Level 2 Related Education Resources

**200 Interpersonal Skills**

206 Demonstrate the ability to log repairs using the "complaint, cause and correction" technique

400 Engine Systems: Four Stroke Engines (gasoline)

402 List and describe the operation of four stroke engines.

EETC Four Stroke Basics Online Course

Penn Foster, Small Engine Parts and Operation, 089017, Cross Ref 408 & 611, 5 Hours

406 Identify worn out or out of specification parts.

Penn Foster, Small Engine Disassembly, 089022, Cross ref 402, 410, 412, 415, 5 Hours Penn Foster, Small Engine Rebuild, Part 1, 089023, Cross Ref 402, 410, 412, 415, 5 Hours Penn Foster, Small Engine Rebuild, Part 2, 089024, 402, 410, 412, 415, 5 Hours

Penn Foster, Small Engine Reassembly, 089025, 402, 410, 412, 415, 5 Hours

407 Demonstrate testing and adjustment for proper performance.

Penn Foster, Small Engine Disassembly, 089022, Cross ref 402, 410, 412, 415, 5 Hours Penn Foster, Small Engine Rebuild, Part 1, 089023, Cross Ref 402, 410, 412, 415, 5 Hours Penn Foster, Small Engine Rebuild, Part 2, 089024, 402, 410, 412, 415, 5 Hours

Penn Foster, Small Engine Reassembly, 089025, 402, 410, 412, 415, 5 Hours

410 Demonstrate the proper selection, use and calculation of measuring devices needed for the job. EETC Four Stroke Basics Online Course

Penn Foster, Small Engine Disassembly, 089022, Cross ref 402, 410, 412, 415, 5 Hours Penn Foster, Small Engine Rebuild, Part 1, 089023, Cross Ref 402, 410, 412, 415, 5 Hours Penn Foster, Small Engine Rebuild, Part 2, 089024, 402, 410, 412, 415, 5 Hours

Penn Foster, Small Engine Reassembly, 089025, 402, 410, 412, 415, 5 Hours

411 General engine repair procedure

412 Define components of an internal combustion engine

EETC Four Stroke Basics Online Course

Penn Foster, Small Engine Disassembly, 089022, Cross ref 402, 410, 412, 415, 5 Hours Penn Foster, Small Engine Rebuild, Part 1, 089023, Cross Ref 402, 410, 412, 415, 5 Hours Penn Foster, Small Engine Rebuild, Part 2, 089024, 402, 410, 412, 415, 5 Hours

Penn Foster, Small Engine Reassembly, 089025, 402, 410, 412, 415, 5 Hours

415 Determine 4-stroke engine specifications.

EETC Four Stroke Basics Online Course

Penn Foster, Small Engine Disassembly, 089022, Cross ref 402, 410, 412, 415, 5 Hours Penn Foster, Small Engine Rebuild, Part 1, 089023, Cross Ref 402, 410, 412, 415, 5 Hours Penn Foster, Small Engine Rebuild, Part 2, 089024, 402, 410, 412, 415, 5 Hours

Penn Foster, Small Engine Reassembly, 089025, 402, 410, 412, 415, 5 Hours

**500 Engines Systems: Diesel**

501 Explain the difference between a gas engine vs diesel.

EETC Compact Diesel Study Guide

Penn Foster Maintaining Diesel Engines, Part 1, 886M01 (Part 1), Cross Reference, 501, 10 Hours

 --Introduction to Truck Engine Operation

 --Safe Shop Practices

Penn Foster, Maintaining Diesel Engines, Part 2, 886M01 (Part 2), Cross ref 502, 10 Hours

 --Diesel Engine Fundamentals, Part 1

 --Diesel Engine Fundamentals, Part 2

502 Describe uses of diesel engine components.

EETC Compact Diesel Study Guide

Penn Foster Maintaining Diesel Engines, Part 1, 886M01 (Part 1), Cross Reference, 501, 10 Hours

 --Introduction to Truck Engine Operation

 --Safe Shop Practices

Penn Foster, Maintaining Diesel Engines, Part 2, 886M01 (Part 2), Cross ref 502, 10 Hours

 --Diesel Engine Fundamentals, Part 1

 --Diesel Engine Fundamentals, Part 2

503 Identify injectors and pumps of a diesel engine.

EETC Compact Diesel Study Guide

Penn Foster Maintaining Diesel Engines, Part 1, 886M01 (Part 1), Cross Reference, 501, 10 Hours

 --Introduction to Truck Engine Operation

 --Safe Shop Practices

Penn Foster, Maintaining Diesel Engines, Part 2, 886M01 (Part 2), Cross ref 502, 10 Hours

