ARC WELDING LAB (PMTL)

PMTL 0104 Fundamentals of Metallurgy Laboratory
Clock Hours: 30
Lab Fee: Yes
This course covers basic material identification, file hardness testing, and comparisons of hardness scales. Demonstrations are given utilizing a Rockwell Tester for material hardness along with tests for heat affected zone (HAZ) hazards due to welding processes. Experiments in heat treatment operations are conducted with Rockwell and Tensile tests verifying grain structure changes. Calculations are conducted demonstrating strength and percent elongation.

PMTL 0121 Shielded Metal Arc Welding 1 Laboratory
Clock Hours: 90
Lab Fee: Yes
This course introduces the student to basic arc manipulation, running beads, and cleaning the weld. Applications relating to starts/stops, bead geometry, and bead placement with advancement into vertical and overhead positions from flat and horizontal positions are addressed. General lab safety related to shielded metal arc welding is covered.

PMTL 0131 Gas Tungsten Arc Welding 1 Laboratory
Clock Hours: 90
Lab Fee: Yes
This course provides students with technical and practical skills needed to perform gas tungsten arc welding (GTAW) processes on ferrous and nonferrous base materials. Fundamentals of GTAW safety are addressed.

PMTL 0138 Gas Tungsten Arc Welding 2 Laboratory
Clock Hours: 90
Lab Fee: Yes
This course provides students with advanced instruction in a lab setting for Gas Tungsten Arc Welding (GTAW) practical skills needed to obtain certifications on ferrous and nonferrous base materials. Emphasis is placed on developing consistency in weld bead geometry and weld bead placement along with proper setup and finishing of GTAW welds.

PMTL 0161 Pipe Welding - Basics
Clock Hours: 90
Lab Fee: Yes
This course provides students with basic pipe end prep and joint fit-up techniques along with weld bead placement for grooved butt welds. Emphasis is placed on vertical E6010 root with E7018 hot fill and cap to completion on 6" SCH80 carbon steel.

PMTL 0165 Pipe Welding - Advanced
Clock Hours: 90
Lab Fee: Yes
This course provides students with advanced filler material (F group) combinations needed to obtain advanced welding process certification. The use of Shielded Metal Arc Welding (SMAW or "Stick"), Gas Metal Arc Welding (GMAW or "MIG"), and Gas Tungsten Arc Welding (GTAW or "TIG") combined processes on low carbon and corrosion-resistant steel (stainless steel) is emphasized. This course is geared toward SG and 6G welding positions.

PMTL 0168 Pipe Welding Certification
Clock Hours: 75
Lab Fee: Yes
This course is designed to provide instruction for students working toward certification in plate, pipe, and tubing for multiple combinations of filler materials, base materials, and positions in accordance with American Welding Society (AWS) standard D1.1, American Petroleum Institute (API) code 1104, and American Society of Mechanical Engineers (ASME) welding codes.