

## CTE Course Description and Standards Crosswalk

### Course Information

Course Name	Automotive Service Tech 4
Course Number	86541/86542
Number of High School Credits	1
Sequence or CTEPS (You must first have the Sequence or CTEPS entered into the EED-CTE system.)	Automotive
Date of district Course Revision	April 2013

### Career & Technical Student Organization (CTSO)

CTSO embedded in this sequence	SkillsUSA
--------------------------------	-----------

### Occupational Standards

Source of Occupational Standards	ASE/NATEF
Names/Numbers of Occupational Standards	

### Registration Information

Course Description (brief paragraph – as shown in your student handbook or course list)	Automotive Service Technician 4 covers in depth training in the diagnosis and repair of automotive systems. This course is designed to teach the student advanced skills necessary for future employment in the automotive field. Instruction includes career exploration, participation in SkillsUSA, and industry visits. A student successful in this course will be able to use technical skills learned in this course to help qualify for nationally recognized ASE (Automotive Service Excellence). Successful completion of this course qualifies the student to receive Technical Preparation credit from the University of Alaska Anchorage (UAA).
Instructional Topic Headings (please separate each heading by a semi-colon)	Personal and Equipment Safety in The Lab; Identification, Use and Care of Tools and Equipment; Investigate Career Opportunities in The Automotive Industry; Engine Repair; Automatic Transmission and Transaxle; Manual Drivetrain and Axles; Brake System Diagnosis and Repair; Suspension/ Steering System Diagnosis and Repair; Electrical System Diagnosis and Repair; Heating and Air Conditioning; Engine Performance Diagnosis and Repair; Encourage Career and Technical Student Organization (CTSO) Involvement

### Summative Assessments and Standards

Technical Skills Assessment (TSA)	
Course addresses:	
New Alaska ELA and Math Standards	
Alaska Cultural Standards	
All Aspects of Industry (AAI)	
Core Technical Standards	
Employability Standards	

### Employability Standards

Source of Employability Standards	SkillsUSA/NATEF
-----------------------------------	-----------------

### Tech Prep

**DISTRICT NAME: Mat-Su Borough School District**

Current Tech Prep Articulation Agreement? (Y/N)	Y
Date of Current Agreement	May 2013
Postsecondary Institution Name	University of Alaska Anchorage – UAA
Postsecondary Course Name	Auto Electrical 1,3
Postsecondary Course Number	ADT 102, ADT 150, ADT 162 (With Auto Tech 1-3), ADT 121, ADT 122, (With Auto Tech 1-4)
# of Postsecondary Credits	17 in total (0 for course alone)

### Additional CTE Course Information

Author	
Course developed by	John Egan, Ed Clawson
Course adapted from	
Date of previous course revision	June 2007
Course Delivery Model	
Is the course brokered through another institution or agency? (Y/N)	

Standards Alignment
---------------------

Student Performance Standards (Learner Outcomes or Knowledge & Skill Statements)	Specific Occupational Skills Standard	Common Technical Core Standards	New Alaska ENG/LA Standards	New Alaska Math Standards	Alaska Cultural Standards	Employability/Career Readiness Standards	All Aspects of Industry/Systems	Assessment
Demonstrate safe laboratory techniques and handling of hazardous materials.	NATEF All Skills USA AST 4.1, 4.2, 4.3, 4.7	TD 5 TD HSE 1 &2			A1, A4, B1, B2, B4	A1, A2, A5, A6, A7	Health / Safety Technical Skills	AK EED Safety Manual Skills USA 4.0
Select and operate appropriate hand tools power tools, and related equipment.	NATEF Safety Skills USA AST 4.1, 4.2, 4.3, 4.7	TD 5 TD HSE 1 &2			A6 B2, B4	A2, A6, A7, B4	Technical Skills	AK EED Safety Manual Skills USA 4.0
Exhibit responsibilities of employment standards including exhibiting dependability and meeting organizationally defined expectations.	Skills USA AST 5.0	TD 6 CRP 1, 4, 8, 9, 10, 12	SL.CC.9-12. A-D		A1, B1, B2, B3 C2, C4, E4	A1, A2, A5	Labor Work Habits	SkillsUSA 5.0/NATEF
Diagnose and repair lighting systems.	ASE NATEF VI.E SkillsUSA AST 3.0 & 6.0		WHST.RB. 11-12.8 RST.CS.11-12.4	N-Q.1 S-ID.9 A-REI.1	B2, B4	A2, A5	Health/ Safety Technology Technical Skills	ASE A-6 Electronics SkillsUSA AST 3.0 & 6.0

