

**Articulation Agreement  
Between  
Corry Area Career and Technical Center and  
Pennsylvania Western University**

This agreement, made on this date of final signature, provides a means by which graduates of the Automotive Technology, Building Property Maintenance, Machine Tool Technology and Welding Technology Programs (CIP codes: 47.0604, 46.0401, 48.0501, 48.0508) at Corry Area Career and Technical Center (Corry ) can receive advanced standing credit in the Associate of Applied Science Degree in Applied Technology, Associate of Engineering Technology Degree in Manufacturing Engineering Technology, Bachelor of Science Degree in Applied Technical Leadership, and Bachelor of Science Degree in ATL-Industrial & Administration programs offered by Pennsylvania Western University (PennWest).

**I. Principles of Agreement**

- A. A student who has successfully mastered the competencies and skills outlined in the Automotive Technology, Building Property Maintenance, Machine Tool Technology and Welding Technology Course Outlines/Competency List's (see Appendix A 1-4) will be eligible to receive the following college credit upon enrollment in the Associate of Applied Science Degree in Applied Technology, Associate of Engineering Technology Degree in Manufacturing Engineering Technology, Bachelor of Science Degree in Applied Technical Leadership, and Bachelor of Science Degree in ATL-Industrial & Bachelor's Degree program at PennWest. The student must complete the Corry courses below with a B average (3.00 average GPA) or better in all courses, pass the NOCTI Exam with an 80% or above and be recommended by the Corry teacher. Credits only, not grades, will be recorded on the PennWest transcript for these courses, so these credits will not be used to calculate the student's University grade point average.

**Corry Area Career and Technical Center**

Automotive Technology  
Building Property Maintenance  
Machine Tool Technology  
Welding Technology  
(B average-3.00 GPA)

**Pennsylvania Western University**

ATFT 2999 (9 credits)

- B. To participate in this program, a student must apply and be admitted to PennWest within two years of completing the Corry Program. During the application, Corry students must submit their PennWest admission application complete with all required components, a recommendation from the Corry teacher, and a signed Letter of Intent (see Appendix B) to the following address: (Denise Zimcosky: 250 University Avenue, California, PA 15419 Box 37).
- C. Corry and PennWest agree to market this program. Corry will promote and market the program to students, guidance counselors, teachers, and administrators in their sending schools. Students' parents will be informed about the availability of the program through appropriate channels. PennWest will assist Corry in marketing the program at the secondary level. Corry will provide PennWest with opportunities to promote and market their department options to students in the program, parents, guidance counselors, teachers, and administrators.
- D. This articulation agreement and awarding of credit is acceptable up to two years after the student has graduated from Corry. Students who apply for credit after the two-year period must be able to document that they have been employed or are currently working in an area related to their Corry program of study.

- E. To ensure that students entering the Associate of Applied Science Degree in Applied Technology, Associate of Engineering Technology Degree in Manufacturing Engineering Technology, Bachelor of Science Degree in Applied Technical Leadership, and Bachelor of Science Degree in ATL-Industrial & Administration schedule appropriate courses, the student must contact an academic advisor in the Department Applied Engineering, Technology and Physics in making the most advantageous course selections.
- F. Corry and PennWest agree to notify each other immediately of any modification in the courses, curriculum, competency lists, or any aspect of the articulated programs during the term of this agreement.

## II. Mutual Terms and Conditions

- A. *Term of Agreement.* The term of this Agreement shall be one year from the date of execution and will be reviewed annually for accuracy. This Agreement may not exceed a period of One (1) year.
- B. *Termination of Agreement.* Either party may terminate this Agreement for any reason with ninety (90) days' notice. In the event of a substantial breach, either party may terminate this agreement upon the occurrence of the breach by written notice that may be less than 90 days. Should this agreement be terminated, it is understood that the termination will not apply to students already accepted to PennWest under terms of this agreement, but not yet enrolled in classes.
- C. *Nondiscrimination.* The parties agree to continue their respective policies of nondiscrimination and related procedures to insure that students enrolled at PennWest are afforded the protections of Title VI of the Civil Rights Act of 1964 in regard to sex, age, race, color, creed, national origin, Title IX of the Education Amendments of 1972 and other applicable laws, as well as the provisions of Section 504 of the Rehabilitation Act of 1973 (as amended) and the Americans with Disabilities Act (ADA) of 1990.
- D. *Modification of Agreement.* This Agreement shall only be modified in writing with the same formality as the original Agreement.
- E. *Relationship of Parties.* The relationship between the parties to this Agreement to each other is that of independent contractors. The relationship of the parties to this contract to each other shall not be construed to constitute a partnership, joint venture or any other relationship, other than that of independent contractors.
- F. *Liability.* Neither of the parties shall assume any liabilities to each other. As to liability to each other or death to persons, or damages to property, the parties do not waive any defense as a result of entering into this contract. This provision shall not be construed to limit the Commonwealth's rights, claims or defenses which arise as a matter of law pursuant to any provisions of this contract. This provision shall not be construed to limit the sovereign immunity of the Commonwealth or of the State System of Higher Education or the University.
- G. *Entire Agreement.* This Agreement represents the entire understanding between the parties. No other prior or contemporaneous oral or written understandings or promises exist in regards to this relationship.

**IN WITNESS WHEREOF**, the authorized representatives of the parties have executed this Agreement as of the date previously indicated.

For Corry Area Career & Technical Center:

  
\_\_\_\_\_  
Sheri L. Yetzer  
Superintendent

For Pennsylvania Western University:

  
\_\_\_\_\_  
Dr. Daniel Engstrom  
Interim Provost and Vice President for Academic Affairs

Approved as to Form and Legality:

\_\_\_\_\_  
University Legal Counsel

\_\_\_\_\_  
Date

## **Appendix A 1-4**

Automotive Technology, Building Property Maintenance, Machine Tool Technology and Welding Technology  
(CIP codes: 47.0604, 46.0401, 48.0501, 48.0508)  
**(See attached)**

## Appendix B Student Letter of Intent to enter Pennsylvania Western University

I plan to enroll at Pennsylvania Western University (PennWest) upon completion of the Corry Area Career and Technical Center Career & Technical Center (Corry). I understand that my signature on this letter entitles me to advanced standing credit for courses completed at Corry as outlined in the articulation agreement between Corry and PennWest. I am familiar with the terms of the Agreement between Corry and PennWest including the following requirements and conditions:

I have successfully mastered the competencies and skills outlined in the Automotive Technology, Building Property Maintenance, Machine Tool Technology and Welding Technology (CIP codes: 47.0604, 46.0401, 48.0501, 48.0508) Competency List with a B average (3.00 GPA) or better in all courses and be recommended by the Corry teacher. I agree to the release of my grades and academic performance records by Corry to PennWest.

I must apply and be admitted to PennWest within two years of completing the program at Corry. Credits only, not grades, will be recorded on the PennWest transcript, so these credits will not be used to calculate the student's university grade point average.

The agreement and awarding of credit are acceptable up to two years after I have graduated from Corry and the awarding of credits included in this agreement may only be applied at PennWest and the Associate of Applied Science Degree in Applied Technology, Associate of Engineering Technology Degree in Manufacturing Engineering Technology, Bachelor of Science Degree in Applied Technical Leadership, and Bachelor of Science Degree in ATL-Industrial & Administration. I understand that the credits awarded in this agreement may not be accepted by or applicable to other degree programs at PennWest and that PennWest does not guarantee that the credits earned under this agreement will be transferable to another college or university.

