NEORSD Technical Training Objectives

Including but not limited to:	
Courses	**Learning Objectives**
Advanced Instrumentation & Control	Concepts and practice in measurement and control of mechanical process variables in industry. Introduction to methods of instrumentation, characteristics of instruments, sensors, data acquisition and presentation, measurement and analysis of basic dimensions, force, motion, pressure, temperature, fluid flow and fluid viscosity.
Advanced Welding	Develop skills in 6G welding. Prepares a student for 6G certification test.
AutoCAD 101	Introduction to computer systems and computer-aided drafting (CAD) software as tools used to produce engineering drawings. Keyboarding and computer operating skills are overlaid with software commands. Command topics include line coordinate systems, circles and arcs, geometry creation, text styles, editing geometry and text, controlling drawing display, drawing aids, layers, blocks, hatching, and dimensioning.
Boilers 1 - low pressure	Concepts and fundamental skills associated with the operation and maintenance of steam boilers. Topics include an overview of steam boilers and boiler operation, basic boiler processes, boiler construction and material properties, boiler operating and maintenance procedures, combustion theory and fuels, efficiency, and codes and standards. Safety codes and procedures, preventive maintenance and basic troubleshooting techniques will also be covered.
Boilers 2 - high pressure	The focus of this course will be the applications of steam and hot water boilers, water chillers, steam and hydronic heating and cooling systems.
Commercial Driver's License	Class A & B CDL Training. Includes classroom training, driving range, road training and CDL skills testing.
Centrifugal Pumps	Covers the operation and the maintenance of overhung centrifugal pumps and mechanical seals. Disassembly, inspection, checking clearances and rebuilding these pumps to industry standards will be an integral part of this course.
Electric Motors & Motor Controls	Instruction in theory, application, and use of industrial type motors focusing on topics of safety, direct current (DC) motors, alternating current (AC) motors, single-phase motors, three-phase motors, motor troubleshooting methods, and motor control.
Electrical Code Basics & Residential Applications	Introduction to the National Electric Code including industry safety hazards, standards, and precautions.
Electrical Code Commercial & Industrial Applications	Principles of commercial electrical installations to prepare for work in the electrical field in a commercial, environmental setting. Based on the National Electric Code, study includes job specifications, sizing and selection of materials, and installation techniques.
Electricity AC Theory	Principles and applications of electricity with emphasis on alternating current, inductors, capacitors, and phase relationships. Electrical quantities and units of measurements, Ohm's Law, Kirchoff's voltage and current laws, single and three phase transformers will also be included.
Electricity DC Theory	Fundamentals of electricity with emphasis on resistance, direct current voltage and current, electrical quantities and units of measurements. Ohm's Law, Kirchoff's voltage and current laws will also be covered.
Electronics	Concepts of electronics circuitry and instruments including purpose, function, and operation of diodes, transistors, Silicon Controlled Rectifiers (SCRs), DIACs, TRIACs, Field Effect Transmitters FETs), and other solid state devices used in live dynamic electronic circuits.
Fluid Power	Principles of power transmission are presented and contrasted with other means of transmission. Includes laws and principles of fluid power transmission, units of pressure and flow, plumbing materials and sizing, pressure losses through piping, and the uses of vacuum and vacuum applications.

NEORSD Technical Training Objectives

Machining Fundamentals	Presents foundation for study of manufacturing methods, processes, related equipment, and tools of industry, requiring student to understand shop safety practices, job planning, feeds and speeds, layout tools and procedures, fits and clearances, hand tools and bench work, metal cutting saws, drilling machines, internal and external thread cutting, metal lathe, vertical milling machines, jig bore and jig grinder, surface grinder, E.D.M, and abrasives.
Mechanical & Electrical Print Reading Fundamentals	Introduction to fundamental theory and application of blueprint reading skills. Included material will cover electrical, mechanical, structural drawings with symbols and wiring diagrams, Safety Codes, basic troubleshooting techniques. Extensive guided instruction and practice provided.
Mechanical Power Transmission	Introduction to basic concepts of industrial maintenance and installation of mechanical drive systems including bearing, shafts, gears, and couplings. Installation, maintenance, troubleshooting, and lubrication of mechanical components.
Plumbing & Pipefitting	Piping, pipefitting, and tubing techniques, materials, routing and layout including types of material, cutting, threading, measurements, fittings, bending, and offsets.
Practical Algebra & Shop Math	Stresses the relationship between theoretical mathematics and practical trade based applications. Includes fraction to decimal conversion, geometric shapes and concepts such as length, area and volume. Roots, exponents, addition, subtraction, multiplication, and division of fractions, decimals, percentages and applications of algebra to story problems involving gear ratios, dimensions, flow, weight, ft. lbs. etc.
Programmable Logic Controllers 101	Fundamental concepts of Programmable Logic Controllers (PLCs) Maintenance including applications of industrial type PLCs requiring motion control, automated manufacturing and the functions PLCs serve in that environment.
Programmable Logic Controllers: timers, counters, & sequencers	Programming and application of Programmable Logic Controllers (PLCs) including timers, counters, program control, data manipulation, and math instructions. Programming and application of programmable logic controllers (PLCs) including sequencers, shift registers, PLC installation, editing, troubleshooting, process control, date acquisition, and computer-controlled machines and processes.
Reliability Maintenance	Advanced concepts and principles of troubleshooting, preventative and predictive maintenance. Reliability centered maintenance, elements of root cause and failure analysis for hydraulic systems.
Welding (SMAW & STICK)	Develop skills in Shielded Metal Arc Welding (STICK). Prepares a student for the SMAW (STICK) certification test.

Including but not limited to:

Course Schedule	# of Students Enrolled
Semester 1 / (January - May 2026)	
Electricity DC Theory	12
Practical Algebra & Shop Math	9
Semester 2 / (September - December 2026)	
Electricity AC Theory	12
Mechanical & Electrical Print Reading Fundamentals	9
Semester 3 / (January - May 2027)	
Electric Motors & Motor Controls	6
Fluid Power	9
Plumbing & Pipefitting	8
Semester 4 / (September - December 2027)	
Programmable Logic Controllers 101	10
Electronics	10
Boilers 1: Low Pressure	6
Mechanical Power Transmission	8
Semester 5 / (January - May 2028)	
Programmable Logic Controllers: timers, counters, & sequencers	10
Advanced Instrumentation & Control	10
Boilers 2: High Pressure	6
Centrifugal Pumps	8
Semester 6 / (September - December 2028)	
Electrical Code Basics & Residential Applications	6
AutoCAD 101	12
Welding (SMAW) & Stick	8
Semester 7 / (January - May 2029)	
Electrical Code Commercial & Industrial Applications	6
Reliability Maintenance	12
Machining Fundamentals	8

Preferred course time/day options

Thursday Mornings; 7:30am to 11:15am

Thursday Afternoons; 11:45am to 3:30pm

Friday Mornings; 7:30am to 11:15am

Friday Afternoons; 11:45am to 3:30pm