

AUTOMOTIVE TECHNOLOGY 1 (1255)**Sem./Year – Credit 1****Prerequisite:** Intro to Automotive Technology

This advanced course allows students to learn further maintenance and repair of automotive vehicles and systems. Skills using cutting torches, ARC, MIG, TIG welding, and plasma cutting will be introduced and practiced. This course will focus on diagnostic thought process, diagnostic procedures, and use of diagnostic equipment.

Number of weeks	Topic Sequence	Scope
1	Introduction Safety	<ul style="list-style-type: none"> • Course responsibilities • General safety rules • Specific safety rules • Lift/ jack demo • Review chassis components • Safety test • Form groups/ lab activity sheets • Classroom organization
3	Review Safety	<ul style="list-style-type: none"> • Tire changer • Tire balancer • Tire rotation • Oil change • Lab activities: <ul style="list-style-type: none"> Tire changer Tire balancer Suspension inspection Tire rotation Oil/ filter service
6.5	Brake Systems Shielded Metal Arc Welding Safety	<ul style="list-style-type: none"> • Identify & define major parts of disc/ drum brake system • Brake System Principles: <ul style="list-style-type: none"> Mechanical advantage (leverage) Hydraulic force multiplication/ Pascal's Law • Disc brake service • Drum brake service • Shielded metal arc welding welding • Brake system inspection • PASCAL's Law/ different caliper designs • ABS systems • Lab activities <ul style="list-style-type: none"> Oxy-Acetylene torch cutting Brake inspection Disc brake service Drum brake service Shielded metal arc welding - beads
5.5	Cooling Systems Plasma cutting	<ul style="list-style-type: none"> • Cooling system components • Plasma cutting

	Safety	<ul style="list-style-type: none"> • Cooling system inspection • Cooling system diagnostic procedures • Lab Activities <p>Shielded metal arc welding: lap joint Shielded metal arc welding: t-joints Cooling system inspection Cooling system pressure tester</p>
4.5	Automotive Battery & Charging System MIG welding Safety	<ul style="list-style-type: none"> • Automotive batteries - types, ratings • Voltage • State of charge tests • Capacity load tests • Charging system tests • Surface charge • Diagnostic procedures • MIG welding • Lab activities <p>Shielded metal arc welding: lap joint Shielded metal arc welding: t-joints Plasma cutting Multimeter usage Battery & charging system inspection MIG welding - beads</p>
6	Automotive Wiring & Electrical System Safety	<ul style="list-style-type: none"> • Automotive wiring • Common electric parts • Voltage, amperage, resistance • Wiring diagrams & schematics • Tracing Specific Circuits • Lab Activities <p>Electric system diagnosis MIG welding - lap joints Design/ build a circuit</p>
5	Ignition Systems Safety	<ul style="list-style-type: none"> • Four stroke cycle review • Ignition system theory • Standard ignition vs. electronic ignition • Ignition Timing • Basic tune-up • Installing distributor/ wires • Lab Activities <p>Ignition timing MIG welding - exhaust pipe Mig welding: round, irregular shapes Electric system diagnosis continued Distributor installation Ignition analyzer</p>
4.5		<ul style="list-style-type: none"> • Allows for differentiated instruction • Teachable moments • Extension of lab activity time