_____	_____
Parent/Guardian Name (Print)	Student Name (Print)
_____	_____
Parent/Guardian Signature	Student Signature
	Address _____
	_____
Date _____	Phone _____

**Complete and mail a PennWest admissions application along with this Letter of Intent and a recommendation from the Corry teacher, to:**

*Denise Zimcosky,  
ATTN: Corry Applied Engineering, Technology and Physics Agreement  
Pennsylvania Western University-California  
250 University Ave, Box 37  
California, PA 15419*



**Competency Task List – Secondary Component  
Automobile/Automotive Mechanics Technology/Technician CIP 47.0604  
High School Graduation Years 2022, 2023, 2024**

- 100 Orientation**
  - 101 Explain and follow all lab rules.
  - 102 Participate in basic shop management.
  - 103 Participate in parts ordering.
  - 104 Demonstrate auto shop safety and hygiene.
  - 105 Demonstrate the use of service information.
  - 106 Demonstrate proper telephone courtesy.
  - 107 Identify a vehicle by sight, vehicle identification number (VIN) and ID tag.
  - 108 Identify career paths within the automotive technology profession.
  - 109 Complete a work order to include customer information, vehicle service history, service precautions, and technical service bulletins.
  - 110 Research applicable vehicle and service information, vehicle service history, service precautions, and technical service bulletins.
  - 111 Locate and interpret vehicle and major component identification numbers.
  - 112 Follow employee handbook rules(i.e.,cell phone use, taking directions from supervisor,attendance)
  - 113 Ensure clean vehicle following service work.
  - 114 Develop a resume.
  - 115 Develop a cover letter.
  - 116 Participate in a mock job interview.
  - 117 Complete employee forms.
  - 118 Demonstrate a good work ethic.
  - 119 Demonstrate proficient use of a computer, laptop or tablet.
- 200 Safety**
  - 201 Identify and follow all safety rules.
  - 202 Demonstrate the ability to secure vehicles on jack stands and hydraulic lifts.
  - 203 Demonstrate the ability to set-up/shut-down oxygen acetylene welding equipment.
  - 204 Identify chemical safety, Right-To-know laws and Safety Data Sheets (SDS).
  - 205 Identify and use hand tools.
  - 206 Identify and use power tools.
  - 207 Wear personal protective equipment (PPE).
  - 208 Follow guidelines for use of fire protection equipment.
  - 209 RESERVED
  - 210 Follow EPA and OSHA regulations.
  - 211 Identify unsafe practices regarding cell phone use while driving.
  - 212 Complete SP/2 safety certifications (i.e., Mechanical Safety, Pollution Prevention, Blood Borne Pathogens.)
  - 213 Complete first aid training.
  - 214 Identify and follow hybrid or electric vehicle safety rules.
- 300 Tools/Fasteners**
  - 301 Identify and use fasteners and bolts.
  - 302 Drill and use re-threading tools.
  - 303 Read and interpret precision automotive measuring tools.
  - 304 Identify and use automotive specialty tools.
  - 305 Perform common fastener and thread repairs, including remove broken bolt, restore internal and external threads, and repair internal threads with a threaded insert.
  - 306 Utilize inductive heating for loosening fasteners.
- 400 Certifications**
  - 401 Prepare to obtain PA safety inspection Certification.
  - 402 Prepare to obtain EPA 609 Refrigerant Recovery and Recycling Certification.
  - 403 Prepare to obtain Emission Inspection Certification.
  - 404 Obtain a Pennsylvania driver's license
  - 405 Prepare to obtain an ASE certification.

**500 Suspension and Steering**

- 501 RESERVED
  - 502 Identify and interpret suspension and steering system concerns and determine necessary actions.
  - 503 RESERVED
  - 504 RESERVED
  - 505 RESERVED
  - 506 RESERVED
  - 507 Inspect rack and pinion steering gear and mounting bushings and brackets.
  - 508 Inspect rack and pinion steering gear inner tie rod ends (sockets) and bellows boots.
  - 509 Determine proper power steering fluid type and inspect fluid level and condition.
  - 510 Flush, fill, and bleed power steering system.
  - 511 Diagnose power steering fluid leakage and determine necessary actions.
  - 512 RESERVED
  - 513 Remove and reinstall power steering pump.
  - 514 Remove and reinstall press fit power steering pump pulley and check pulley and belt alignment.
  - 515 Inspect and replace power steering hoses and fittings.
  - 516 Inspect and replace pitman arm, relay (centerlink/intermediate) rod, idler arm and mountings, and steering linkage damper.
  - 517 Inspect, replace, and adjust the rod ends (sockets), tie rod sleeves, and clamps.
  - 518 RESERVED
  - 519 Inspect, and replace upper and lower control arms, bushings, shafts, and rebound bumpers.
  - 520 Inspect and replace strut rods and bushings.
  - 521 Inspect and replace upper and lower ball joints.
  - 522 Inspect and replace steering knuckle assemblies.
  - 523 Inspect and replace short and long arm suspension system coil springs and spring insulators.
  - 524 Inspect, replace, and adjust suspension system torsion bars and inspect mounts.
  - 525 Inspect and replace stabilizer bar bushings, brackets, and links.
  - 526 Inspect and replace strut cartridge or assembly, strut coil spring, insulators (silencers), and upper strut bearing mount.
  - 527 Inspect, remove, and replace shock absorbers.
  - 528 RESERVED
  - 529 Lubricate suspension and steering systems.
  - 530 Perform pre-alignment inspection and measure vehicle ride height and; perform necessary actions.
  - 531 Perform four-wheel alignment.
  - 532 RESERVED
  - 533 RESERVED
  - 534 RESERVED
  - 535 Check front and rear cradle (subframe) alignment.
  - 536 Inspect tire condition, identify tire wear patterns, and check and adjust air pressure.
  - 537 Diagnose wheel/tire vibration, shimmy, and noise.
  - 538 Rotate tires according to manufacturer's recommendations.
  - 539 Measure wheel, tire, axle flange, and hub runout.
  - 540 RESERVED
  - 541 Dismount, inspect, and remount tire on wheel and balance wheel and tire assembly (static and dynamic).
  - 542 Dismount, inspect, and remount tire on wheel equipped with tire pressure monitoring system sensor.
  - 543 RESERVED
  - 544 Inspect tire and wheel assembly for air loss.
  - 545 Repair tire using internal patch.
  - 546 Identify indirect and direct tire pressure monitoring systems (TPMS), calibrate system, and verify operation of instrument panel lamps.
  - 547 Identify steps required to remove and replace sensors in a tire pressure monitoring system (TPMS) including relearn procedure.
  - 548 Identify the need for reset procedures post wheel alignment.
- 600 Brakes**
- 601 RESERVED
  - 602 Identify and interpret brake system concerns.
  - 603 RESERVED
  - 604 RESERVED
  - 605 Measure brake pedal height, travel, and free play as applicable.



