

UAS Automotive Technology
Student Advising Handbook
2008-2009



University of Alaska Southeast
Automotive Technology
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Program Web Site
<http://www.uas.alaska.edu/automotive>

Introduction:

The AAS Degree in Power Technology with Automotive Emphasis is a vocational training program for men and women interested in a career in the automotive industry. Upon graduation, students will be eligible for employment in automotive dealerships, fleet service operations, independent and franchise repair shops, and national chain automotive service stores. Students expecting to gain employment in this industry will need a valid driver's license with a good driving record, and a personal toolbox meeting industry standards.

The UAS Automotive Technology program has been evaluated by NATEF (National Automotive Technicians Education Foundation) and is ASE-certified in all eight major repair areas. ASE certification ensures students receive up-to-date training that is recognized by the automotive industry. Since a third-party has certified the curriculum, this also makes coursework more transferable to other institutions.

For more information, point your web browser to <http://www.uas.alaska.edu/automotive>

Program requirements:

Students wishing to be admitted to the Automotive Emphasis program will need to meet the following program requirements:

1. Submission of a resume of work experiences and a letter stating the student's career goals. These should be sent to the automotive program department head (see address on front page).
2. Completion of a pre-admission interview. This can be completed by phone or in-person.

*It is important to note that UAS is an "open enrollment" institution, and that these steps are intended to give the prospective student **more information** in order to help them make **better decisions**. It is **NOT** intended to be exclusive in nature.*

Admission requirements:

1. UAS Undergraduate Application for Admission.
2. Non-refundable \$40 application fee.
3. High school transcript or proof of GED showing passing scores
4. Official final college/university transcripts from every accredited institution attended
5. For high school graduates from Alaska, you must pass all sections of the high school qualifying exam to be admitted

For details on these steps, please refer to the online UAS Catalog at

<http://www.uas.alaska.edu>

Cost of tuition and fees:

In order for full-time students to complete an AAS degree or Certificate in the allotted time frame, students will need to enroll in an average of 15 credits per semester. See the pages 26-31 of the UAS 2007-2008 Academic Catalog for more detail on the cost of tuition and fees for the University.

Pretesting:

To ensure the best chance of success for UAS Automotive Technology students, we HIGHLY RECOMMEND that each student take English and math placement tests prior to registering for classes. The results of these tests will help the student choose the correct level of English and Math classes to enroll in as they begin their studies at UAS. These tests are free-of-charge and are administered by the University Testing Center on Main campus. The results of these tests are confidential, and are only shared with Student Resource Center advisors and your regular academic advisor.

We also recommend that each student register for employment counseling with the Juneau Job Center and take the GATB test as part of this process (no charge for these services). The GATB is the General Aptitude Test Battery, and it can be used to help an individual define their strengths and abilities (including motor and dexterity skills). This information is also confidential and is shared only with your employment counselor. Participating in employment counseling gives the student access to all the resources with the State employment agency and will give greater opportunity for finding employment. Phone the Juneau Job Center at 465-4562 to make an appointment.

Hand tools:

All UAS Automotive Technology classes held at the TEC (Technology Education Center) DO NOT require the students to have their own hand tools. All tools and equipment for these classes will be provided for you.

The one exception to this rule is AUTO 194 – Auto Practicum I. During this class, you will be working as an apprentice automotive technician and you will be required to bring your own hand tools to the workplace (see attached list of recommended hand tools). No particular brand is endorsed by the department, but you should purchase industrial quality tools that will stand up to the wear and tear inflicted by day-to-day use. Students are encouraged to begin purchasing these tools as soon as they begin classes at UAS.

Shop safety:

Teaching and practicing safe work habits are the HIGHEST PRIORITY of the UAS Automotive Technology program. The fastest way to lose your job as an Automotive Technician is to bring unsafe work habits to the workplace. There is a safety component

in each of the classes offered by the program, and safety tests are a requirement for all students.

Two-thirds of all industrial accidents involve the eyes. Therefore, it is a requirement that all students, instructors, and visitors wear protective eyewear **AT ALL TIMES** in the lab. Students should have their own safety eyewear, and these can be purchased at a local industrial supply or auto parts store. Industrial-quality safety glasses are made available for students and visitors who do not have a set of their own.

AAS Degree Requirements:

The Associate of Applied Science degree in Power Technology with Automotive Emphasis requires a minimum of 64 credits. Numbers in () indicate # of credits.

