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| **COURSE INFORMATION** |

**MAG 51 – EQUIPMENT TECHNICIAN**

**Spring 2023 – Code: 50127**

**Heavy duty Suspension and Steering**

**Lab M, W 3:00-5:50 AGM Room 5**

**Lecture M, W 6:00-6:50 AGR 2**

**Darrel Chang Office Hours: Mon & Wed – 7PM – 8PM**

Office: AGM 5 **Tues & Thurs – 3PM – 4PM**

Office #: 559-638-0300, Ext. 3658 **Fri – 8AM – 9-AM**

E-mail: [darrel.chang@reedleycollege.edu](mailto:darrel.chang@reedleycollege.edu)

**Course Description** 4 Units 2 lecture and 6 lab hours per week

Suspension and Steering systems on today's heavy duty trucks are very complex. This course provides instruction in steering systems and suspension for on-highway trucks. Theory and operation as well as components and their functions will be covered. Students completing this course will be eligible to take the ASE certification test in the Medium-Heavy Truck Certification Suspension and Steering area (T5).

Basic Skills Advisors: Eligibility for ENGL 125, ENGL 126, and MATH 101

Subject Prerequisites/Advisories: None

**Required Text:**

1. CDX Fundamentals of Medium/Heavy Duty Commercial Vehicle Systems Access Card 1 yr
   1. ISBN – 9781284267747
   2. Discount code 2017DMCDX for ordering online or by phone
2. Required: 8” – 10” Tablet or I-pad, Or Laptop
3. Required stapler, note book, and binder with line paper
4. On-Line Modules – Meritor “BullPen” &

**(By second class meeting)**

**Required Materials**

* Reedley College Student ID Card (used for clocking and out of labs)
* Approved eye protection/safety glasses with **clear** lenses (Z87.1 A.N.S.I.)
* Approved foot wear – **Work Boots with non-slip soles**
* One work shirt

California Embroidery

1. Blackstone #103

Fresno CA 93710

559-447-5304

**Student Learning Outcomes**

**Upon completion of this course student will be able to:**

* ***Inspect Heavy Duty Truck suspension and steering systems for safety and reliability.***
* ***Service and Repair Heavy Duty Truck suspension and steering systems.***

**Objectives**

1. Inspect steering columns.
2. Inspect steering units.
3. Inspect steering linkage.
4. Inspect suspension systems
5. Diagnose wheel alignment problems.
6. Inspect wheels and tires.
7. Inspect frame and coupling devices.
8. Service and repair steering columns.
9. Service and repair steering units.
10. Service and repair steering linkage.
11. Service and repair suspension systems.
12. Adjust and repair wheel alignment.
13. Remove and install wheel/tire assemblies
14. Service and repair frame and coupling devices.

**Course Outline**

1. Cab Components
2. Tires, Rims and Wheels
3. Chassis Components
4. Steering Column and Manual Steering Gear
5. Power Steering Systems
6. Steering Axle Components
7. Front Suspension
8. Rear Spring Suspension
9. Rear Beam Suspension
10. Rear Air Suspension
11. Vehicle Alignment

**Steering and Suspension Labs**

Lab 1: Steering Systems – Steering Column

Lab 2: Steering Systems – Steering Units

Lab 3: Steering Systems – Steering Linkage

Lab 4: Suspension Systems – Suspension Components

Lab 5: Suspension Systems – Wheel Alignment Diagnosis, Adjust and Repair

Lab 6: Suspension Systems – Wheels and Tiers

Lab 7: Suspension Systems – Frame and Coupling Devices

**Attendance**

**Lecture**: Attendance is required and roll will be taken at each class meeting. There is no difference between an “excused” or “unexcused” absence. A “tardy” is considered an absence unless the student contacts the instructor at the end of class to change the status from absent to tardy. Two tardies will count as one absence. Any student who misses four class sessions within the first nine weeks of class may be dropped from the class by the instructor. Greater than four absences for the entire semester will result in a failing grade. Your attendance rate must be greater than 85% for the semester.

**Lab:** **Attendance in all labs is mandatory**. Students must make prior arrangements with the instructor to be excused from lab. At that time, the instructor will determine what, if any, make-up work will be appropriate.

**Time Clock:** All students are required to punch in and out of shop class on a daily basis. Failure to do so will result in an absence. Students are expected to only punch their own cards and cannot, under any circumstances, punch another student’s card. Misuse of the time clock system can result in removal from the class. A participation score is awarded for time cards. You must receive a minimum of 85% on your time cards to pass this class.

**Tutoring:** All students are required to attend one hour of tutoring for each MAG class he/she is enrolled in. There will be periodic checks on attendance and a point value will be assigned to your grade. This tutoring requirement is designed to greatly improve your grades and acquisition of the subject matter. Those students who truly utilize this time will vastly improve their grades and attainment of the skills and knowledge needed to be an equipment technician.

* Must use your ID to log in and out; this is important as it is how your time will be tracked.
* Must use this time to study. Ask for help on difficult content covered in class, and complete assignment/labs.
* This time is not for listening to music, Facebook, You-Tube videos, and just visiting fellow students.
* If you clock in for tutoring you are expected to stay in the classroom. You may not clock in and leave for lunch.

**Quizzes:** There will be **no** make-ups for quizzes.

**Tests:** Make-up tests are limited to students who have made arrangements with the instructor prior to the required testing period or those students who have been excused by the acting manager of Admissions, Veronica Jury.

**On-Line Training:** Students are required to complete on-line training modules in addition to regular lecture and lab work. Failure to complete modules in a timely manner will seriously affect your final grade.