 --Diesel Engine Fundamentals, Part 1

 --Diesel Engine Fundamentals, Part 2

508 Identify diesel cold starting aids and describe how they function

EETC Compact Diesel Study Guide

Penn Foster Maintaining Diesel Engines, Part 1, 886M01 (Part 1), Cross Reference, 501, 10 Hours

 --Introduction to Truck Engine Operation

 --Safe Shop Practices

Penn Foster, Maintaining Diesel Engines, Part 2, 886M01 (Part 2), Cross ref 502, 10 Hours

 --Diesel Engine Fundamentals, Part 1

 --Diesel Engine Fundamentals, Part 2

509 Identify and explain the function of a turbocharger.

EETC Compact Diesel Study Guide

Penn Foster Maintaining Diesel Engines, Part 1, 886M01 (Part 1), Cross Reference, 501, 10 Hours

 --Introduction to Truck Engine Operation

 --Safe Shop Practices

Penn Foster, Maintaining Diesel Engines, Part 2, 886M01 (Part 2), Cross ref 502, 10 Hours

 --Diesel Engine Fundamentals, Part 1

 --Diesel Engine Fundamentals, Part 2

**600 Machinery Systems: Power Trains**

603 Inspect and identify all belts and pulleys that are worn out and replace.

607 Define the purpose of gears, bearings, and seals.

EETC Mechanical Systems Study Guide

Penn Foster, Bearings and Seals, Part 1, 10 Hours

Penn Foster, Bearings and Seals, Part 2, 10 Hours

700 HVAC

701 Be certified to handle current mobile refrigerants (ASE Refrigerant Recovery Program)

 Refrigerant Recovery and Recycling Study Guide

Penn Foster, Truck HVAC Systems, 886M03, 10 Hours

EPA-Approved Section 609 Program Testing by ASE

703 Explain the theory and principles of an HVAC system.

Associated Builders and Contractors, Introduction to HVAC

Penn Foster, Truck HVAC Systems, 886M03, 10 Hours

704 Locate and identify the components of an HVAC system

Associated Builders and Contractors, Introduction to HVAC

Penn Foster, Truck HVAC Systems, 886M03, 10 Hours

**800 Farm Equipment Systems: Planting, Harvesting, Tillage**

803 Select, connect, engage and operate machinery and power units.

Safe Tractor Driving, [https://ag-safety.extension.org/nstmop:-student-information/](https://ag-safety.extension.org/nstmop%3A-student-information/), <https://www.legit.ng/1210943-types-farm-machinery-uses.html>

<https://www.hobbyfarms.com/names-of-farm-equipment-4>

805 Be able to assemble equipment as delivered from the manufacturer to operating order

**900 Precision Agriculture Systems**

901 Identify the meaning of precision agriculture and its components.

<http://www.aces.edu/anr/precisionag/PrecAgLessons/#prettyPhoto/0/> <https://www.youtube.com/watch?v=WhAfZhFxHTs>

**1000 Material Fabrication and Welding**

1001 Identify and select various types of metals.

 Penn Foster, Metallurgy for Welders, Part 1, 286104, 10 Hours

1002 Identify and select various types of welding and cutting equipment including oxyacetylene and plasma arc.

Penn Foster, Fundamentals of Welding, Part 2, 286066, 10 hours

Penn Foster, Shielded Metal Arc Welding Techniques, Part 1, 286030, 10 Hours

1003 Identify and weld various types of metals

Penn Foster, Fundamentals of Welding, Part 2, 286066, 10 hours

Penn Foster, Shielded Metal Arc Welding Techniques, Part 1, 286030, 10 Hours

**1100 Problem Solving/Critical Thinking**

1102 Identify how to manage the problem

Penn Foster, Problem Solving and Troubleshooting, 186073, 10 Hours

1103 Make a decision on options to solve problem.

Penn Foster, Problem Solving and Troubleshooting, 186073, 10 Hours

1104 Implement action plan to resolve problem

Penn Foster, Problem Solving and Troubleshooting, 186073, 10 Hours

1105 Evaluate the outcome of action taken

Penn Foster, Problem Solving and Troubleshooting, 186073, 10 Hours

1106 Raise vital questions and problems, formulating them clearly and precisely

 Penn Foster, Problem Solving and Troubleshooting, 186073, 10 Hours

1107 Gather and assess relevant information to come to well-reasoned conclusion and solution

 Penn Foster, Problem Solving and Troubleshooting, 186073, 10 Hours

1108 Communicate effectively with others in figuring out solutions to complex problems

 Penn Foster, Problem Solving and Troubleshooting, 186073, 10 Hours

**1200 Hydraulic/Hydrostatic (Fluid Power) Systems**

1201 Analyze hydraulic/hydrostatic systems by using the proper technical/service information.

 EETC Driveline/Hydraulics Study Guide

And

Penn Foster

 Interpreting Hydraulic System Schematics, 286064, 10 hours.

