

Transportation

Term(s) – 1 Semester

Credit – ½

TEXTBOOK: Transportation – Old, Sheets, & Alexander – Davis Publications, Inc.
1986

PREREQUISITE: None

COURSE DESCRIPTION:

This course is an overall look at modern transportation systems, how they affect our lives, and how they will play an important role in mankind's future. Our course of study will include land, water, air, and space travel as well as material transportation systems.

This course is open to freshman, sophomores, juniors, and seniors. This course meets for one period daily for one semester, for one-half credit

COURSE CONTENT:

- Designing a personal transportation vehicle
- Building a material transportation system to carry a product
- Building pneumatics system as an introduction to the new field of robotics
- Designing and building a water craft
- Constructing and testing a small airplane, and becoming familiar with piloting an aircraft
- Building and testing model rockets
- Tearing down and reassembling a 4-stroke cycle engine
- Tearing down and reassembling a 2-stroke cycle engine
- Building and testing a simulated car

COURSE FORMAT:

Course material is presented through classroom lectures and lab demonstrations. Lectures may include textbook chapters, handouts, videos, overhead, and power point presentations.

COURSE EXPECTATIONS:

Students will be expected to read all required textbook chapters, complete all worksheets, tests, and lab work assignments. Students will be expected to work safely while in the lab.

GRADES:

Grades will be assessed for each unit of study – homework assignments, daily lab work assignments, individual projects, along with comprehensive unit tests will be recorded.

Transportation (Small Engines): Student will be able to...

Understand technical systems and their applications.

- Describe the function of the basic components of the small engine
- Describe the function of the systems that are necessary to make the engine work
- Explain the proper use of common hand tools
- Identify and describe the use of common measuring tools (micrometer, etc.)
- Explain the operation of the four-stroke-cycle engine
- Identify the components that make up a typical engine
- Recognize different types of engines
- Understand the purpose of lubrication in an engine
- Understand the purpose of gears and gear ratios

Be able to analyze and solve technical problems.

- Be able to convert between the English and metric systems
- Be able to read the measuring scales on various precision measuring tools (micrometer)
- Locate repair information from a repair manual
- Describe the preventative maintenance procedures for the small engine
- Explain the troubleshooting process used to find out what is wrong with a component or system
- Describe the correct method for checking the oil level
- Disassemble, repair, and reassemble the small engine
- Use the dynamometer to analyze and test a small engine
- Describe the inspection procedure for the braking system

Become familiar with a variety of technical and related occupations.

- Describe several types of automotive service businesses
- List a variety of service jobs in the automotive industry
- List a variety of management jobs in the automotive industry
- Describe what workers do in their various service and management jobs

Be able to demonstrate cooperative work skills

- Use the equipment rotation schedule to complete various assignments
- Work with a small group effectively
- Complete homework assignments on time
- Provide mentoring to fellow classmates when needed

Investigate and explore emerging technologies and technical occupations

- Describe the new materials used in transportation industries
- List and describe the operation of the alternate engines being considered for automobile use

Be able to operate equipment and use materials in a proper, safe, and considerate Manner

- Describe various safety practices that should be followed in the shop
- Explain the importance of the proper use and disposal of hazardous materials
- Use personal protective wear correctly
- Describe how to use the hand tools and equipment safely
- Explain the safety procedures that should be followed when using power tools and equipment
- Explain how fires are prevented and extinguished