**Grading Policy/Scales/Evaluation Criteria**

For maximum point consideration, all written assignments and term reports should be typed and double spaced.

**All late assignments will be penalized 10% Each Day, including Sat and Sun**.

Point Distribution: 90% = A, 80% = B, 70% = C, 60% = D, 59% & less = F

Assignments & Grades: Assignments/Quizzes 40%

Midterms/Finals 10%

Lab Assignments 25%

Lab Participation 25%

**Cheating & Plagiarism**

In keeping with the philosophy that students are entitled to the best education available each student is expected to exert an entirely honest effort toward attaining an education. Violations of this policy will result in removal from the course for one day and referral to academic administration. Further violations will result in a failing grade for the course.

**Accommodations for Students with Disabilities**

If you have a verified need for an academic accommodation or materials in alternate media (i.e., Braille, large print, electronic text, etc.) per the Americans with Disabilities Act (ADA) or Section 504 of the Rehabilitation Act, please contact the instructor as soon as possible.

**Work Ethic**

Most students are enrolled in college classes to obtain a quality job or to enhance their skills for advancement with the current employment situation. Employers look for a punctual, responsible individual who is prepare to go to work. Our goal is to replicate the workplace environment where a student can develop and demonstrate these desirable traits.

* Punctual: It is customary to arrive at least 5 minutes before work begins. Individuals will be terminated if they are not punctual.
* Responsible: It is expected that an employee work every scheduled work day. Individuals will be terminated if they are not responsible.
* Prepared: It is expected that an employee be prepared when he/she arrives for work. Students must have work shirts, safety glasses, and appropriate footwear to participate in the laboratory. If a student is not prepared, he/she cannot participate and will receive a zero (see “Responsible).
* Professional Appearance: Shirts are to be clean and tucked in at all times. Long pants, work shirts and work boots are required daily. **Failure to adhere to this policy will result in dismissal for the day.**

**Language** – English is expected to be spoken in class for the following reasons:

* All course content and materials are presented in English, and class discussions all take place in English.
* This policy is designed so that instructors and all students may communicate in a common language. Safety and the technical nature of this course requires clear communication.
* Appropriate language is expected at all times. Many people find cussing and vulgar language offensive so please be aware of your language when on campus or whenever representing the college.

**Behavioral Standards**

* Each student is responsible for his/her own work. Written assignments are not group assignments and no credit will be awarded for students who turn in the same work. **Students suspected of cheating on tests, quizzes or assignments will receive no credit for that particular assignment and may be removed from the class or receive a failing grade**.
* Turn off cell phones when in the classroom or shop.
* Texting in class is **unacceptabl**e. Cell phones are strictly prohibited in class and should not be seen. Unnecessary use of electronic devices will result in dismissal of the class for the day.
* Reedley College is a **Tobacco Free Campus**! No tobacco products of **any** form are allowed while on campus. This includes “E-Cigarettes”
* Sleeping is **not** allowed in class. If you cannot stay awake you should go home and get some sleep, or try going to bed at an earlier hour.
* This class is set for the semester. All doctor’s appointments, interviews, meetings with counselors, and other types of appointments should be scheduled during your time outside of class.

**Important Dates**

* Martin Luther King Holiday January 16
* Last day to drop for a full refund January 20
* Famous Deceased Presidents Days February 17 & 20
* Last day to drop without a letter grade March 11
* Spring Break April 3-7
* Last day to turn in assignments May 12
* Finals Week May 15-19
* Graduation Certificate Ceremony TBD

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| **FINAL EXAM:**  **Monday, May 15th @ 4pm**    **\*Final Exam is mandatory. Failure to participate will result in a non-passing grade**  **\*Attendance is also mandatory – See Attendance Policy above.** |

**Mechanized Agriculture Program Standards**

The following standards are designed to help ensure that any students wishing to enroll in one or more MAG classes are well prepared for a rigorous course of study. This preparation consists of the following:

* Have strong HS grades, preferably a 2.5 GPA or above. The program is very technical in nature and there are considerable reading and writing requirements.
* Take an aptitude test and perform at or above a basic level. This test consists of mechanical reasoning, reading for comprehension and information, and computations. It is an indicator of both your ability and aptitude in this field of study.
* Have a mechanical background. This could be in the form of work experience, previous shop classes or hobbies that involve mechanics. If you have never worked on equipment or machines, or even your own vehicles, this may not be the program for you.
* Possess a strong willingness to learn and grow. A strong work ethic is essential to succeed in this program.
* Have a clean driving record, pass a drug test, and be employable.
* Students unable to enter a cohort for any of the above reasons may still sign up for a single, stand-alone MAG course.
* Students who enroll in a cohort and perform poorly should be counseled into single courses where there is a greater likelihood of success.

**Daily Program Expectations for All Students**

* Be willing and able to be in class every day. You will be required to punch a time clock in this program on a daily basis. This is job training. Three hours of lab and one hour of lecture is a job!
* Be an active learner – one who is prepared for class each day by bringing along required text materials, takes notes in class, and regularly prepares for lessons.
* Purchase or acquire the required textbook materials, online modules, uniforms and safety equipment for the program. Must be acquired by the end of the second week.
* Complete the required on-line instructional modules in a timely manner. These training materials reinforce what is taught in the classroom and shop. Students who take the on-line modules seriously consistently perform at the top of the class.

***I have read the above standards and program expectations and agree to do my best to meet them.***

Name (printed) Signature Date