Hydraulic Components: Actuators, Pumps, and Motors, 286061, 10 hours.

Hydraulic Components: Conductors, Conditioners, Fluids, 286062, 10 hours.

Hydraulic Power System Control, 286063, 10 hours.

Or

Engineering Adventures online only - http://www.engineeringweb.co.uk/

Lesson 6 - HW01-6 – Hydraulic system principles and how to work safely

Lesson 7 - HV013 – How movement is controlled (directional/proportional etc.)

Lesson 8 - HW01 screen 3 – Hydrostatic wheel drive closed-circuit operation

Lesson 9 - HW01 screen 3 – How to test and diagnose equipment condition and failures

Lesson 10 - HW01 screen 3 – Maintenance techniques for hydraulic equipment

Or

Manufacturer Course Completion

New Holland/Case IH

USS1HYD105EN – Basic Hydraulic Systems and Schematics – Web Based

 Or

e4 advanced test completion

1203 Identify components of fluid power systems including pumps, valves, and controls.

 EETC Driveline/Hydraulics Study Guide

And

Penn Foster

 Interpreting Hydraulic System Schematics, 286064, 10 hours.

Hydraulic Components: Actuators, Pumps, and Motors, 286061, 10 hours.

Hydraulic Components: Conductors, Conditioners, Fluids, 286062, 10 hours.

Hydraulic Power System Control, 286063, 10 hours.

Or

Engineering Adventures online only - http://www.engineeringweb.co.uk/

Lesson 6 - HW01-6 – Hydraulic system principles and how to work safely

Lesson 7 - HV013 – How movement is controlled (directional/proportional etc.)

Lesson 8 - HW01 screen 3 – Hydrostatic wheel drive closed-circuit operation

Lesson 9 - HW01 screen 3 – How to test and diagnose equipment condition and failures

Lesson 10 - HW01 screen 3 – Maintenance techniques for hydraulic equipment

Or

Manufacturer Course Completion

New Holland/Case IH

USS1HYD105EN – Basic Hydraulic Systems and Schematics – Web Based

e4 advanced test completion

1204 Interpret the systems diagrams and schematics, included symbol identification

EETC Driveline/Hydraulics Study Guide

And

Penn Foster

 Interpreting Hydraulic System Schematics, 286064, 10 hours.

Hydraulic Components: Actuators, Pumps, and Motors, 286061, 10 hours.

Hydraulic Components: Conductors, Conditioners, Fluids, 286062, 10 hours.

Hydraulic Power System Control, 286063, 10 hours.

Or

Engineering Adventures online only - http://www.engineeringweb.co.uk/

Lesson 6 - HW01-6 – Hydraulic system principles and how to work safely

Lesson 7 - HV013 – How movement is controlled (directional/proportional etc.)

Lesson 8 - HW01 screen 3 – Hydrostatic wheel drive closed-circuit operation

Lesson 9 - HW01 screen 3 – How to test and diagnose equipment condition and failures

Lesson 10 - HW01 screen 3 – Maintenance techniques for hydraulic equipment

Or

Manufacturer Course Completion

New Holland/Case IH

USS1HYD105EN – Basic Hydraulic Systems and Schematics – Web Based

e4 advanced test completion

1210 Identify components of a hydraulic system.

EETC Driveline/Hydraulics Study Guide

And

Penn Foster

 Interpreting Hydraulic System Schematics, 286064, 10 hours.

Hydraulic Components: Actuators, Pumps, and Motors, 286061, 10 hours.

Hydraulic Components: Conductors, Conditioners, Fluids, 286062, 10 hours.

Hydraulic Power System Control, 286063, 10 hours.

Or

Engineering Adventures online only - http://www.engineeringweb.co.uk/

Lesson 6 - HW01-6 – Hydraulic system principles and how to work safely

Lesson 7 - HV013 – How movement is controlled (directional/proportional etc.)

Lesson 8 - HW01 screen 3 – Hydrostatic wheel drive closed-circuit operation

Lesson 9 - HW01 screen 3 – How to test and diagnose equipment condition and failures

Lesson 10 - HW01 screen 3 – Maintenance techniques for hydraulic equipment

Or

Manufacturer Course Completion

New Holland/Case IH

USS1HYD105EN – Basic Hydraulic Systems and Schematics – Web Based

e4 advanced test completion

1212 Describe the four typical hydraulic systems used in agricultral systems- open center, closed center, LS, PFC

EETC Driveline/Hydraulics Study Guide

And

Penn Foster

 Interpreting Hydraulic System Schematics, 286064, 10 hours.