- 606 Check master cylinder for internal/external leaks and proper operation.
  - 607 Remove, bench bleed, and reinstall master cylinder.
  - 608 Inspect brake lines, flexible hoses, and fittings for leaks, dents, kinks, rust, cracks, bulging or wear; tighten loose fittings and supports; and determine necessary actions.
  - 609 Replace brake lines, hoses, fittings, and supports.
  - 610 Fabricate brake lines using proper material and flaring procedures (double flare and ISO types).
  - 611 Select, handle, store, and test brake fluid for contamination and fill to proper level.
  - 612 Inspect, test, and replace components of brake warning light system.
  - 613 Bleed and flush brake system.
  - 614 Diagnose poor stopping, noise, vibration, pulling, grabbing, dragging, or pedal pulsation concerns.
  - 615 Remove, clean, inspect, and measure brake drums.
  - 616 Refinish brake drum and measure final drum diameter.
  - 617 Remove, clean, and inspect brake shoes, springs, pins, clips, levers, adjusters/self-adjusters, other related brake hardware, and backing support plates then lubricate and reassemble.
  - 618 Inspect and install wheel cylinders.
  - 619 Pre-adjust brake shoes and parking brake, install brake drums or drum/hub assemblies, and wheel bearings.
  - 620 Install wheel, torque lug nuts, and make final checks and adjustments.
  - 621 RESERVED
  - 622 Remove caliper assembly, inspect for leaks, and damage to caliper housing.
  - 623 Clean and inspect caliper mounting and slides/pins for operation, wear, and damage.
  - 624 Reassemble, lubricate, and reinstall caliper, pads, and related hardware, seat pads, and inspect for leaks.
  - 625 Clean, inspect, and measure rotor thickness, lateral runout, and thickness variation.
  - 626 Remove and reinstall rotor.
  - 627 Refinish rotor on vehicle and measure final rotor thickness.
  - 628 Refinish rotor off vehicle and measure final rotor thickness.
  - 629 RESERVED
  - 630 Check brake pad wear indicator system operation.
  - 631 RESERVED
  - 632 Check vacuum supply to vacuum-type power booster and check power assist operation.
  - 633 Remove, clean, inspect, repack, and install wheel bearings, RACEs and replace seals; install hub; and adjust bearings.
  - 634 Check parking brake cables and components including integral parking brake system for wear, binding, and corrosion then clean, lubricate, adjust, or replace as needed.
  - 635 Check parking brake and indicator light system operation.
  - 636 Check operation of brake stop light system.
  - 637 RESERVED
  - 638 Inspect and replace wheel studs.
  - 639 Remove and reinstall sealed wheel bearing assembly.
  - 640 Identify and inspect electronic brake control system components.
  - 641 Diagnose electronic brake control system, electronic control(s), and components by retrieving diagnostic trouble codes and using recommended test equipment.
  - 642 RESERVED
  - 643 Bleed the electronic brake control system hydraulic circuits.
  - 644 Identify traction control/Vehicle stability control system components.
  - 645 Describe the operation of a regenerative braking system.
- 700 Electrical/Electronic Systems**
- 701 RESERVED
  - 702 Identify and interpret electrical/electronic system concerns.
  - 703 RESERVED
  - 704 RESERVED
  - 705 Use wiring diagrams during diagnosis of electrical circuit problems.
  - 706 Check electrical circuits with a test light.
  - 707 Check electrical circuits using fused jumper wires.
  - 708 Locate shorts, grounds, opens, and resistance problems in electrical/electronic circuits.
  - 709 Measure and diagnose the cause(s) of excessive problems in electrical/electronic circuits.
  - 710 Inspect and test fusible links, circuit breakers, and fuses.
  - 711 Inspect and test switches, connectors, relays, solenoid solid state devices, and wires of electrical/electronic circuits.
  - 712 Remove and replace terminal end from connector, replace connectors, and terminal ends.
  - 713 Repair wiring harness and solder repair.
  - 714 RESERVED

- 715 Identify location of electric hybrid vehicle high voltage circuit disconnect (service plug) location and safety procedures.
  - 716 Perform battery state-of-charge test.
  - 717 Perform battery capacity test and confirm proper battery capacity for vehicle application.
  - 718 Maintain and restore electronic memory functions.
  - 719 Inspect, clean, fill, and replace battery, battery cables, connectors, clamps, and hold-downs.
  - 720 Perform battery charge.
  - 721 Start a vehicle using jumper cables or an auxiliary power supply.
  - 722 Identify electronic modules, security systems, radios, and other accessories that require reinitialization or code entry following battery disconnect.
  - 723 Perform starter current draw tests.
  - 724 Perform starter circuit voltage drop tests.
  - 725 Inspect and test starter relays and solenoids.
  - 726 Remove and install starter in a vehicle.
  - 727 Inspect and test switches, connectors, and wires of starter control circuits and perform necessary action.
  - 728 Differentiate between electrical and engine mechanical problems that cause a slow-crank or no-crank condition.
  - 729 Perform charging system output test and determine necessary action.
  - 730 Diagnose charging system for the cause of undercharge, no-charge, and overcharge conditions.
  - 731 RESERVED
  - 732 Remove, inspect, and install generator (alternator).
  - 733 RESERVED
  - 734 RESERVED
  - 735 Inspect, replace, and aim headlights and bulbs.
  - 736 RESERVED
  - 737 RESERVED
  - 738 RESERVED
  - 739 Diagnose the cause of incorrect operation of warning devices and other driver information systems.
  - 740 Diagnose incorrect horn operation.
  - 741 Diagnose incorrect wiper operation and diagnose wiper speed control and park problems.
  - 742 Diagnose incorrect washer operation.
  - 743 Diagnose incorrect operation of motor-driven accessory circuits.
  - 745 RESERVED
  - 746 Remove and reinstall door panel.
  - 747 Use a digital multimeter (DMM).
  - 748 Demonstrate knowledge of an automatic idle start/stop system.
- 800 Engine Performance**
- 801 RESERVED
  - 802 Identify and interpret engine performance concern.
  - 803 RESERVED
  - 804 RESERVED
  - 805 RESERVED
  - 806 Diagnose abnormal engine noise or vibration concerns.
  - 807 Diagnose abnormal exhaust color, odor, and sound.
  - 808 Perform engine absolute (vacuum/boost) manifold pressure tests.
  - 809 Perform cylinder power balance test.
  - 810 Perform cylinder cranking and running compression tests.
  - 811 Perform cylinder leakage test.
  - 812 Diagnose engine mechanical, electrical, electronic, fuel, and ignition concerns.
  - 813 Verify engine operating temperature.
  - 814 RESERVED
  - 815 RESERVED
  - 816 Retrieve and record diagnostic trouble codes, OBD monitor status, and freeze frame data and clear codes when applicable.
  - 817 Diagnose the causes of emissions or drivability concerns with stored or active diagnostic trouble codes and obtain, graph, and interpret scan tool data.
  - 818 Access and use service information to perform step-by-step diagnosis.
  - 819 Perform active tests of actuators using a scan tool.
  - 820 Describe the importance of running all OBDII monitors for repair verification.
  - 821 RESERVED

