

**2010/2011 Auto Technology II**  
**PTT303 - 36 weeks**  
**DoDEA Course Description and Competencies**

**About the Program**

Auto Technology II prepares students for careers in the Transportation, Distribution and Logistics industry. The course sequence focuses on duties and tasks performed by professionals in Facility and Mobile Equipment Maintenance as well as pre-employment and employment skills.

**Major Concepts/Content:** Automotive Technology II emphasizes the advanced skills necessary in the automotive industry. Specific instructions are given in troubleshooting, automotive preventive maintenance, minor engine repair, engine performance, and brakes. Reading, math, science, and principles of technology are reinforced in this course.

**Major Instructional Activities:** Instructional activities used in an automotive laboratory setting will provide hands-on experience with automotive tools, equipment, and materials related to the course content. Students will complete automotive servicing and repair activities; investigate content-related occupations; present ideas and information orally and in writing, and assume leadership roles within the framework of the classroom setting. Emphasis will be placed on self-concepts, values, decision-making skills and work skills.

**Major Evaluative Techniques:** Students will be required to pass laboratory safety tests as well as content- and process-related tests. Automotive service and repair activities will be evaluated for completeness and accuracy. Written and oral reports will be evaluated for content and form. Class participation will be evaluated using criteria such as working conscientiously on a project, using materials properly, conscientiously assisting others, working independently, offering solutions to problems, and completing projects.

The table below is a competency list for the Auto Technology II course. The competencies are considered essential and are required of all students.

<b>PTT303</b> 36 weeks	<b>Automotive Technology II</b> <b>TASKS/COMPETENCIES</b>
<b>Implementing DoDEA's CTE Course Requirements</b>	
• 001	Demonstrate DoDEA's Workplace Readiness Skills in course activities.
• 002	Identify issues related to this field of study that affect the environment and impact local and global communities.
• 003	Identify Internet safety issues and procedures for complying with acceptable use standards.
<b>Applying Safety Practices on the Job</b>	
• 004	Identify the safe use of chemicals.
• 005	Identify the safe use and maintenance of hand tools.
• 006	Identify the safe use and maintenance of power tools.
• 007	Identify the safe use of shop equipment (including hydraulics).
<b>Performing Shop Operations</b>	
• 008	Communicate with customers, co-workers, and supervisors orally and in writing.
• 009	Generate a work order.

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• 010	Obtain service information.
<b>Diagnosing General Electrical System</b>	
• 011	Check continuity in electrical circuits, using test light and voltmeter, oscilloscope, and wiring diagrams.
• 012	Check for shorts, opens, and grounds.
• 013	Measure resistance in electrical circuits, using an ohmmeter.
• 014	Measure volts with a voltmeter or oscilloscope.
• 015	Measure current with an ammeter.
<b>Diagnosing and Repairing Starting System</b>	
• 016	Diagnose and determine needed repair on starting system.
• 017	Remove, clean, and inspect starter motor and components.
• 018	Repair or replace starter motor components.
<b>Diagnosing and Repairing Charging System</b>	
• 019	Diagnose and determine needed repair on charging system.
• 020	Remove, clean, and inspect alternator.
• 021	Repair or replace alternator components.
• 022	Repair or replace charging system components.
<b>Diagnosing and Repairing Ignition System</b>	
• 023	Test engine performance, using engine analyzer (and NATEF-recommended tools), and determine needed repairs.
• 024	Inspect, repair, or replace primary ignition components.
<b>Diagnosing and Repairing Emission Control System</b>	
• 025	Clean, inspect/replace PCV system components.
• 026	Clean, inspect/replace spark timing controllers.
• 027	Clean, inspect/replace idle speed controllers.
• 028	Clean, inspect/replace exhaust gas recirculation.
<b>Diagnosing and Repairing Lubrication and Cooling System</b>	
• 029	Inspect and repair oil system and components.
• 030	Perform cooling system test, and determine needed repairs.
<b>Diagnosing and Repairing Suspension and Steering System</b>	
• 031	Inspect and repair steering columns (including new and emerging technologies such as fiber optics, pass codes, keys with microchip, air bag assemblies).
<b>Diagnosing and Repairing Front Suspension System</b>	
• 032	Diagnose and determine needed repairs on conventional and electronic front suspension systems.
• 033	Inspect and repair control arm and spring assemblies on conventional systems.
• 034	Inspect and repair wheel spindles and bearings.
• 035	Inspect and replace shock absorbers and stabilizer bars.
• 036	Diagnose and determine needed repairs on MacPherson strut assemblies.
• 037	Clean, inspect, and assemble MacPherson strut assemblies.
<b>Diagnosing and Repairing Rear Suspension System</b>	
• 038	Diagnose and determine needed repairs on conventional and electronic rear suspensions.

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• 039	Inspect and replace shock and spring assemblies.
• 040	Inspect and replace MacPherson strut assemblies.
• 041	Inspect and repair suspension linkages and bushings.
<b>Diagnosing and Repairing Hydraulic Brake System</b>	
• 042	Inspect and replace switching and valving devices.
<b>Diagnosing and Repairing Power-Assist Brakes</b>	
• 043	Check operation of anti-skid braking systems, and adjust or repair according to manufacturer's recommendations (including traction control).
<b>Developing Career Exploration and Employability Skills</b>	
• 044	Identify characteristics of a successful automotive technician.
• 045	Investigate career opportunities.
• 070	Create or update a portfolio containing representative samples of student work.