Hydraulic Components: Actuators, Pumps, and Motors, 286061, 10 hours.

Hydraulic Components: Conductors, Conditioners, Fluids, 286062, 10 hours.

Hydraulic Power System Control, 286063, 10 hours.

Or

Engineering Adventures online only - http://www.engineeringweb.co.uk/

Lesson 6 - HW01-6 – Hydraulic system principles and how to work safely

Lesson 7 - HV013 – How movement is controlled (directional/proportional etc.)

Lesson 8 - HW01 screen 3 – Hydrostatic wheel drive closed-circuit operation

Lesson 9 - HW01 screen 3 – How to test and diagnose equipment condition and failures

Lesson 10 - HW01 screen 3 – Maintenance techniques for hydraulic equipment

Or

Manufacturer Course Completion

New Holland/Case IH

USS1HYD105EN – Basic Hydraulic Systems and Schematics – Web Based

e4 advanced test completion

**1300 Electrical Systems**

1302 Explain how a relay works in a system

 EETC Electrical Online Course

And

Manufacturer Course Completion

New Holland/Case IH

USS1ELE104EN Basic Electrical Systems and Schematics – Web Based

USSZALL104EN or USSZAL9C1EN or USSIALB9C1EN or USSZALB9C1EN – Introduction to Electrical Systems

Or

USS5ALL110EN – Electrical & Hydraulic Diagnostics – Instructor Led or USSZALLQ04EN – Electrics Test Out with minimum of 70% score)

Or

Penn Foster

Truck Electrical Systems, 886M02, 30 hrs.

Industrial Relays, Contactors, and Solenoids, 086081, 5 hours.

Understanding Electronic Diagrams, 086095, 10 hrs.

Electronic Sensors (for equipment systems), 086022, 5 hours

 Or

 Third Party (i.e. Sullivan Training)

1303 Identify the components needed to connect a laptop to a unit for diagnostics (laptop, cable, dongle, connector in unit.)

EETC Electrical Online Course

And

Manufacturer Course Completion

New Holland/Case IH

USS1ELE104EN Basic Electrical Systems and Schematics – Web Based

USSZALL104EN or USSZAL9C1EN or USSIALB9C1EN or USSZALB9C1EN – Introduction to Electrical Systems

Or

USS5ALL110EN – Electrical & Hydraulic Diagnostics – Instructor Led or USSZALLQ04EN – Electrics Test Out with minimum of 70% score)

Or

Penn Foster

Truck Electrical Systems, 886M02, 30 hrs.

Industrial Relays, Contactors, and Solenoids, 086081, 5 hours.

Understanding Electronic Diagrams, 086095, 10 hrs.

Electronic Sensors (for equipment systems), 086022, 5 hours

 Or

 Third Party (i.e. Sullivan Training)

1306 Use wiring diagrams and schematics to troubleshoot and repair an electrical circuit

EETC Electrical Online Course

And

Manufacturer Course Completion

New Holland/Case IH

USS1ELE104EN Basic Electrical Systems and Schematics – Web Based

USSZALL104EN or USSZAL9C1EN or USSIALB9C1EN or USSZALB9C1EN – Introduction to Electrical Systems

Or

USS5ALL110EN – Electrical & Hydraulic Diagnostics – Instructor Led or USSZALLQ04EN – Electrics Test Out with minimum of 70% score)

Or

Penn Foster

Truck Electrical Systems, 886M02, 30 hrs.

Industrial Relays, Contactors, and Solenoids, 086081, 5 hours.

Understanding Electronic Diagrams, 086095, 10 hrs.

Electronic Sensors (for equipment systems), 086022, 5 hours

 Or

 Third Party (i.e. Sullivan Training)

1307 Test and replace electrical components and wiring using proper tools

EETC Electrical Online Course

And

Manufacturer Course Completion

New Holland/Case IH

USS1ELE104EN Basic Electrical Systems and Schematics – Web Based

USSZALL104EN or USSZAL9C1EN or USSIALB9C1EN or USSZALB9C1EN – Introduction to Electrical Systems

Or

USS5ALL110EN – Electrical & Hydraulic Diagnostics – Instructor Led or USSZALLQ04EN – Electrics Test Out with minimum of 70% score)

Or

Penn Foster

Truck Electrical Systems, 886M02, 30 hrs.

Industrial Relays, Contactors, and Solenoids, 086081, 5 hours.