General Degree Requirements:16 credits

- Written Communication Skills 6 credits
- ENGL S111 Methods of Written Communication (3)
- and one of the following*
- ENGL S211 Intermediate Composition with Modes of Literature (3)
- ENGL S212 Technical Report Writing (3)

- Oral Communication Skills 3 credits – *select one of the following*
- SPC S111 Fundamentals of Oral Communication (3)
- SPC S235 Small Group Communication and Team Building (3)
- SPC S237 Interpersonal Communication (3)
- SPC S241 Public Speaking (3)

- Computational Skills 4 credits
- MATH S105 Intermediate Algebra (or higher) (4)

General Requirements 3 credits
 Choose one Humanities*, Mathematics, Natural Science, or Social Science course.
 (Course chosen must be at the 100-level or above)
 *Any English course used to satisfy the Humanities general requirement must be different from the written communications requirement and have a course number higher than ENGL S111.

Major Requirements:48 credits

- AUTO S102 Introduction to Automotive Technology (3)
- AUTO S121 Auto Electrical I (3)
- AUTO S122 Engine Performance I (3)
- AUTO S131 Auto Electrical II (3)
- AUTO S140 Auto Engine Repair (3)
- AUTO S152 Brake Systems (4)
- AUTO S160 Manual Drive Train and Axles (3)
- AUTO S162 Suspension and Alignment (4)
- AUTO S194 Auto Practicum I (1-6) (6)
- AUTO S202 Fuel and Emission Systems (4)
- AUTO S222 Engine Performance II (3)
- AUTO S225 Auto Heating and A/C (3)
- AUTO S227 Auto Electrical III (3)
- AUTO S260 Electronic and Automatic Transmissions (3)

Minimum Credit Hours64

Certificate Requirements:

The Automotive Technology Certificate requires a minimum of 33 credit hours.

General Requirements: 10 credits

Oral Communication Skills 3 credits - *select one of the following*

SPC 111	Fundamentals of Oral Communication	(3)
SPC 235	Small Group Communication and Team Building	(3)
SPC 237	Interpersonal Communication	(3)
SPC 241	Public Speaking	(3)

Written Communication Skills 3 credits

ENGL 111	Methods of Written Communication	(3)
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Computational Skills 4 credits

MATH 105	Intermediate Algebra (or higher)	(4)
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Major Requirements: 23 credits

AUTO S102	Introduction to Automotive Technology	(3)
AUTO S121	Auto Electrical I	(3)
AUTO S122	Engine Performance I	(3)
AUTO S131	Auto Electrical II	(3)
AUTO S150	Brake Systems	(4)
AUTO S160	Manual Drive Train and Axles	(3)
AUTO S162	Suspension and Alignment	(4)

Minimum Credit Hours 33

Occupational Endorsement Requirements:

Automotive Emphasis (J)

AUTO S102	Introduction to Automotive Technology	(3)
AUTO S121	Auto Electrical I	(3)
AUTO S122	Engine Performance I	(3)
AUTO S131	Auto Electrical II	(3)
AUTO S150	Brake Systems	(4)
AUTO S160	Manual Drive Train & Axles	(3)
AUTO S162	Suspension & Alignment	(4)

Minimum Credit Hours: 23

Advising Paths:

AAS degree-seeking students enrolling for the first time in Fall 2008 would register for the following classes:

Advising Path – AAS Students starting in Fall 2008

Fall 2008	AUTO 102	Introduction to Automotive Technology	3 cr.
	AUTO 121	Auto Electrical I	3 cr.
	AUTO 122	Engine Performance I	3 cr.
	AUTO 225	Auto Heating and A/C	3 cr.
			Total 12 cr.
Spring 2009	AUTO 131	Auto Electrical II	3 cr.
	AUTO 160	Manual Drive Train and Axles	3 cr.
	AUTO 222	Engine Performance II	3 cr.
	AUTO 260	Electronic and Automatic Transmissions	3 cr.
		One General Education Requirement	3 cr.
			Total 15 cr.
Summer 2009	AUTO 194	Auto Practicum I	6 cr.
Fall 2009	AUTO 140	Auto Engine Repair	3 cr.
	AUTO 162	Suspension and Alignment	4 cr.
	AUTO 227	Auto Electrical III	3 cr.
		Two General Education Requirements	6 cr.
			Total 16 cr.
Spring 2010	AUTO 152	Brake Systems	4 cr.
	AUTO 202	Fuel and Emission Systems	4 cr.
		Two General Education Requirements	6 cr.
			Total 14 cr.