- 822 Inspect and test ignition primary and secondary circuit wiring and solid-state components and test ignition coil(s).
  - 823 Inspect and test crankshaft and camshaft position sensor(s).
  - 824 Inspect, test, and replace ignition control module and powertrain/engine control module and reprogram as necessary.
  - 825 Diagnose hot or cold no-starting, hard starting, poor drivability, incorrect idle speed, poor idle, flooding, hesitation, surging, engine misfire, power loss, stalling, poor mileage, dieseling, and emissions problems.
  - 826 Inspect and test fuel pumps and pump control systems for pressure, regulation, and volume.
  - 827 Replace fuel filters.
  - 828 Inspect throttle body, air induction system, intake manifold, and gaskets for vacuum leaks and unmetered air.
  - 829 Inspect and test fuel injectors.
  - 830 Verify idle control operation.
  - 831 Inspect the integrity of the exhaust manifold, exhaust pipes, muffler(s), catalytic converter(s), resonator(s), tail pipe(s), and heat shield(s).
  - 832 RESERVED
  - 833 Inspect, test, and service positive crankcase ventilation (PCV) filter/breather cap, valve, tubes, orifices, and hoses.
  - 834 RESERVED
  - 835 Inspect, test, service, and replace components of the EGR system, including electrical/electronic sensors, controls, and wiring, EGR tubing, exhaust passages, vacuum/pressure controls, filters, and hoses.
  - 836 RESERVED
  - 837 Inspect and test mechanical components of secondary air injection systems.
  - 838 Inspect and test electrical/electronically operated components and circuits of air injection systems.
  - 839 Inspect and test catalytic converter efficiency.
  - 840 RESERVED
  - 841 Inspect and test components and hoses of the evaporative emissions control system.
  - 842 Interpret diagnostic trouble codes (DTCs) and scan tool data related to the emissions control systems.
  - 843 RESERVED
  - 844 RESERVED
  - 845 RESERVED
  - 846 RESERVED
  - 847 Preview GDI (Gas Directed Injection)
- 900 Engine Repair**
- 901 RESERVED
  - 902 Verify operation of the instrument panel engine warning indicators.
  - 903 Install engine covers using gaskets, seals, and sealers.
  - 904 RESERVED
  - 905 Adjust valves (mechanical or hydraulic lifters).
  - 906 Inspect, replace, and adjust drive belts, tensioners, and pulleys and check pulley and belt alignment.
  - 907 Inspect and test coolant, drain and recover coolant, and flush and refill cooling system with recommended coolant.
  - 908 Perform cooling system pressure tests; check coolant condition; inspect and test radiator, pressure cap, coolant recovery tank, and hoses.
  - 909 Identify components and inspect engine assembly for fuel, oil, coolant, and other leaks.
  - 910 Remove and replace timing belt and verify correct camshaft timing.
  - 911 Remove and replace thermostat and gasket/seal.
  - 912 Inspect and test mechanical/electrical fans, fan clutch, fan shroud/ducting, air dams, and fan control devices.
  - 913 Perform engine oil and filter change.
  - Bleed cooling system.
- 1000 Automatic Transmission and Transaxle**
- 1001 RESERVED
  - 1002 Check fluid level and fluid condition in a transmission or a transaxle equipped with a dip-stick.
  - 1003 Check fluid level and fluid condition in a transmission or a transaxle not equipped with a dip-stick.
  - 1004 Drain, replace, and exchange fluid and filter(s).
  - 1005 Identify drivetrain components and configuration.
  - 1006 Inspect, adjust, and replace external manual valve shift linkage, transmission range sensor/switch, and park/neutral switch.
  - 1007 Inspect for leakage at external seals, gaskets, and bushings.
  - 1008 Inspect, replace, and align powertrain mounts.
- 1100 Manual Drive Train and Axles**
- 1101 RESERVED
  - 1102 Drain and refill manual transmission/transaxle and final drive unit.

- 1103 Check and adjust clutch master cylinder fluid level.
  - 1104 Check for system leaks.
  - 1105 Check and adjust differential housing fluid level.
  - 1106 Drain and refill differential housing.
  - 1107 Identify, inspect, and replace manual drivetrain and axle components and configuration.
- 1200 Heating and Air Conditioning**
- 1201 RESERVED
  - 1202 RESERVED
  - 1203 inspect air conditioning (A/C) condenser for airflow restrictions.
  - 1204 inspect engine cooling and heating systems hoses.
  - 1205 inspect A/C heating ducts, doors, hoses, cabin filters, and outlets.
  - 1206 Check for A/C leaks.
- Identify A/C refrigerants.
- 1300 Additional Areas Recommended by Local Industry Reps
  - 1301 Perform MIG Welding
  - 1302 Perform Work on Drive Train /Section 1000 and 1100 have been added since last DACUM
  - 1303 Perform Work on Differentials /Section 1000 and 1100 have been added since last DACUM

**Competency Task List – Secondary Component**  
**Building/Property Maintenance & Manager CIP 46.0401**  
**High School Graduation Years 2023, 2024, 2025**

**100 Safety**

- 101 Follow general shop safety procedures.
- 102 Wear personal protective equipment.  
RESERVED (103)
- 104 Identify the components of the Occupational Safety and Health Act (OSHA) and state its purposes.
- 104a Obtain CareerSafe 10 Hour General Industry OSHA Certification
- 105 Lift and carry objects using ergonomics.
- 106 Follow Safety Data Sheets (SDS).
- 107 Follow general ladder safety.
- 108 Identify scaffolding and other elevated work surfaces.
- 109 Identify classes of fires and types of fire extinguishers.
- 110 Follow fall protection safety procedures.
- 111 Identify the requirements of building permits.
- 112 Demonstrate knowledge of excavation safety procedures
- 113 Obtain general first aid knowledge
- 114 Demonstrate knowledge of confined space procedures
- 115 Maintain cleanliness and safety in work area
- 116 Demonstrate knowledge of hazardous materials in workplace (e.g. asbestos, lead, solvents, coatings and removal.)
- 117 Perform lock-out/tag-out and other electrical safety.
- 118 Perform classroom lockdown, severe weather and fire procedures.

**200 Building and Property Maintenance**

- 201 Follow building and property maintenance (BPM) lab rules and procedures.  
RESERVED (202)
- 203 Follow safety rules for tools, machines, and processes.  
RESERVED (204)
- 205 Identify lab tools and equipment.
- 206 Keep daily timecards and project logs.
- 207 Record daily units/hour records.  
RESERVED (208)  
RESERVED (209)

- 210 Use safe methods of storing materials and supplies.
- 211 Use measuring devices.
- 212 Estimate quantities of materials.
- RESERVED (213)
- RESERVED (214)

**300 Carpentry and Repairs**

- 301 Identify common building materials.
- 302 Read and interpret building plans.
- 303 Prepare a bill of material.
- 304 Layout stock.
- 305 Layout angles.
- 306 Find the center line of stock.
- 307 Use a sliding T-bevel to transfer an angle.
- 308 Transfer a cut line using a marking gauge.
- 309 Test a level for accuracy in the vertical and horizontal positions.
- 309a Transfer a point using a plumb bob.
- 310 Check a horizontal surface using a level.      and using laser tools.
- 311 Check a vertical surface using a level.      and using laser tools.
- 312 Snap a chalk line.
- RESERVED (313)
- 314 Bore holes with various drill bits.
- RESERVED (315)
- 316 Select nails for a specific job.
- 317 Drive and remove nails using a claw hammer.
- RESERVED (318)
- 319 Pull nails with a wrecking bar or other nail removal tools.
- RESERVED (320)
- 321 Select and install screw-type fasteners.
- 322 Identify fasteners and anchors for various uses.
- RESERVED (323-326)
- 327 Check for square.

