50 | - | 37.5 |
| DSL227W | Chassis Brake/Climate Control | - | 3.25 | - | 50.0 |
| DSL115W | Diesel Power Systems | - | 2.50 | - | 37.5 |
| DSL117W | Fuel and Emission Systems | - | 2.50 | - | 37.5 |
| DSL215W | Fluid Dynamics | - | 2.50 | - | 37.5 |
| DSL216W | Mobile Hydraulics I | - | 1.45 | - | 25.0 |
| DSL219W | Failure Analysis | - | 2.50 | - | 37.5 |
| DSL222W | Mobile Hydraulics II | - | 1.45 | - | 25.0 |
|  | Thermo King Fleet Multi-Temp Course | - |  |  | 76.0 |
|  | OSHA 10 | - |  |  | 10.0 |
| **TOTAL MINIMUM HOURS** | **436** |

|  |
| --- |
| Course Curriculum Outline or Course Descriptions: |
| DSL111W | **Introduction to Diesel Heavy Equipment Technology** |
| Description/Objectives/Outcomes1. Practice proper disposal of solvent, oil, batteries and other hazardous materials
2. Demonstrate best shop practices to protect the environment
3. Explain and demonstrate safe shop practices
4. Explain and demonstrate safe fork truck operation
5. Explain and utilize the different tooling used in a modern Mobile Equipment shop
6. Recognize the different career pathways open to graduates of this program
7. Explain and demonstrate the proper use of precision measuring tools
8. Explain and demonstrate the proper use of lubricants, coolants, including proper disposal and how to control shop contamination
9. Explain and demonstrate different type fasteners and hardware used on diesel heavy equipment
 |
| DSL113W | **Heavy-Duty Electrical Systems** |
| 1. Explain electron flow and magnetism
2. Explain voltage, resistance and amperage, their relationship with each other (Ohm’s Law), and utilize tooling to measure their values
3. Diagnose and repair series and parallel circuits
4. Define conductors and insulators
5. Explain shorts to ground, high resistance and open circuits and how they affect an electrical circuit
6. Describe different types of wiring and connectors and apply appropriate repairs
7. Explain how a batter works
8. Explain how a charging system works
9. Explain how a starting system works
10. Describe multiplexing and signal processing
11. Explain telemantics and how it is changing our industry
12. Describe hybrid and electric drive systems
 |

|  |  |
| --- | --- |
| DSL211W | Heavy-Duty Power Trains |
| 1. Explain the transfer of power through the vehicle
2. Properly maintain power train components
3. Demonstrate the use of shop tools and diagnostic test equipment
4. Explain and demonstrate how a clutch operates
5. Explain and demonstrate how a torque converter operates
6. Explain and demonstrate how a manual transmission operates
7. Explain and demonstrate how an automatic transmission operates
8. Explain and demonstrate how a power-shift transmission operates
9. Explain and demonstrate how a planetary gear set operates
10. Explain and demonstrate how a driveline operates
11. Explain and demonstrate how a differential operates
12. Troubleshoot, diagnose and make needed repairs of the power train system
 |
| DSL227W | **Chassis Brake/Climate Control** |
| 1. Utilize and follow service manuals and instructions used by industry
2. Identify the components in an A/C system, describe their role in the overall system and how they operate
3. Properly charge and test air conditioning systems
4. Diagnose and repair A/C systems safely
5. Identify various steering, suspension and frame components found on heavy diesel equipment, describe their function, how to diagnose and make safe repairs
6. Describe the process of measuring and adjusting alignment
7. Explain undercarriage on off highway machines and how to safely assess wear and tear
8. Explain basic brake fundamentals
9. Describe the different brake systems on both on and off highway equipment
10. Explain ABS
11. Troubleshoot and repair brake systems
12. Explain wheel end procedures
 |