**DISTRICT NAME: Mat-Su Borough School District**

<b>Student Performance Standards (Learner Outcomes or Knowledge &amp; Skill Statements)</b>	<b>Specific Occupational Skills Standard</b>	<b>Common Technical Core Standards</b>	<b>New Alaska ENG/LA Standards</b>	<b>New Alaska Math Standards</b>	<b>Alaska Cultural Standards</b>	<b>Employability/Career Readiness Standards</b>	<b>All Aspects of Industry/Systems</b>	<b>Assessment</b>
Repair or replace lights, sockets, wires and switches.	ASE NATEF VI.E SkillsUSA AST 3.0 & 6.0		WHST.RB. 11-12.6 RST.CS.11- 12.4	S-ID.9	B2, B4	A2, A5	Health/ Safety Technology Technical Skills	ASE A-6 Electronics SkillsUSA AST 3.0 & 6.0
Diagnose and repair gauge and warning circuits.	ASE NATEF VI.F SkillsUSA AST 3.0 & 6.0		WHST.RB. 11-12.6 RST.CS.11- 12.4	S-ID.9 S-IC.6	B2, B4	A2, A5	Health/ Safety Technology Technical Skills	ASE A-6 Electronics SkillsUSA AST 3.0 & 6.0
Diagnose and repair electrical cooling circuits and components.	ASE NATEF VII.C SkillsUSA AST 3.0 & 6.0		WHST.RB. 11-12.6 RST.CS.11- 12.4	S-ID.9 S-IC.6	B2, B4	A2, A5	Health/ Safety Technology Technical Skills	ASE A-6 Electronics SkillsUSA AST 3.0 & 6.0
Diagnose and repair electrical heating and defrosting components and related circuits.	ASE NATEF VII.D SkillsUSA AST 3.0 & 6.0		WHST.RB. 11-12.6 RST.CS.11- 12.4	S-ID.9 S-IC.6	B2, B4	A2, A5	Health/ Safety Technology Technical Skills	ASE A-6 Electronics SkillsUSA AST 3.0 & 6.0
Diagnose and repair automotive safety and restraint systems.	ASE NATEF VI.H SkillsUSA AST 3.0 & 6.0		WHST.RB. 11-12.6 RST.CS.11- 12.4	N-Q.3 S-IC.6 S-ID.9	B2, B4	A2, A5	Health/ Safety Technology Technical Skills	ASE A-6 Electronics SkillsUSA AST 3.0 & 6.0
Conduct engine performance tests using engine analyzers and determine necessary action.	ASE NATEF VIII.A SkillsUSA AST 2.0		WHST.RB. 11-12.8	N-Q.3 S-IC.6 S-ID.9	B2, B4	A2, A5	Health/ Safety Technology Technical Skills	ASE A-8 Engine Perf SkillsUSA AST 2.0
Adjust ignition system to manufacturer's specifications.	ASE NATEF VIII.C SkillsUSA AST 2.0		WHST.RB. 11-12.8	N-Q.3 S-IC.6	B2, B4	A2, A5	Health/ Safety Technology Technical Skills	ASE A-8 Engine Perf SkillsUSA AST 2.0