Understanding Electronic Diagrams, 086095, 10 hrs.

Electronic Sensors (for equipment systems), 086022, 5 hours

 Or

 Third Party (i.e. Sullivan Training)

1308 Identify parallel and series electrical circuits

EETC Electrical Online Course

And

Manufacturer Course Completion

New Holland/Case IH

USS1ELE104EN Basic Electrical Systems and Schematics – Web Based

USSZALL104EN or USSZAL9C1EN or USSIALB9C1EN or USSZALB9C1EN – Introduction to Electrical Systems

Or

USS5ALL110EN – Electrical & Hydraulic Diagnostics – Instructor Led or USSZALLQ04EN – Electrics Test Out with minimum of 70% score)

Or

Penn Foster

Truck Electrical Systems, 886M02, 30 hrs.

Industrial Relays, Contactors, and Solenoids, 086081, 5 hours.

Understanding Electronic Diagrams, 086095, 10 hrs.

Electronic Sensors (for equipment systems), 086022, 5 hours

 Or

 Third Party (i.e. Sullivan Training)

1309 Properly test fields, ground and wiring

EETC Electrical Online Course

And

Manufacturer Course Completion

New Holland/Case IH

USS1ELE104EN Basic Electrical Systems and Schematics – Web Based

USSZALL104EN or USSZAL9C1EN or USSIALB9C1EN or USSZALB9C1EN – Introduction to Electrical Systems

Or

USS5ALL110EN – Electrical & Hydraulic Diagnostics – Instructor Led or USSZALLQ04EN – Electrics Test Out with minimum of 70% score)

Or

Penn Foster

Truck Electrical Systems, 886M02, 30 hrs.

Industrial Relays, Contactors, and Solenoids, 086081, 5 hours.

Understanding Electronic Diagrams, 086095, 10 hrs.

Electronic Sensors (for equipment systems), 086022, 5 hours

 Or

 Third Party (i.e. Sullivan Training)

1311 Differentiate the relationship among voltage, current, resistance and power in circuits

EETC Electrical Online Course

And

Manufacturer Course Completion

New Holland/Case IH

USS1ELE104EN Basic Electrical Systems and Schematics – Web Based

USSZALL104EN or USSZAL9C1EN or USSIALB9C1EN or USSZALB9C1EN – Introduction to Electrical Systems

Or

USS5ALL110EN – Electrical & Hydraulic Diagnostics – Instructor Led or USSZALLQ04EN – Electrics Test Out with minimum of 70% score)

Or

Penn Foster

Truck Electrical Systems, 886M02, 30 hrs.

Industrial Relays, Contactors, and Solenoids, 086081, 5 hours.

Understanding Electronic Diagrams, 086095, 10 hrs.

Electronic Sensors (for equipment systems), 086022, 5 hours

 Or

 Third Party (i.e. Sullivan Training)

1313 Identify the basic components that make up the various types of cranking system

EETC Electrical Online Course

And

Manufacturer Course Completion

New Holland/Case IH

USS1ELE104EN Basic Electrical Systems and Schematics – Web Based

USSZALL104EN or USSZAL9C1EN or USSIALB9C1EN or USSZALB9C1EN – Introduction to Electrical Systems

Or

USS5ALL110EN – Electrical & Hydraulic Diagnostics – Instructor Led or USSZALLQ04EN – Electrics Test Out with minimum of 70% score)

Or

Penn Foster

Truck Electrical Systems, 886M02, 30 hrs.

Industrial Relays, Contactors, and Solenoids, 086081, 5 hours.

Understanding Electronic Diagrams, 086095, 10 hrs.

Electronic Sensors (for equipment systems), 086022, 5 hours

 Or

 Third Party (i.e. Sullivan Training)

1314 Describe the basic components that make up a typical charging circuit

EETC Electrical Online Course

And

Manufacturer Course Completion

New Holland/Case IH

USS1ELE104EN Basic Electrical Systems and Schematics – Web Based

USSZALL104EN or USSZAL9C1EN or USSIALB9C1EN or USSZALB9C1EN – Introduction to Electrical Systems

Or

USS5ALL110EN – Electrical & Hydraulic Diagnostics – Instructor Led or USSZALLQ04EN – Electrics Test Out with minimum of 70% score)

Or

Penn Foster

Truck Electrical Systems, 886M02, 30 hrs.

Industrial Relays, Contactors, and Solenoids, 086081, 5 hours.

Understanding Electronic Diagrams, 086095, 10 hrs.

Electronic Sensors (for equipment systems), 086022, 5 hours

 Or

 Third Party (i.e. Sullivan Training)