

## **AUTOMOTIVE CHASSIS**

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### **COURSE DESCRIPTION**

Automotive Chassis is the capstone class in the Automotive sequence at Hempstead HS. After completing the sequence of classes students should be ready to continue their Auto Training or just make use of what they have learned. We will concentrate on 1996 and later OBDII Vehicles. Hands on experiences are incorporated into lab activities while we explore ASE areas, A2 Automatic Transmission/Transaxle, A3 Manual Drive Train, A4 Suspension & Steering, A5 Brakes and A7 Heating & Air Conditioning.

### **STANDARDS AND BENCHMARKS**

Class standards and benchmarks align with the ITEA standards and benchmarks. Students will also follow ASE guidelines for Introductory Automotive classes so they can transition into Automotive Employment or just enjoy working on cars.

### **COURSE OBJECTIVES**

Upon completion of this course, the student will be able to:

1. Demonstrate safe work habits in an Auto Shop environment
2. Demonstrate correct usage of Hand/Power Tools and Specific Auto Equipment.
3. Diagnose and Repair Auto/Manual Transmissions, Suspension, Steering, Brakes and HVAC
4. Use the Internet, UTUBE, and All Data to find repair information
5. Use troubleshooting procedures to locate problems
6. Work with Groups, with a Partner or Individually on Cars in the HHS Auto Shop.
7. Identify career opportunities or postsecondary Automotive Training.

### **Class Calendar: The first day of every week will be spent in the classroom**

- Auto Shop Safety/Tool Review (Chapter 5)
- Tire Construction (Chapter 66)
- Tire Repair (Demo)
- Tire Changer & Balancer Operation (Demo)
- Wheel Bearings & Grease
- Brake System Component Identification (Chapter 72)
- Brake System Operation
- ABS System Operation (Chapter 73)
- Brake System Diagnosis
- Suspension System Component Identification (Chapter 68)
- Suspension System Operation
- Suspension System Diagnosis

- Steering System Component Identification (Chapter 70)
- Steering System Operation
- Power Steering Operation
- Steering System Diagnosis
  
- Wheel Alignment Angles (Chapter 74)
- Wheel Alignment Machine Operation
- Wheel Alignment Adjustment
- Wheel Alignment Diagnosis
  
- Manual Transmission Component Identification (Chapter 56)
- Manual Transmission Operation
- Clutch Operation (Chapter 54)
- Manual Transmission Diagnosis
  
- Automatic Transmission Component Identification (Chapter 58)
- Automatic Transmission Operation
- Torque Converter Operation
- Automatic Transmission Diagnosis
  
- Differential Component Identification (Chapter 62)
- Differential Operation
- Differential Diagnosis
- Drive Shafts/Transfer Cases (Chapter 60)
  
- Heating and Air Conditioning Fundamentals (Chapter 75)
- Air Conditioning Service (Chapter 76)
- Airbag System Operation (Chapter 78)

### **Class Materials**

**Textbook** – Modern Automotive Technology, Jim Duffy. You will not be assigned a textbook. All textbooks are part of a classroom set and will remain in the classroom. Time will be given to complete work in class. If you need to check out a book, you will have to check one out via the library system.

**Notebook** – Every student will keep a notebook which will contain all written work: Syllabus, diagrams, ASE-Type Questions and handouts. \* A spiral notebook with pockets is best, this notebook will be used exclusively for Auto Chassis and can be used on the Final Test.

**Safety Glasses** – Students must provide their own Clear Safety Glasses. Safety glasses must say Z-87.

### **INSTRUCTIONAL STRATEGIES**

Instructional strategies that will be used in this course, but are not limited to: direct instruction, active participation, videos, animations, student projects, note taking, demonstrations, and shop activities

## GRADING

**Your grade will be based on the following:**

**Notebook** – ASE-Type Questions will be checked every 2 weeks. Para-Phrasing is OK but NO 1 word answers will be accepted and there is NO partial credit. **150 Points Total**

**Shop Work** - The inside front cover of the notebook is where students will keep their SHOP LOG. Groups need to have a vehicle in the shop at least Twice every week. **150 Points Total**

**Final Test** - The Final Test is 50 ASE-Type Questions. **50 Points Total**

**Grading Scale:** Grades are calculated per District guidelines and recorded every two weeks.

## BEHAVIOR EXPECTATIONS AND CLASS RULES

You are High School Students, and will be expected to behave responsibly. Safety is our highest priority and any Student who demonstrates un-safe behavior will be removed from class immediately and report to the AP office for reassignment.

Should other problems arise I will contact your parents and/or pursue assistance from the AP office. If a serious offense occurs, you will be asked to leave the classroom. At no time will I allow a disruption to the educational environment.

Cell phones are not allowed in the classroom or lab. Get used to it, employers do not like cell phones in the workplace either. The only exception is during days when we are working in the notebook, students may listen to music with headphones only. In the Shop there are NO: phones, inappropriate clothing or open toed shoes.

1. Everyone **will** wear safety glasses in the lab.
2. Students will not be in, on or around any vehicles or equipment without permission.
3. No “horseplay” (running, pushing, wrestling, arm wrestling, ball playing, etc.)
4. No swearing, threatening, intimidating or derogatory language at any time.
5. No food, drinks, etc., may be brought to the classroom or lab area.
6. All tools and equipment will be maintained. Do not misuse tools or waste supplies.
7. There is a New phone system at Hempstead, under no circumstances are students to answer the classroom phone unless instructed to do so. (In a real Emergency dial 911)
8. All accidents must be reported to the instructor immediately.
9. All students are responsible for cleaning up at the end of class and putting all tools away.
10. Theft and Vandalism will be dealt with by the AP office with severe consequences.
11. Only 1 Student per vehicle. No passengers! Parking of Auto Shop vehicles is in the West lot only.
12. No Students are allowed to leave the shop without permission. Only drivers of vehicles are allowed in the parking lot.
13. Reckless Driving will not be tolerated and will be reported immediately.

Failure to follow the rules will result in detention, office and/or parent intervention, or a drop from the class depending on severity and/or frequency of the infractions.