Certificate students enrolling for the first time in Fall 2008 would register for the following classes:

Advising Path – Certificate Students

Fall 2008	AUTO 102	Introduction to Automotive Technology	3 cr.
	AUTO 121	Auto Electrical I	3 cr.
	AUTO 122	Engine Performance I	3 cr.
	AUTO 162	Suspension and Alignment	4 cr.
		One General Education Requirement	3 cr.
			Total 16 cr.

Spring 2009	AUTO 131	Auto Electrical II	3 cr.
	AUTO 152	Brake Systems	4 cr.
	AUTO 160	Manual Drive Train and Axles	3 cr.
		Two General Education Requirements	6 cr.
		Total	16 cr.

Occupational Endorsement students enrolling for the first time in Fall 2008 would register for the following classes:

Advising Path – Occupational Endorsement Students

Fall 2008	AUTO 102	Introduction to Automotive Technology	3 cr.
	AUTO 121	Auto Electrical I	3 cr.
	AUTO 122	Engine Performance I	3 cr.
	AUTO 162	Suspension and Alignment	4 cr.
		Total	13 cr.
Spring 2009	AUTO 131	Auto Electrical II	3 cr.
	AUTO 152	Brake Systems	4 cr.
	AUTO 160	Manual Drive Train and Axles	3 cr.
		Total	10 cr.

Course Descriptions:

AUTO 102 – Introduction to Automotive Technology

3 credits

No prerequisites

Introduction to all components on an automobile. Includes career information for the automotive industry, shop safety, hand tools, fasteners, and basic automotive service.

AUTO 121 – Auto Electrical I

3 credits

Prerequisite: AUTO 102 or concurrent enrollment

Fundamental electrical theory for the automotive technician. Diagnosis and repair of starting and charging systems.

AUTO 122 – Engine Performance I

3 credits

Prerequisite: AUTO 121 or concurrent enrollment

General engine diagnosis and engine-related service.

AUTO 131 – Auto Electrical II

3 credits

Prerequisite: AUTO 121

Theory, diagnosis, and repair of automotive electrical systems, to include testing tools, schematics, and computers.

AUTO 140 – Auto Engine Repair

3 credits

Prerequisite: AUTO 102 or concurrent enrollment

Diagnosis and repair skills essential to overhaul and reconditioning of automotive internal combustion engines. Includes cylinder head, valve train, and engine block assembly service.

AUTO 152 – Brake Systems

4 credits

Prerequisite: AUTO 121 or concurrent enrollment

Theory, diagnosis, and repair of automotive brake systems.

AUTO 160 – Manual Drive Train and Axles

3 credits

Prerequisite: AUTO 102 or concurrent enrollment

Theory, diagnosis, and repair of manual drive train components. Course content includes clutches, manual transmissions and transaxles, four-wheel drive components, and drive axles.

AUTO 162 – Suspension and Alignment

4 credits

Prerequisite: AUTO 121 or concurrent enrollment

Modern automotive suspension, alignment, and steering theory. Laboratory emphasis on inspection, service, and adjustments, including four-wheel alignment.

AUTO 194 – Auto Practicum I

1 – 6 credits

Prerequisite: Advisor approval

Provides supervised workplace experience in selected industry settings. Integrates knowledge and practice to achieve basic level skill competencies. Students will require a valid Alaska driver's license and a personal tool box meeting industry standards.

AUTO 202 – Fuel and Emission Systems

4 credit

Prerequisite: AUTO 122

Corequisite: AUTO 131

Theory and practice in diagnosis, service, and repair of automotive fuel and emission systems.

AUTO 222 – Engine Performance II

3 credit

Prerequisite: AUTO 122

Corequisite: AUTO 131

Diagnosis and repair of computerized engine controls and ignition systems.

AUTO 225 – Auto Heating and A/C

3 credits

Prerequisite: AUTO 121 or concurrent enrollment

Theory, diagnosis, and repair of automotive heating and air conditioning systems.

AUTO 227 – Auto Electrical III

3 credits

Prerequisite: AUTO 131

Theory, diagnosis, and repair of automotive electrical and electronic systems, to include accessories.

AUTO 260 – Electronic and Automatic Transmissions

3 credits

Prerequisite: AUTO 131 or concurrent enrollment

Theory, diagnosis, and repair of automotive power train systems to include automatic and electronically-controlled automatic transmissions.