**DISTRICT NAME: Mat-Su Borough School District**

<b>Student Performance Standards (Learner Outcomes or Knowledge &amp; Skill Statements)</b>	<b>Specific Occupational Skills Standard</b>	<b>Common Technical Core Standards</b>	<b>New Alaska ENG/LA Standards</b>	<b>New Alaska Math Standards</b>	<b>Alaska Cultural Standards</b>	<b>Employability/Career Readiness Standards</b>	<b>All Aspects of Industry/Systems</b>	<b>Assessment</b>
Perform on-board computer system diagnosis.	ASE NATEF VIII.B SkillsUSA AST 2.0		RST.CS.11- 12.4 W.PD.11- 12.6	N-Q.3 S-ID.9	B2, B4	A2, A5	Health/ Safety Technology Technical Skills	ASE A-8 Engine Perf SkillsUSA AST 2.0
Repair or replace on-board computer system components.	ASE NATEF VIII.B SkillsUSA AST 2.0		W.PD.11- 12.6	N-Q.3 S-IC.6	B2, B4	A2, A5	Health/ Safety Technology Technical Skills	ASE A-8 Engine Perf SkillsUSA AST 2.0
Diagnose fuel system problems and determine necessary action.	ASE NATEF VIII.D SkillsUSA AST 2.0		W.RB.11- 12.7	N-Q.3 S-IC.6 S-ID.9	B2, B4	A2, A5	Health/ Safety Technology Technical Skills	ASE A-8 Engine Perf SkillsUSA AST 2.0
Inspect, repair or replace faulty fuel supply components.	ASE NATEF VIII.D SkillsUSA AST 2.0			N-Q.3 S-IC.6 S-ID.9	B2, B4	A2, A5	Health/ Safety Technology Technical Skills	ASE A-8 Engine Perf SkillsUSA AST 2.0
Disassemble, clean, and inspect fuel injection system components.	ASE NATEF VIII.D SkillsUSA AST 2.0			N-Q.3 S-IC.6 S-ID.9	B2, B4	A2, A5	Health/ Safety Technology Technical Skills	ASE A-8 Engine Perf SkillsUSA AST 2.0
Repair or replace fuel injection system components.	ASE NATEF VIII.D SkillsUSA AST 2.0			N-Q.3 S-IC.6	B2, B4	A2, A5	Health/ Safety Technology Technical Skills	ASE A-8 Engine Perf SkillsUSA AST 2.0
Adjust computer controlled carburetion and fuel injection systems.	ASE NATEF VIII.D SkillsUSA AST 2.0		WHST.PD. 11-12.6	N-Q.3 S-IC.6	B2, B4	A2, A5	Health/ Safety Technology Technical Skills	ASE A-8 Engine Perf SkillsUSA AST 2.0

**DISTRICT NAME: Mat-Su Borough School District**

<b>Student Performance Standards (Learner Outcomes or Knowledge &amp; Skill Statements)</b>	<b>Specific Occupational Skills Standard</b>	<b>Common Technical Core Standards</b>	<b>New Alaska ENG/LA Standards</b>	<b>New Alaska Math Standards</b>	<b>Alaska Cultural Standards</b>	<b>Employability/Career Readiness Standards</b>	<b>All Aspects of Industry/Systems</b>	<b>Assessment</b>
Diagnose emission control systems and determine necessary action.	ASE NATEF VIII.E SkillsUSA AST 2.0		WHST.RB. 11-12.8	N-Q.3 S-IC.6 S-ID.9	B2, B4	A2, A5	Health/ Safety Technology Technical Skills	ASE A-8 Engine Perf SkillsUSA AST 2.0
Diagnose and repair exhaust system problems.	ASE NATEF VIII.D SkillsUSA AST 2.0		WHST.RB. 11-12.8 RST.CS.11- 12.4	N-Q.3 S-ID.9	B2, B4	A2, A5	Health/ Safety Technology Technical Skills	ASE A-8 Engine Perf SkillsUSA AST 2.0
Inspect, clean, and replace positive crankcase ventilation system components.	ASE NATEF VIII.E SkillsUSA AST 2.0			N-Q.3 S-ID.9	B2, B4	A2, A5	Health/ Safety Technology Technical Skills	ASE A-8 Engine Perf SkillsUSA AST 2.0
Inspect, clean, and replace spark timing controllers.	ASE NATEF VIII.C SkillsUSA AST 2.0		RST.CS.11- 12.4	N-Q.3 S-IC.6 S-ID.9	B2, B4	A2, A5	Health/ Safety Technology Technical Skills	ASE A-8 Engine Perf SkillsUSA AST 2.0
Inspect, clean, and replace idle speed controllers.	ASE NATEF VIII.D SkillsUSA AST 2.0		RST.CS.11- 12.4	N-Q.3 S-IC.6 S-ID.9	B2, B4	A2, A5	Health/ Safety Technology Technical Skills	ASE A-8 Engine Perf SkillsUSA AST 2.0
Inspect, clean, and replace exhaust gas re-circulation system components.	ASE NATEF VIII.D SkillsUSA AST 2.0		RST.CS.11- 12.4	N-Q.3 S-IC.6 S-ID.9	B2, B4	A2, A5	Health/ Safety Technology Technical Skills	ASE A-8 Engine Perf SkillsUSA AST 2.0
Inspect, clean, and replace air management system components.	ASE NATEF VIII.D SkillsUSA AST 2.0		RST.CS.11- 12.4	N-Q.3 S-IC.6 S-ID.9	B2, B4	A2, A5	Health/ Safety Technology Technical Skills	ASE A-8 Engine Perf SkillsUSA AST 2.0