**400 Portable Power Tools**

- 401 Follow safety rules and procedures for using portable power tools. , including pneumatic and other power-ope
- 402 Operate portable electric and battery-operated drills.
- 403 Operate a metal cutting (abrasive disc) chop saw.
- 404 Operate a portable jigsaw and reciprocating saw.
- 405 Operate a router.
- 406 Operate a disc grinder.
- 407 Operate an oscillating multi-tool.

**500 Table Saws**

- 501 Follow safety rules and procedures for using a table saw.
- 502 Rip stock on a table saw using a rip fence.
- 503 Crosscut stock on a table saw with a miter gauge.

**600 Drill Presses**

- 601 Follow safety rules and procedures for using a drill press.
- 602 Drill holes in metal using a drill press.
- 603 Drill holes in non-metallic materials using a drill press.
- 604 Designate safety zone identified with floor safety tape.

**700 Compound Miter Saws**

- 701 Follow safety rules and procedures for using a compound miter saw.
- 702 Cut stock to length on a miter saw.
- 703 Cut angles on a miter saw.
- 704 Cut compound angles on a miter saw.

**800 Bench Grinders**

- 801 Follow safety rules and procedures for using a bench grinder.
- 802 Sharpen cutting tools on a bench grinder.
- 803 De-burr stock on a bench grinder.

**900 Tool and Machine Maintenance**

- 901 Replace or repair broken tools. , and replace or repair all safety shield and guards.

## Exhibit B-BMP Task List

- 902 Examine power tool and cords for damage and replace or repair.
- 903 Lubricate moving parts of power tools as recommended by the manufacturer.
- 904 Replace saw blades and other cutting tool accessories when dull.
- 905 Sharpen edge cutting tools.
- 906 Remove dust from power tool stators and rotors.
- 907 Remove paint, oils, water, and lubricants from tool handles and power tool housings and chassis.
- 908 Examine extension cords for damage and replace or repair male/female cord ends.

### **1000 Structural Floors**

- 1001 Identify floor members.
- 1002 Install joist hangers.
- 1003 Install or replace bridging between joists.
- 1004 Repair (remove or replace) plywood sub-flooring on joists.
- 1005 Describe platform, balloon, and post and beam framing.
- 1006 Layout and install sill plates.
- 1007 Layout and install floor joists and openings.
- 1008 Layout and install subflooring.
- 1009 Repair or remove trip hazards, including blocks.

### **1100 Roofs**

- 1101 Identify roof members.
- 1102 Identify roof types. (including metal roofing).
- 1102a Use fall restraint harnesses and explain standards for edge railing on commercial flat roofs.
- 1103 Install and repair roof sheathing.
- 1104 Install roofing materials on shingled roofs.
- 1105 Remove and replace damaged shingle(s).
- 1106 Apply sealing compounds and caulking.
- 1107 Install common rafters.
- 1108 Install and repair roof flashings.

### **1200 Stairs and Staircases**

- 1200a Review all ADA rules and regulations for stairs and staircases.
- 1201 Repair stair stringers.



Exhibit B-BMP Task List

- 1202 Repair stair risers and treads.
- 1203 Install and repair a stair railing.
- 1204 Layout and install a stair stringer.  
RESERVED (1205)
- 1206 Repair a balustrade.

**1300 Doors and Windows**

- 1301 Install a lock set. exterior/interior
- 1302 Hang an interior door. /exterior
- 1303 Cut and install molding.
- 1304 Trim a door jamb.
- 1305 Trim a window, stool, apron, casing, and extension jambs.
- 1306 Cut a gain for butt hinges and install butt hinges.
- 1307 Cut a miter using a miter saw.
- 1308 Set finish nails with a nail set.
- 1309 Assemble miter joints by nailing.
- 1310 Install a deadbolt and door handles.
- 1311 Discuss electronic door access/swipe cards and push buttons.
- 1312 Discuss egress code.

**1400 Interior Walls /Ceilings**

- 1401 Cut drywall with a utility knife.
- 1401a Repair existing drywall.
- 1402 Install drywall board.
- 1403 Install metal corners prior to finishing drywall.
- 1404 Tape and smooth drywall.
- 1405 Cope an inside corner.
- 1406 Miter an outside corner.
- 1407 Install rubber cove base.
- 1408 Repair suspended ceiling grids and tiles.
- 1409 Describe installation of metal studs.

**1500 Exterior Walls**

Exhibit B-BMP Task List

- 1501 Install and repair siding components.
- 1502 Install, repair, and clean gutter and spouting components.
- 1503 Identify wall frame members.
- 1504 Layout, cut, and install wall frame members and wall openings.
- 1505 Install siding underlayments, housewraps, and flashings.

**1600 Masonry Skills**

- 1601 Perform masonry work.
- 1602 Identify and use masonry tools.
  - RESERVED (1603)
- 1604 Identify safety hazards for masonry workers.
  - RESERVED (1605)
  - RESERVED (1606)
- 1607 Cut block and brick with a masonry hammer and brick set.      and saw.
- 1607a Lay masonry units (brick or block).
  - RESERVED (1608-1610)
- 1611 Strike off a block (masonry) wall.
- 1612 Clean mortar from block and brick work.
- 1613 Tar and parge a wall.
- 1617 Identify anchors for masonry repair jobs.
- 1618 Re-point brick or block walls.
- 1619 Replace masonry unit in existing masonry wall.

**1700 Concrete**

- 1701 Build forms for a concrete slab. including reinforcement and rebar.
- 1702 Mix concrete and use additives.
- 1703 Place a concrete slab, place and screed concrete.
- 1704 Float concrete.
- 1705 Finish concrete.
- 1706 Patch steps and walkways.
- 1707 Re-set masonry anchors.
- 1708 Discuss joints.

Exhibit B-BMP Task List

**1800 Floor and Wall Tile**

- 1801 Estimate the quantity of tile nee (Covered in task #212)
- 1802 Use tile terminology and determine applications.
- 1803 Use adhesives and mortars.
- 1804 Use tile tools and equipment.
- 1805 Install various types o of tile (floor/wall).

**1900 Residential Electrical Circuits**

- 1901 Apply the National Electric Code (NEC) to common installations.
- 1902 Practice electrical safi, including lock-out-tag-out.
- 1903 Use electrical tools.
- 1904 Interpret electrical drawings.
- 1905 Identify common electrical symbols.
- 1906 Use a multimeter to identify alternating current and direct current.
- 1907 Identify wire sizes and ampacities.
- 1908 Identify wire types.
- 1909 Use connectors/wire nuts to connect or splice wire.
- 1910 Dispose of fluorescent bulbs.
- 1911 Change fluorescent bl/LED bulbs.  
RESERVED (1912)
- 1913 Reset an electric circuit breaker.
- 1914 Install a ground fault circuit interrupting outlet.  
RESERVED (1915)  
RESERVED (1916)
- 1917 Install an adjustable bar hanger.
- 1918 Install a light fixture.
- 1919 Install a duplex receptacle.
- 1920 Install a single pole switch circuit.
- 1921 Install a split wire duplex receptacle.  
RESERVED (1922)
- 1923 Install a recessed light.
- 1924 Install outlet boxes.  
RESERVED (1925)

## Exhibit B-BMP Task List

- 1926 Install Romex to boxes.
- RESERVED (1927)
- 1928 Install a three-way switch circuit.
- 1929 Install a four-way switch circuit.
- RESERVED (1930-1932)
- 1933 Install old work boxes.
- 1934 Check and replace a 24-volt transformer.
- 1935 Install (GFCI and AFCI) circuit breakers.
- RESERVED (1936)
- 1937 Perform proper grounding techniques.
- RESERVED (1938)
- 1939 Install low-voltage wii, controls and devices.
- 1940 Install coaxial cable for television reception.
- 1941 Install cabling for computer workstations.
- 1942 Replace or install a ceiling fan.
- 1943 Bend conduit (box off-set and 90 degree).
- 1944 Demonstrate knowledge of motion sensory/energy control management.