AUTO 282 – Auto Mechanics Open Lab

3 credits

Prerequisite: AUTO 102

Laboratory course in automotive repair and maintenance. Students are required to develop a personal study plan based on the task list for the eight (8) ASE repair areas. Power Technology students are encouraged to take this course. Student projects are limited to component repair and running vehicles with current registration. May be repeated for credit.

Specialty training:

Specialty classes (not required for any degree or certificate) are sometimes offered by the department. These classes are often numbered “AUTO 193 ST” as they are a special topics class and are not listed in the UAS Academic Catalog. An alternative energy class has been offered in the past, but other topics can be offered as well, depending on demand.

**UAS Automotive Course Offerings
Fall 2008 – Spring 2010**

Fall 2008	AUTO 102	Introduction to Automotive Technology	3 cr.
	AUTO 121	Auto Electrical I	3 cr.
	AUTO 122	Engine Performance I	3 cr.
	AUTO 162	Suspension and Alignment	3 cr.
	AUTO 225	Auto Heating and A/C	3 cr.
	AUTO 227	Auto Electrical III	3 cr.
	AUTO 194	Auto Practicum I	1-6 cr.
Spring 2009	AUTO 102	Introduction to Automotive Technology	3 cr.
	AUTO 121	Auto Electrical I	3 cr.
	AUTO 131	Auto Electrical II	3 cr.
	AUTO 152	Brake Systems	4 cr.
	AUTO 160	Manual Drive Train and Axles	3 cr.
	AUTO 222	Engine Performance II	3 cr.
	AUTO 260	Electronic and Automatic Transmissions	3 cr.
	AUTO 194	Auto Practicum I	1-6 cr.
Summer 2009	AUTO 194	Auto Practicum I	1-6 cr.
Fall 2009	AUTO 102	Introduction to Automotive Technology	3 cr.
	AUTO 121	Auto Electrical I	3 cr.
	AUTO 122	Engine Performance I	3 cr.
	AUTO 162	Suspension and Alignment	4 cr.
	AUTO 140	Auto Engine Repair	3 cr.
	AUTO 227	Auto Electrical III	3 cr.
	AUTO 194	Auto Practicum I	1-6 cr.
Spring 2010	AUTO 102	Introduction to Automotive Technology	3 cr.
	AUTO 121	Auto Electrical I	3 cr.
	AUTO 131	Auto Electrical II	3 cr.
	AUTO 152	Brake Systems	4 cr.
	AUTO 160	Manual Drive Train & Axles	3 cr.
	AUTO 202	Fuel and Emission Systems	4 cr.
	AUTO 194	Auto Practicum I	1-6 cr.

Instructor Qualifications:

The department head and primary instructor for UAS Automotive Technology is Tony Martin. Mr. Martin has 24 years of experience in the Automotive, Heavy Duty, and Industrial Mechanics trades, and he holds the following qualifications:

B.S. in Technology (Teacher Education option), University of Alaska Anchorage
A.A.S. in Diesel Technology, University of Alaska Anchorage
Canadian Interprovincial Certificate, Heavy Duty Equipment Mechanic
ASE Master Automobile Technician
ASE Master Medium/Heavy Truck Technician (T1-T8)
ASE L1 Automobile Advanced Engine Performance
ASE L2 Electronic Diesel Engine Diagnosis
ASE Refrigerant Recovery and Recycling Certificate

Adjunct instructors will be utilized for several of the course offerings, and these instructors are required to hold ASE certification in the area they are teaching.

Automotive Service Excellence (ASE) Testing

The University of Alaska Southeast (Juneau campus) is an ASE Test Center. Tests are proctored twice during each academic year; once in November and once in May.

Fall 2008 Test Administration

Registration Deadline: September 30, 2008

Test Dates: November 13, 18, and 20, 2008

Spring 2009 Test Administration

Registration Deadline: March 31, 2009

Test Dates: May 2009 (*exact dates to be announced*)

All automotive technology program students are encouraged to take ASE tests during their course of study at UAS.

NATEF End-of-Program Tests

End-of-Program testing is conducted in the Spring semester of each academic year. All automotive technology program students (1st and 2nd year) are required to participate in this testing. The results of these tests are used for program assessment purposes only and do not factor into a student's course grades or grade-point average (GPA).