**DISTRICT NAME: Mat-Su Borough School District**

Student Performance Standards (Learner Outcomes or Knowledge & Skill Statements)	Specific Occupational Skills Standard	Common Technical Core Standards	New Alaska ENG/LA Standards	New Alaska Math Standards	Alaska Cultural Standards	Employability/Career Readiness Standards	All Aspects of Industry/Systems	Assessment
Inspect, clean, and replace inlet air temperature control system components.	ASE NATEF VIII.D SkillsUSA AST 2.0		RST.CS.11-12.4	N-Q.3 S-IC.6 S-ID.9	B2, B4	A2, A5	Health/ Safety Technology Technical Skills	ASE A-8 Engine Perf SkillsUSA AST 2.0
Inspect, clean, and replace fuel vapor control system components.	ASE NATEF VIII.E SkillsUSA AST 2.0		RST.CS.11-12.4	N-Q.3 S-IC.6 S-ID.9	B2, B4	A2, A5	Health/ Safety Technology Technical Skills	ASE A-8 Engine Perf SkillsUSA AST 2.0
Diagnose engine control systems and determine necessary action.	ASE NATEF VIII.B SkillsUSA AST 2.0		RST.CS.11-12.4	N-Q.3 S-IC.6 S-ID.9	B2, B4	A2, A5	Health/ Safety Technology Technical Skills	ASE A-8 Engine Perf SkillsUSA AST 2.0
Inspect, clean, and replace engine control system components.	ASE NATEF VIII.B SkillsUSA AST 2.0		RST.CS.11-12.4	N-Q.3 S-IC.6 S-ID.9	B2, B4	A2, A5	Health/ Safety Technology Technical Skills	ASE A-8 Engine Perf SkillsUSA AST 2.0

**Instructional Resources**

**List the major instructional resources used for this course: (websites, textbooks, essential equipment, reference materials, supplies)**

**Recommended Text:** Modern Automotive Technology, By James E. Duffy, The Goodheart-Willcox Company, Inc.

Automotive Technology Curriculum Modules, Instructional Materials Laboratory, University of Missouri-Columbia

**Resources:** AK EED Safety Manual: <http://www.eed.state.ak.us/tls/CTE/docs/resources/safetymanual.pdf>  
 SkillsUSA Automotive Service Technology (AST): <http://www.skillsusa.org/contests.html>

**DISTRICT NAME: Mat-Su Borough School District**

AKCIS - Alaska Career Information System Information:  
ASE - National Institute for Automotive Service Excellence:

[www.akcis.org](http://www.akcis.org)  
<http://www.asecert.org>

NATEF 2013 MAST