### 2000 Residential Plumbing Systems

- RESERVED (2001)
- RESERVED (2002)
- 2003 Interpret plumbing symbols.
- 2004 Interpret plumbing drawings.
- 2005 Identify types of pipes.
- 2006 Identify plumbing pipe fittings.
- RESERVED (2007-2009)
- 2010 Sweat solder copper pipe and fittings using propane, MAPP, or Prestolite gas.
- 2011 Install and replace copper pipe and fittings.
- 2012 Solvent weld polyvinyl chloride (PVC) plastic pipe.
- 2013 Install and repair PVC plastic pipe and fittings.
- 2014 Repair wastewater drains.
- 2015 Install, replace, and repair commodes.
- 2016 Install lavatories and sinks.

- 2017 Hook up water supply lines and wastewater lines.
- 2018 Install or replace a garbage disposal unit.
- 2019 Clean and/or replace wastewater traps and pipes.
- 2020 Replace and repair a faucet set.
- 2021 Identify, install, and/or replace valves.
- 2022 Use compression tools for copper pipe.
- 2023 Install and replace Cross-linked Polyethylene (PEX) pipe and fittings.

**2100 Finishing Materials**

- 2101 Protect furniture, materials, and surrounding surfaces from overspray and paint spatter.
- 2102 Tape door and window trim to protect from finishing materials.
- 2103 Prepare a surface prior to applying a finish.
- 2104 Stain wood surfaces with wiping oil stains.
- 2105 Apply a finish material with a brush and a roller.  
RESERVED (2106)
- 2107 Apply oil base paints.
- 2108 Apply acrylic based paints.  
RESERVED (2109)
- 2110 Clean paint brushes and rollers.
- 2111 Investigate the use of high velocity low pressure (HVLP) spray painters.
- 2112 Utilize PPE for painting applications (e.g., ventilator mask, gloves)
- 2113 Maintain proper ventilation for painting applications.

**2200 Reserved**

**2300 Portable Circular Saws**

- 2301 Use a portable circular saw.
- 2302 Rip stock with a portable circular saw.
- 2303 Cross cut wood using a portable circular saw.
- 2304 Cut miters with a portable circular saw.
- 2305 Plunge cut with a portable circular saw.

**2400 Environmental Control Systems**

## Exhibit B-BMP Task List

- 2401 Identify the scales on a thermometer.  
RESERVED (2402)
- 2403 Define British Thermal Unit (BTU).
- 2404 Describe types of heat transfer , (utilize trainer to check air flow, check heat transfer through convection and conduction)
- 2405 Identify the components of a gas fuel heating system.
- 2406 Identify the components of an oil fuel heating system.
- 2407 Describe filter replacement requirements for forced air systems
- 2408 Replace a thermostat.
  
- 2500 Shielded metal arc welding
  - 2501 State and follow all safety rules and precautions for using an arc welder
  - 2502 Strike an arc using the scratching and tapping method 6010,6011,7014,7018 electrodes
  - 2503 Deposit short and continuous beads in the flat (1F), horizontal (2F), and vertical (3F) positions
  - 2504 Restarting the arc in 1F, 2F, and 3F positions
  - 2505 Weld single and multiple pass butt joints in the 1F, 2F, and 3F positions
  - 2506 Weld single and multiple pass lap joints in the 1F, 2F, and 3F positions
  - 2507 Weld single and multiple pass T-joints in the 1F, 2F, and 3F positions
  - 2508 Tool and electrode identification
  - 2508 welder set up
  - 2509 basic weld symbol identification
  
- 2600 Mig (Metal Inert Gas) welding
  - 2601 State and follow all safety rules and precautions for using a Mig welder
  - 2602 Tool and electrode identification
  - 2603 Set up a Mig welder
  - 2604 basic weld symbol identification
  - 2605 Deposit short and continuous beads in the flat (1F), horizontal (2F), and vertical (3F) positions
  - 2606 Weld single and multiple pass butt joints in the 1F, 2F, and 3F positions
  - 2607 Weld single and multiple pass lap joints in the 1F, 2F, and 3F positions
  - 2608 Weld single and multiple pass T-joints in the 1F, 2F, and 3F positions
  
- 2700 Oxyacetylene Welding (OAW)
  - 2701 State and follow all safety rules and precautions for using a Oxyacetylene torch

Exhibit B-BMP Task List

- 2702 Set up and identification of OAW equipment
- 2703 Demonstrate correct procedures for lighting a OAW torch
- 2704 Deposit beads with filler material
- 2705 Weld a butt joint in the flat position

**2800 Oxyfuel Cutting**

- 2801 State and follow all safety rules and precautions for using a Oxyacetylene torch
- 2802 Set up and identification of Oxyfuel cutting equipment
- 2803 Demonstrate correct procedures for lighting a OAW torch
- 2804 Make straight cuts using a OAW torch
- 2805 Make circular cuts using a OAW torch
- 2806 Make beveled cuts using a OAW torch

Exhibit B-BMP Task List



**Competency Task List – Secondary Component**  
**Machine Tool Technology/Machinist CIP 48.0501**  
**High School Graduation Years 2022, 2023, 2024**

**100 Orientation/Safety**

Item	Task	(X) Indicates Proficiency <sup>1</sup>	Secondary Course Crosswalk
101	Follow Occupational Safety and Health Administration (OSHA) regulations.		
102	RESERVED		
103	Apply general shop safety procedures (e.g., utilize PPE, safe machine operation, safe use of hand tools, power tools, fire safety, safe work areas)		
104	RESERVED Follow required procedures for emergency situations (e.g. contacting 911)		
105	RESERVED		
106	Follow Safety Data Sheets (SDS). Demonstrate understanding and use of SDS		
107	RESERVED		
108	Apply safety procedures outlined by machine manuals.		

**200 Performing Layout Work**

Item	Task	(X) Indicates Proficiency <sup>1</sup>	Secondary Course Crosswalk
201	Perform layout work, completing NIMS layout projects.		
202	RESERVED		
203	RESERVED Employ basic and precision layout tools (e.g. process planning, SPC charts, sampling plans).		

**300 Part Inspection**

Item	Task	(X) Indicates Proficiency <sup>1</sup>	Secondary Course Crosswalk
301	Use precision measuring instruments.		
302	Calibrate precision measuring instruments.		
303	Create quality control procedures.		

**400 Bench Work**

Item	Task	(X) Indicates Proficiency <sup>1</sup>	Secondary Course Crosswalk
401	Apply bench work safety procedures.		
402	Cut material with a hand hacksaw.		
403	File work to specifications.		
404	Cut threads with hand taps and dies.		
405	RESERVED		
406	Select and use hand tools.		
407	Use a hand arbor and hydraulic press.		
408	Complete NIMS benchmark project.		