|  |  |
| --- | --- |
| DSL115W | Diesel Power Systems |
| 1. Explain and demonstrate how a diesel engine operates
2. Disassemble and reassemble the engine and sub systems
3. Measure and identify reusable engine components
4. Diagnose engine conditions and repair in a time and cost-efficient manner
5. Perform routine engine maintenance and adjustments as needed
 |
| DSL117W | **Fuel and Emissions Systems** |
| 1. Explain and demonstrate how fuel delivery systems properly distribute and meter fuel to the engine
2. Disassemble, reassemble and calibrate fuel deliver systems
3. Identify different types of fuel delivery systems utilized on medium and heavy duty diesel engines
4. Explain and demonstrate how tailpipe emissions are affected by temperature, fueling, timing and combustion factors
5. Perform maintenance, diagnostics, and repair fuel delivery and emission systems in a time and cost-efficient manner
 |
| DSL215W | **Fluid Dynamics** |
| 1. Explain basic principles of hydraulics including Pascal’s Law, pressure and transmission and multiplication of force
2. Identify various types of pumps, cylinders, motors, valves and other common fluid power components
3. Describe concepts such as Pressure, Flow, Efficiency and Power and understand what the basic units of measurement are (and be able to convert those units quickly)
4. Solve three variable mathematic problems
5. Effectively analyze systems and use basic schematics to build systems or identify components
 |

|  |  |
| --- | --- |
| DSL216W | Mobile Hydraulics I |
| 1. Explain and demonstrate safe practices working with hydraulic systems
2. Demonstrate knowledge of hydraulic calculations
3. Demonstrate skills in reading and interpretation of hydraulic schematics
4. Demonstrate knowledge of hydraulic system components
5. Explain and demonstrate the ability to test, diagnose and adjust basic hydraulic systems
6. Explain and demonstrate the ability to test, diagnose and adjust load sensing hydraulic systems and pressure compensated hydraulic systems
 |
| DSL219W | **Failure Analysis** |
| 1. Describe industry standards performing and documenting a failure analysis investigation
2. Determine the most probably route cause of failure
3. Distinguish and classify different wear patterns and fractures
4. Explain the characteristics and properties of metals
5. Explain the effects of heat and cold on metals
6. Describe various metal manufacturing processes
7. Explain how metal properties and the conditions they operate in relate to component failures
 |
| DSL222W | **Mobile Hydraulics II** |
| 1. Explain and demonstrate how a hydrostatic transmission operates
2. Disassemble, reassemble, and adjust hydraulic components
3. Measure and identify reusable hydraulic components
4. Diagnose hydraulic conditions and repair in a time and cost-efficient manner
5. Identify closed circuit and open loop hydrostatic systems
6. Explain and demonstrate how pilot operated systems and electrohydraulic and control systems work
7. Maintain, diagnose in a time-efficient manner and repair hydraulic systems found on Mobile Off-Road Equipment
8. Explain the operation of open and closed center hydraulic systems
9. Describe the operation of a variable displacement pump control valve
10. Explain the operation of a load-sensing hydraulic system
11. Explain the operation of pressure and flow compensated hydraulic systems
12. Describe the operation and construction feature of a typical excavator hydraulic system
13. Explain and interpret a manufacturer’s hydraulic schematic
14. Define accumulator safety precautions
15. Explain the purpose, fundamentals and construction of hydraulic accumulators
 |
| TBD | **Thermo King Fleet Multi-Temp Course** |
| 1. Basic principles of refrigeration and multi-temperature climate control systems
2. System diagnosis, service and repair procedures
3. Fundamentals of electrical systems and diagnostic techniques
4. Microprocessor control systems, service, basic diagnostics and applications
 |
| TBD | **OSHA 10** |
| 1. Introduction to OSHA
2. Walking and Working Services
3. Electrical
4. Hazard Communication
5. Exit Routes, Emergency Action Plans, Fire Prevention Plans and Fire Protection
6. Personal Protective Equipment
 |

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