



Mechanics 1A-Introduction to Industrial Mechanics

Instructor: Taylor Alsheimer

Location: Room 408

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Office Hours: During TAT M, Tu, Th, F 3:05-3:30

Course Description

In Mechanics 1: Intro to Industrial Mechanics, you will learn the basics of working with tools used in the automotive shop as well as many other mechanical and electrical industries.

Students first learn critical shop safety procedures and how to work safely, quickly and efficiently in a workplace environment. Once students have covered the necessary safety requirements and successfully completed testing and demonstration of those skills, they will move into learning and using these tools used in automotive service through a series of career simulated projects. After completion of this course students will take Mechanics 1B: Machinery and Automotive Systems as the final prerequisite for Mechanics 2A and 2B: Automotive service technology.

Course Content Standards

CTE Oregon Skill Sets

This course will consist of learning targets practiced in the mechanical/ automotive industry along with learned professional career related skills used in almost every industry. Completion and proficiency of all learning targets will be assessed and reflected in student grades.

Course Learning Targets: Students will be expected to complete learning targets that we have covered in class. We might not cover all learning targets on the list depending on what trimester this class is offered.

We will begin with safety and move into hands-on projects.

1. Potential Hazards in the Shop

2. Identification of Safety Equipment and Location
3. Hazardous Materials Handling and Personal Protective Equipment (PPE)
4. Emergency Protocols Quiz
5. S/P2 Completion
6. Safety Test Supplement

The following learning targets will be learned by completing designed projects that will cover several targets at a time.

Hand Tools, Concepts and Projects

1. Chop Saw Cutting Proficiency
2. Tap Proficiency
3. Drill Bit Size for Tap Proficiency
4. Understanding Imperial vs. Metric measurement standards
5. Thread Check Proficiency
6. Torque Wrench Proficiency
7. Square and Ruler Proficiency
8. Sheet Metal Brake Proficiency
9. Micrometer Proficiency
10. Accurate Measuring Proficiency
11. Soldering Proficiency
12. Wire Gauge Identification
13. Hacksaw Cutting Accuracy Proficiency
14. Feeler Gauge Proficiency +/- .002
15. File Use Proficiency
16. Flat Stone/ flat bar Proficiency
17. Determination of parts being within tolerance
18. Tape measure/ ruler to nearest 1/16 inch
19. Die Proficiency
20. Slide Rule Caliper Proficiency
21. Understanding of Pascal's Law
22. Wheel Stud Torque Pattern Proficiency
23. Vehicle Lift point Identification
24. Sawzall Proficiency
25. Engine Crane Proficiency
26. Torque Steps Proficiency
27. Impact Wrench Proficiency / Torque Testing
28. Slide Rule Caliper Use
29. Chisel Use Proficiency
30. Understanding of Ohm's law
31. Circuit Design and Creation
32. Voltmeter Use: Ohms and Volts Testing
33. Demonstration of parts management and organization
34. Understanding of 4-cycle engine
35. Introduction to Systematic Diagnosis
36. Understanding of fluid and air pressure (PSI/Bar)
37. Tool Identification
38. Tool Cleaning and Maintenance
39. Tool Pricing/Shopping
40. Tool room duties

Employability Skills

1. Shop Cleanup Duties
2. Teamwork/ working collaboratively
3. Participation
4. Wearing Personal Protective Equipment when required
5. Cell-phone/ device distraction
6. Personal Organization
7. Being on-time
8. Showing initiative/ Use of resources
9. Putting away tools and parts
10. Record keeping

Assessments

1. Student Learning and Growth pre-test
2. Student Learning and Growth post-test
3. Safety Test
4. Summative assessment hands on final

Adopted Curriculum, Digital or Printed Textbooks and Readings

Projects were established following the CTE Oregon Skill Sets -Automotive Service Technology Focus Area.

Material Requirements

Students must keep a composition notebook in the classroom. This will be provided. It is recommended that students wear clothing that they do not mind getting dirty or damaged. If they want to keep work clothes in the classroom that can be arranged.

Technology Requirements

Students must be able to access google classroom with their provided chromebooks. Chromebooks must be brought to class each day.

Grading

33% Hands, 33% Brains, 33% Employability Skills and Professionalism

Hands: You will be visually assessed while you are working on your projects. You will be graded on skills, cleanliness, teamwork and resourcefulness.

Brains: You will be graded on your ability to plan, research, record and look up information. This will also include tests and quizzes and pre/post project reflections

Professionalism: You will be graded on your ability to present yourself as a professional. This will simulate how you should act while at work. You will be assessed on this subject as we learn and practice different professional soft skills throughout the trimester.

Total points will be calculated for the three categories and will be added towards your final grade.

Classroom Expectations (Rules)

Basic guidelines for the academic aspects of the course:

1. Students will give their best effort every day in class.
2. Absolutely no plagiarism will be acceptable. Frequent checks on all work will be performed. Plagiarized material will be reported to the administration. Plagiarized material is defined as anything copied and pasted, not cited or quoted, and any work presented as the students when it has come from another source without citation.
3. Students will be respectful of the work environment in the classroom and their peers' needs for that environment.
4. One student with a pass at a time, for a maximum of 5 minutes. Longer periods of time will mean a loss of pass privilege. 5 Passes per semester!
5. Students will respect each other, and the community of learners they are a part of.
6. Everyone will clean for the last 10 minutes of class (no exceptions!)
7. Students are not to use their phones during class.

Safety first. Any action which is safe for yourself or those around you is an action that should not happen in our shop. This includes but isn't limited to any horseplay, running, or throwing of items.

Students must be present in order to be successful in this class. I cannot send home an engine for students to practice on. Any missed days will need to be made up for in class, through TAT or before or after school hours. Excessive absences will result in failure due to missing too many necessary skills.

Students will work in groups. They must be prepared to engage in group dynamics and work through issues they will encounter.

Students are required to clean shops at the end of every period. Failure to do so will result in lost instructional time and potential issues completing necessary skills to receive credit in this course.

Submitting Classwork and Assessments

Students will submit projects to me in class. They will have ample time in class and during TAT to complete all assignments. In addition to the physical creation, students must do the provided project forms and file them in their portfolio. If any project is lost or not turned in, the portfolio will be used as proof of project and learning of the standard in addition to it's log / reflection on skills learned.

Late Classwork and Assessments

Late classwork is accepted until 1 week after each grading period ends. Late classwork will receive no feedback, and will be the last priority to be graded; regardless of sports eligibility requirements or other obligations.

Extra Support

I will be available daily for TAT and will come early or stay late at student request. Any additional necessary support can be provided. I welcome an open and caring relationship with students to support their learning. At the same time, it is difficult for me to guess what is needed. Please come to me if you feel you need additional support and I will do my best to accommodate you.

Communicating with Parents

Communication with parents will take place primarily with Parentsquare or via email or telephone. In addition to this, I have an open door policy and I appreciate parents' involvement. Please feel free at any point to observe my class or contact me. My phone here at TDHS is 541-506-3400 extension 2408. My email is alshiemert@nwasco.k12.or.us. I welcome comments, questions and concerns about my class and its students! Communication goes both ways. I will let parents know if their student is performing poorly in my class.