



ALAMO
COLLEGES

CENTRAL TEXAS TECHNOLOGY CENTER

CENTRAL TEXAS TECHNOLOGY CENTER WELDING PLAN

Welding 1021 – Introduction to Welding Fundamentals

COURSE DESCRIPTION: An introduction to the fundamentals of equipment used in oxy-fuel, MIG welding, TIG welding, and arc welding, including welding and cutting safety, basic oxy-fuel welding and cutting, basic arc welding processes and basic metallurgy.

STUDENT LEARNING OUTCOMES: Demonstrate safety procedures associated with oxy-fuel, MIG, TIG, and arc process; perform basic welds using all four spectrums of welding equipment and processes; and identify ferrous and nonferrous metals. The student will demonstrate safety procedures associated with oxyacetylene and arc processes; perform basic welds (including fusion, brazing, silver-brazing, and soldering) using oxyacetylene and/or arc welding equipment; and identify ferrous and nonferrous metals.

LIST OF REQUIRED TEXT(S): MODERN WELDING, Althouse, Trunquist, ...

Video tape recordings are utilized for demonstration purposes

Welding 2043 – Advanced Shielded Metal Arc Welding (SMAW)

COURSE DESCRIPTION: Advanced topics based on accepted welding codes. Training provided with various electrodes in shielded metal arc welding (SMAW) processes with open V-groove joints in all positions.

LEARNING OUTCOMES: Describes effects of preheating and post weld heating; explain precautions used when welding various metals and alloys; distinguish between qualification and certification procedures; and discuss problems of welding discontinuities. Perform open groove welds with low carbon steel and low alloy electrodes in all positions. The student will describe the effects of preheating and post-weld heating; explain precautions used when welding various metals and alloys; distinguish between qualification and certification procedures; and discuss problems of welding discontinuities. The student will perform open groove welds with mild steel and low alloy electrodes in all positions.

LIST OF REQUIRED TEXTS: Modern Welding, Althouse, Turnquist, Bowditch

Welding 2051 – Advanced Oxy-Fuel Welding and Cutting & Advanced Gas tungsten Arc Welding (GTAW)

COURSE DESCRIPTION: A study of all position welding on ferrous and nonferrous metals using the oxy-fuel welding process, including welding and cutting, brazing, and soldering operations. Advanced topics in GTAW welding, including welding in various positions and directions.

LEARNING OUTCOMES: Identify and explain oxy-fuel welding on ferrous and nonferrous metals using oxy-fuel welding and cutting operations; and identify and select appropriate tools, equipment, and materials. The student will identify and explain oxy-acetylene welding procedures; and select the proper tools, equipment, and materials. The student will perform oxy-fuel welding and cutting operations; and identify and select appropriate tools, equipment, and materials. Demonstrate proficiency in various welding positions; describe safety rules and equipment used; and described the effects of welding parameters in GTAW. Weld various joint designs; diagnose welding problems; and perform visual inspection. The student will exhibit expertise in various welding positions; describe safety rules and equipment; and describe the effects of welding parameters in GTAW. The student will weld various joint designs; diagnose welding problems; and perform visual inspection.

LIST OF REQUIRED TEXTS: Modern Welding, Althouse, Turnquist, Bowditch

Welding 2052 – Advanced Flux Cored Arc Welding

COURSE DESCRIPTION: Advanced concepts of flux cored arc welding of structural and fabricated steel products. Skill development in multi-pass fillet and v-groove welding.

STUDENT LEARNING OUTCOMES: Perform safety inspections of equipment and accessories; and perform multi-pass fillet and v-groove weld in all positions. The student will select and properly use the proper GMAW equipment; will identify and describe shielding gases, types of metals and metal transfer; will perform correct electrode wire selection; and use the correct GMAW welding procedures.

LIST OF REQUIRED TEXTS: Modern Welding, Althouse, Turnquist, Bowditch

Welding P2047 – Advanced Pipe Welding

COURSE DESCRIPTION: *This course is currently under revision and is subject to new industry standards. A certificate of completion will be provided utilizing the approved current rubric upon completion of the course.*

STUDENT LEARNING OUTCOMES: TBD

LIST OF REQUIRED TEXTS: TBD