**500 Drill Presses**

Item	Task	(X) Indicates Proficiency <sup>1</sup>	Secondary Course Crosswalk
501	Apply drill press safety procedures.		
502	Operate drill press work holding devices.		
503	RESERVED		
504	RESERVED		
505	Select correct drill sizes for drill press application.		
506	RESERVED		
507	Demonstrate counterboring, spotfacing, reaming, and countersinking, and tapping.		

508	RESERVED		
509	RESERVED		
510	RESERVED		
511	RESERVED		
512	Complete the NIMS Drill Press Project.		

**600 Grinding Machines**

Item	Task	(X) Indicates Proficiency <sup>1</sup>	Secondary Course Crosswalk
601	Apply pedestal and surface grinding safety procedures.		
602	Identify parts of pedestal grinder.		
603	Test, mount, and dress grinding wheels.		
604	Grind and sharpen tools.		
605	RESERVED		
606	RESERVED		
607	RESERVED		
608	Identify parts of surface grinder.		
609	Grind surfaces flat and parallel using a magnetic chuck.		
610	Grind work surfaces square with a vise or angle plate.		
611	Grind precision angles using a sine plate or sine bar.		
612	Complete the NIMS Grinding Project.		

**700 Lathes**

Item	Task	(X) Indicates Proficiency <sup>1</sup>	Secondary Course Crosswalk
701	Apply lathe safety procedures.		

702	Indicate work piece in a 4-jaw chuck.		
703	Align centers.		
704	Face workpiece.		
705	RESERVED		
706	Turn inside and outside diameters to shoulders.		
707	Turn tapers.		
708	Demonstrate knurling.		
709	Part off and groove workpiece.		
710	Cut internal and external threads.		
711	RESERVED		
712	File and polish workpiece.		
713	RESERVED		
714	Perform boring operations.		
715	Install and remove tool holders.		
716	Select and apply work holding devices.		
717	RESERVED		
718	RESERVED		
719	Select gears for lathe operations.		
720	Perform drilling operations.		
721	Complete the NIMS Lathe Project.		

**800 Milling Machines**

Item	Task	(X) Indicates Proficiency <sup>1</sup>	Secondary Course Crosswalk
801	Apply milling machine safety procedures.		
802	Tram a mill head.		
803	Mount and indicate vise.		
804	Mill angles.		
805	Mill keyways.		
806	RESERVED Perform hole making including drilling and tapping operations.		

807	RESERVED		
808	RESERVED		
809	Use an edge finder.		
810	Differentiate between climb milling and conventional milling.		
811	Use an adjustable boring head.		
812	RESERVED		
813	Install and remove cutting tool holders.		
814	Select cutting tool for milling operations.		
815	Square part.		
816	Select cutting tool for drilling operations.		
817	Complete the NIMS Milling Project.		

**900 Power Saw**

Item	Task	(X) Indicates Proficiency <sup>1</sup>	Secondary Course Crosswalk
901	Apply power saw safety procedures.		
902	RESERVED		
903	RESERVED		
904	Follow the 3 tooth rule.		
905	Saw work piece.		
906	RESERVED		

**1000 Machines and Tools**

Item	Task	(X) Indicates Proficiency <sup>1</sup>	Secondary Course Crosswalk
1001	Lubricate and maintain machinery.		
1002	Clean and store equipment.		
1003	Inspect machine guards.		

1004	RESERVED Identify and perform periodic preventative maintenance.		
1005	RESERVED Adhere to basic safety practices.		

**1100 Metallurgy**

Item	Task	(X) Indicates Proficiency <sup>1</sup>	Secondary Course Crosswalk
1101	Identify metals classifications.		
1102	Identify metal property applications.		
1103	Identify heat-treating and annealing processes.		

**1200 Charts and References**

Item	Task	(X) Indicates Proficiency <sup>1</sup>	Secondary Course Crosswalk
1201	Use the decimal equivalent chart.		
1202	Calculate speeds and feeds.		
1203	Use tap and drill charts.		
1204	Use Machinery handbook and/or shop references to locate information.		

**1300 Blueprint Reading**

Item	Task	(X) Indicates Proficiency <sup>1</sup>	Secondary Course Crosswalk
1301	Identify orthographic views and projections.		
1302	RESERVED Identify GD&T		
1303	Identify the alphabet of lines and symbols.		
1304	RESERVED		
1305	Calculate material sizes.		

1306	Differentiate angle projections.		
1307	RESERVED		
1308	Interpret title block information.		

**1400 CNC Programming/Operations/CNC Set Up/CNC Operating**

Item	Task	(X) Indicates Proficiency <sup>1</sup>	Secondary Course Crosswalk
1401	Apply CNC safety procedures.		
1402	Interpret G and M codes.		
1403	RESERVED Complete the CNC NIMS lathe project.		
1404	Use Cartesian coordinate systems.		
1405	RESERVED Complete the CNC Mill project.		
1406	Prove a CNC program.		
1407	RESERVED Apply tool holding and workholding.		
1408	RESERVED Complete NIMS programming project.		
1409	Set part zero and tool offsets.		
1410	Transfer data files to and from a CNC machine.		
1411	Use CNC control functions.		
1412	RESERVED		
1413	Select and use workholding devices.		

<sup>1</sup> Student Demonstrated Entry-Level Industry Proficiency as Indicated by (X)

Secondary CTE Instructor Signature \_\_\_\_\_ Date \_\_\_\_\_

Student Signature \_\_\_\_\_ Date \_\_\_\_\_





**Competency Task List – Secondary Component  
Welding Technology/Welder CIP 48.0508  
High School Graduation Years 2022, 2023, 2024**

Note: Tasks listed in bold print were added by local industry representatives during an occupational analysis workshop.

**100 Occupational Orientation and Safety**

Item	Task	(X) Indicates Proficiency <sup>1</sup>	Secondary Course Crosswalk
101	Complete time or job sheet, reports, or records.		
102	Perform housekeeping duties daily.		
103	Follow verbal instructions to complete work assignments and rules.		
104	Follow written instructions to complete work assignments and rules.		
105	Inspect and use Personal Protection Equipment (PPE) daily.		
106	Maintain proper organization and operation of work area.		
107	Demonstrate proper use of ventilation equipment.		
108	Discuss proper hot work operation.		
109	Demonstrate knowledge of proper work actions for working in confined spaces.		
110	Identify Safety Data Sheets (SDS) and precautionary labeling.		
111	Inspect welding and thermal cutting equipment for safe operation.		
112	Display familiarity with industrial and OSHA safety standards.		
113	Identify oxyfuel safety procedures.		
114	Identify arc welding/cutting safety procedures.		
115	Follow emergency action plan.		
<b>116</b>	<b>Demonstrate knowledge of how to operate fire extinguishers (type A, B, C, D).</b>		
117	Identify power tool accessories.		