Interview questions:

The following are some of the questions that a prospective student can expect to be asked during the admission interview for UAS Automotive Technology:

1. Please give a brief overview of your work experience to date.
2. Are you aware of the various career opportunities that are available to you as an Automotive Technology student?
3. What program are you applying for (i.e.; degree, certificate, or certificate of completion)?
4. What college classes have you already completed?
5. Are you planning on being a full or part-time student?
6. Do you hold a valid Alaska driver's license?
7. Have you completed a math/English placement test?
8. Have you registered for employment counseling at the Juneau Job Center?
9. Do you own a tool box and an associated set of technician's hand tools?
Please describe these in detail, indicating whether or not you view them as industrial-quality.
10. Are there any concerns you have on matters that might hinder your success as an Automotive Technology student?

Recommended hand tools:

The following is a list of the hand tools that an Automotive Technology student should have in their personal toolbox. No particular brand is endorsed by the department, but the student should purchase industrial-quality tools that can be expected to hold up under heavy use. **Tools of highest priority are in bold.**

Air blow gun (meeting OSHA requirements)

Allen (Wrench or Socket) Set – Standard (.050” – 3/8”)

Allen (Wrench or Socket) Set – Metric (2mm – 7mm, 10mm, 12 mm)

Battery side post wrench (5/16”)

Battery post cleaner

Battery terminal pliers

Battery terminal puller

Brake hold-down spring tool

Brake return spring tool

C-clamp (10”)

Chisels:

Cape 5/16”

Cold 3/8”, 3/4”

Chisel holder

Claw type pickup tool

Combination wrenches:

Standard (1/4” – 1-1/4”)

Metric (7mm – 24mm)

Crowfoot wrench set – Metric

Crowfoot wrench set – Standard

Digital Volt Ohm Meter (Fluke 73 minimum)

Ear protection

Feeler gauge (Blade Type):

.002” - .040”

.006mm - .070mm

Non-magnetic (brass)

Files:

Coarse 6” and 12”

Fine 6” and 12”

Half round 6” and 12”

Round 6” and 12”

Flare Nut (Tubing) Wrenches:

3/8” – 3/4”

10mm – 17mm

Flashlight

Fuse Puller

Fused Jumper Wire Set (with various adapters)

Hacksaw

Hammers

16 oz. ball peen

32 oz. ball peen

Brass

Dead blow (32 ounce)

Plastic Tip

Rubber Mallet

Inspection Mirror

Magnetic Pickup Tool

Micrometer (0-1")

Oil filter wrench (large and small)

Pliers:

Combination 6"

Hose Clamp

Locking Jaw

Needle Nose 6"

Side Cutting

Slip Joint (Water Pump)

Power tools

1/2" drive impact

3/8" drive impact

Pry Bars:

Rolling Head

Straight

Punches:

Center

Brass Drift

Pin 1/8" 3/16" 1/4" 5/16"

Taper 3/8" 1/2" 5/8"

Safety glasses (meeting OSHA requirements)

Scraper:

Carbon 1"

Gasket 1"

Screwdriver – Blade Type:

Stubby

6", 9", 12"

Offset

Screwdriver – Phillips:

Stubby #1, #2

6" - #1, #2

12" - #3

Offset #2

Screwdriver – Impact Driver Set

Screw Starter:

Phillips

Standard

Socket Set – 14” Drive:

1/4” – 1/2” Standard Depth
1/4” – 1/2” Deep
6mm – 12mm Standard Depth
6mm – 12mm Deep
Flex/Universal Type
3”, 6” Extensions
Ratchet

Socket Set – 3/8” Drive:

5/16” – 3/4” Standard Depth (6 point)
3/8” – 3/4” Deep (6 point)
10mm – 19mm Standard Depth
10mm – 19mm Deep
3”, 5” 10” Extensions
Flexhead Ratchet
Ratchet
Spark Plug Sockets 5/8”, 13/16”
Speed Handle
Universal Joint
Flexible Socket Set 3/8” – 3/4”
Flexible Socket Set 10mm – 19mm

Socket Set – 1/2” Drive:

7/16” – 1-1/8” Standard Depth
7/16” – 1-1/8” Deep
10mm – 24mm Standard Depth
10mm – 24mm Deep
3”, 6”, 12” Extensions
Flex Handle (Breaker Bar)
Ratchet

Spark Plug Feeler Gauge (Gap Tool)

Spark tester

Tape Measure (Standard and Metric)

Terminal pick set

Test Light (12V)

Tire Pressure Gauge

Tire air chuck

Tire valve core tool

Torque Wrench:

3/8” drive (10-250 lb-in)

3/8” drive (5-75 lb-ft)

1/2” Drive (50-250 lb-ft)

Torx Set (screwdrivers and/or sockets):

T-8 to T-60

Utility knife

Wire Brush

Wire strippers