



**Tech Prep Articulation Agreement
Between
University of Alaska Southeast (UAS)
and
Chatham School District (CSD)**

**Power Technology
School Year 2015-2016**

Purpose:

In addition to the general Tech Prep Agreement, the purpose of this articulation agreement is to outline the mutual understanding as we have agreed to the following process and criteria with respect to the program of Power Technology.

Course:

The school district program will follow a curriculum coordinated with the administration and faculty of UAS pertaining to the following course:

Marine Technology - Outboard and Small Engine Repair

MT S121 Outboard and small engine repair theory, diagnosis service and repair of outboard and other small gasoline engines. **3 Credits (1+4) No prerequisite.**

Although teaching methods may differ, this course will be subject to the instructional objectives and outcomes of the attached UAS syllabus.


Administration:

1. Students must have an overall 2.0 GPA to register for university credit.
2. It is recommended that course work be completed at a level of 3.0 GPA.
3. Students must pass a written safety test with 100% which will remain on file with the school district.
4. UAS program chairs shall review and approve all course syllabi and related curriculum documents to ensure they replicate the UAS course. This includes standardized course syllabi, course objectives, textbooks, tools, equipment, and methods for evaluation.
5. To receive concurrent credit, the student will register for the Tech Prep course at the beginning of the term in which the competencies will be completed. Registration for yearlong courses will take place during the fall semester.
6. The UAS grade posted will be the UAS grade earned for the course and submitted by the district instructor.
7. Student grades will be submitted by 5:00 p.m. of the final day of the district semester at uaonline.alaska.edu.
8. Any change in instructor requires suspension of this addendum.




 Tom Dolan, Program Head
 Power Technology
 University of Alaska Southeast

5/15/15
Date




 Jared Williams, Instructor
 Power Technology
 Chatham School District

4/27/15
Date



 Pete Traxler, Dean
 School of Career Education
 University of Alaska Southeast

5-12-15
Date



 Bernie Grieve
 Superintendent
 Chatham School District

4/27/15
Date

**UAS Power Technology
Course Syllabus**

**MTR 121 - Outboard and Small Engine Repair
Fall 2014
3 Credits (1+4)**

Instructor: Tom Dolan
Phone: 796-6123 (office)
Email: tbdolan@uas.alaska.edu
Office: Technology Education Center, Room 208

Course Description:

This course is designed to introduce students to the operation of the internal combustion engine. In this class students will study the principles of the two and four stroke engine operation and the various systems typically found on a small gasoline engine. Student will gain a thorough understanding of engine operation through tasks designed to lead the student through disassembling, inspecting, and reassembling a small gasoline engine. This course is designed as an introductory class for students with little to no knowledge of small gas engines.

Course Outcomes:

At the end of this block of instruction, the student will be able to achieve the following objectives in accordance with the information received during this course:

- Demonstrate safe practices and appropriate use of tools and equipment when working with small engines.
- Demonstrate an understanding for the repair and maintenance required on small engine systems
- Describe four-stroke and two-stroke cycle operating principles
- Identify the parts of an engine and the function of each
- Describe the operating principles of carburetor, ignition and lubrications systems of small gas engines
- Service and maintain small gas engines
- Adjust and operate a variety of small gas engines
- Diagnose and repair small gas engines
- Determine when major overhaul work should be done
- Determine what constitutes high quality repair

Course Outline

- I. Introduction
 - a. Introduction to Small Engine Repair
 - b. Student Performance Objectives
 - c. Reason for training
- II. Body
 - a. Safety practices
 - b. Two-stroke and four-stroke operating principles
 - c. Special tools and operating equipment
 - d. Small engine parts
 - e. Manufacturers' engine identification system
 - f. Parts/service information
 - g. Flywheel magneto ignition systems
 - h. Secondary circuit ignition services
 - i. Governing theory
 - j. Fuel systems
 - k. Disassemble and reassemble small four-cycle engine

- l. Small engine internal components
- m. Using metric and English micrometers, torque wrenches, plastic-gauge
- n. Differences between small two or four cycle engine systems
- o. Run/adjust engine
- p. Operator's manuals
- q. Recoil starter
- r. Air cleaners
- s. Crankcase oil
- t. Valves
- u. Piston and rings
- v. Troubleshoot engine operation
- w. Flywheel air gap
- x. Valve tappet clearance
- y. Idle speed
- z. The use of oil, oil types, and other lubricants
- aa. Mix fuel for two cycle engines
- bb. Off season storage of small engines
- cc. Determine uses of small engines

Materials Needed For Class

Safety glasses – required – safety glasses will be worn at all times in all labs. You will be issued one pair of safety glasses per semester. If you lose, destroy, or they are stolen you are responsible for replacing them. You will not be allowed in the lab without them. You can purchase a set of approved safety glasses at a local hardware distributor. Keep in mind that those wearing eyeglasses are still required to wear suitable safety glasses over them.

Note: You will NOT be required to purchase hand tools to participate in this class. All tools will be provided for you. It is important to note, however, that you are expected to treat the program's hand tools with respect, and be sure to return them as you found them. This means wiping them clean and making sure they go back in their proper place.

Personal Electronics Policy:

Students are required to turn their cell phones off during class lecture sessions and examinations. Laptop computers are welcome if you are using them to do course related research. Random internet browsing is not permitted during class lecture sessions. Use of personal music devices is not permitted in the classroom.

Grading:

Every student needs to know exactly how they will be graded during the course. There are three areas that make up your grade:

1. 25% of your grade is determined by completion of lab assignments. Specific skills are taught during the lab sessions of the class and you will receive credit for these by completing the lab worksheets.
2. 35% of your grade is based on your performance on quizzes.
3. 20% of your grade is based on your performance on the final exam.
4. 20% of your grade is based on homework.

Grades will be assigned based on the following percentages:

- A 90-100%
- B 80-89%
- C 70-79%
- D 64-69%
- F 64% and below

The bottom line is, you cannot do well unless you come to class consistently. Coming late or not at all is the quickest way to put yourself in the hole.

Online Gradebook: Student grades are maintained in a secure online environment. You can access your current grade and the scores of all assignments by logging in (using your university username and password) to UAS Online and going to the course home page.

Final exam

There will be a comprehensive final exam given during the last class meeting.

Class Evaluations:

You will be given the opportunity to write your own evaluation of this class during the last two weeks that we meet. This is done via the internet using UAS Online. If you don't like something that is being done, please say so, but also make a suggestion for how to make it better.

Please stay in touch and let me know if you cannot attend a particular class. I will issue an "excused absence" for those who notify me BEFORE CLASS BEGINS that they cannot make it.

Term Paper

If a written paper is assigned plagiarism is not accepted!