**200 Principles of Welding**

Item	Task	(X) Indicates Proficiency <sup>1</sup>	Secondary Course Crosswalk
201	Identify major types of metals (ferrous and nonferrous) used in welding.		
202	Describe the basic principles of heat, expansion, and contraction as they relate to metals.		
203	RESERVED		
204	Describe the industry accepted welding codes, standards, and procedures and their use.		
205	Identify various joint designs (joint geometry).		
206	Clean and prepare materials for welding and/or cutting.		
207	Demonstrate proper use of hand tools.		
208	Demonstrate proper use of standard measuring and layout tools.		
209	Demonstrate proper use of power equipment.		

**300 Welding, Drawing, and Weld Symbol Interpretation**

Item	Task	(X) Indicates Proficiency <sup>1</sup>	Secondary Course Crosswalk
301	Interpret basic elements of a drawing or sketch.		
302	Interpret welding symbol information.		
303	Fabricate parts from a drawing or sketch (class project).		
304	Identify structural materials used in the metal fabrication field.		
305	Perform basic metric conversion.		

**400 Visual Examination, Inspection, and Testing**

Item	Task	(X) Indicates Proficiency <sup>1</sup>	Secondary Course Crosswalk
401	Evaluate cut surfaces and edges of prepared base metal parts for testing.		

402	Identify and evaluate weld discontinuities as per accept/reject criteria.		
403	Perform visual inspection, destructive, and non-destructive testing.		

**500 Shielded Metal Arc Welding (SMAW)**

Item	Task	(X) Indicates Proficiency <sup>1</sup>	Secondary Course Crosswalk
501	Perform safety inspections of SMAW equipment.		
502	Make minor external repairs to SMAW equipment.		
503	Set up and operate SMAW equipment.		
504	RESERVED		
505	RESERVED		
506	RESERVED		
507	Perform qualification test.		
508	Pass fillet weld performance test in flat position.		
509	Pass fillet weld performance test in horizontal position.		
510	Pass fillet weld performance test in vertical position.		
511	Pass fillet weld performance test in overhead position.		
512	Pass groove weld performance test in flat position.		
513	Pass groove weld performance test in horizontal position.		
514	Pass groove weld performance test in vertical position.		
515	Pass groove weld performance test in overhead position.		

**600 Gas Metal Arc Welding (GMAW)**

Item	Task	(X) Indicates Proficiency <sup>1</sup>	Secondary Course Crosswalk
601	Perform safety inspections of GMAW equipment.		
602	Make minor external repairs to GMAW equipment.		
603	Set up and operate GMAW equipment.		
604	RESERVED		

605	RESERVED		
606	Pass performance test.		
607	Pass fillet weld performance test in flat position.		
608	Pass fillet weld performance test in horizontal position.		
609	Pass fillet weld performance test in vertical position.		
610	Pass fillet weld performance test in overhead position.		
611	Pass groove weld performance test in flat position.		
612	Pass groove weld performance test in horizontal position.		
613	Pass groove weld performance test in vertical position.		
614	Pass groove weld performance test in overhead position.		

**700 Flux Corded Arc Welding (FCAW)**

Item	Task	(X) Indicates Proficiency <sup>1</sup>	Secondary Course Crosswalk
701	Perform safety inspections of FCAW equipment.		
702	Make minor external repairs to FCAW equipment.		
703	Set up and operate FCAW equipment.		
704	RESERVED		
705	Pass performance test.		
706	RESERVED		
707	Pass fillet weld performance test in flat position.		
708	Pass fillet weld performance test in horizontal position.		
709	Pass fillet weld performance test in vertical position.		
710	Pass fillet weld performance test in overhead position.		
711	Pass groove weld performance test in flat position.		
712	Pass groove weld performance test in horizontal position.		
713	Pass groove weld performance test in vertical position.		
714	Pass groove weld performance test in overhead position.		
715	<b>Describe the basic principles of FCAW-S.</b>		

**800 Gas Tungsten Arc Welding (GTAW)**

Item	Task	(X) Indicates Proficiency <sup>1</sup>	Secondary Course Crosswalk
801	Perform safety inspections of GTAW equipment.		
802	Make minor external repairs to GTAW equipment.		
803	Set up and operate GTAW equipment.		
804	RESERVED		
805	Pass performance test on ferrous materials.		
806	Set up and operate GTAW on nonferrous materials.		
807	RESERVED		
808	Pass performance test on nonferrous materials.		
809	Pass fillet weld performance test in flat position on ferrous materials.		
810	Pass fillet weld performance test in horizontal position on ferrous materials.		
811	Pass fillet weld performance test in vertical position on ferrous materials.		
812	Pass fillet weld performance test in overhead position on ferrous materials.		
813	Pass fillet weld performance test in flat position on nonferrous materials.		
814	Pass fillet weld performance test in horizontal position on nonferrous materials.		
815	Pass fillet weld performance test in vertical position on nonferrous materials.		
816	Pass fillet weld performance test in overhead position on nonferrous materials.		
817	Describe the basic principles of pipe fitting and welding.		

**900 Manual Oxy-fuel Gas Cutting (OFC)**

Item	Task	(X) Indicates Proficiency <sup>1</sup>	Secondary Course Crosswalk
901	Perform safety inspections of OFC equipment.		
902	Make minor external repairs to OFC equipment.		
903	Set up for manual OFC operations on steel.		

904	Operate manual OFC equipment.		
905	Perform straight cutting operations on steel.		
906	Perform shape cutting operations on steel.		
907	Perform bevel cutting operations on steel.		
908	Perform piercing operations on steel.		
909	Perform 1 inch diameter hole cutting operations.		
910	Identify types of fuel gas and their relative equipment and consumables.		

**1000 Mechanized Oxy-fuel Gas Cutting (OFC)**

Item	Task	(X) Indicates Proficiency <sup>1</sup>	Secondary Course Crosswalk
1001	Perform safety inspections of mechanized OFC equipment.		
1002	Make minor external repairs to mechanized OFC equipment.		
1003	Set up and operate mechanized OFC equipment on steel.		
1004	Perform straight mechanized OFC operations on steel.		
1005	Perform bevel mechanized OFC operations on steel.		

**1100 Manual Plasma Arc Cutting (PAC)**

Item	Task	(X) Indicates Proficiency <sup>1</sup>	Secondary Course Crosswalk
1101	Perform safety inspections of PAC equipment.		
1102	Make minor external repairs to PAC equipment.		
1103	Set up and operate manual PAC operations on ferrous and nonferrous materials.		
1104	Perform shape PAC operations on ferrous and nonferrous materials.		
1105	Perform gouging and scarfing PAC operations to remove base and weld metal on ferrous and nonferrous materials.		

**1200 Manual Air Carbon Arc Cutting (CAC-A)**

Item	Task	(X) Indicates Proficiency <sup>1</sup>	Secondary Course Crosswalk
1201	Perform safety inspections of CAC-A equipment and accessories.		
1202	Make minor external repairs to CAC-A equipment and accessories.		
1203	Set up and operate manual CAC-A gouging and cutting operations on steel.		
1204	Perform gouging and scarfing operations to remove base and weld metal on steel.		

**1300 Reserved**

Item	Task	(X) Indicates Proficiency <sup>1</sup>	Secondary Course Crosswalk
1301	RESERVED		
1302	RESERVED		

<sup>1</sup> Student Demonstrated Entry-Level Industry Proficiency as Indicated by (X)

Secondary CTE Instructor Signature \_\_\_\_\_ Date \_\_\_\_\_

Student Signature \_\_\_\_\_ Date \_\_\_\_\_

