

# PETERS TOWNSHIP HIGH SCHOOL

## COURSE SYLLABUS: TRANSPORTATION/POWER/ENERGY

### Course Overview and Essential Skills

Students will use resources of technology to design, produce, test and analyze technical systems for the purpose of transporting passengers and freight safely and efficiently in land, water, air, and space. They will also evaluate the impacts these systems have on people, social institutions, and further technological development. Major topics include: energy, transportation, history, environment, modes, technical subsystems, impacts, future, and careers.

### Course Textbook and Required Materials

- Johnson, Stephen R., and Patricia A. Farrar-Hunter. *Exploring Transportation*. South Holland, IL: Goodheart-Willcox, 2000. Print. .
- PTSD Web Apps Account

### Course Outline of Material Covered:

Unit or Topic	Concepts/Skills/Resources	Timeframe
Introduction to Transportation	<ul style="list-style-type: none"> <li>• Analyze the Universal Systems Model with regards to transporting freight and people</li> <li>• Describe transportation as a technological system within our society</li> <li>• Compare and contrast potential energy and kinetic energy and how it relates to moving freight and people</li> <li>• Identify different means of transportation used in daily life</li> <li>• Design a bus route which uses the most effective route to deliver them and neighboring students to and from school</li> </ul>	<ul style="list-style-type: none"> <li>• 3-Weeks</li> </ul>
Transportation Systems	<ul style="list-style-type: none"> <li>• Analyze how transportation has evolved from walking to space flight</li> <li>• Describe the methods of transit involving land, air, water and space</li> <li>• Compare and contrast on-site and off-site transportation</li> <li>• Identify support systems of transportation</li> <li>• Research how transportation has molded the world into the state it is today</li> </ul>	<ul style="list-style-type: none"> <li>• 5-Weeks</li> </ul>
Vehicular Systems	<ul style="list-style-type: none"> <li>• Analyze the various types of vehicles are used in transportation systems</li> <li>• Identify the six separate systems make up a vehicular system</li> <li>• Examine how propulsion systems are used to move vehicles</li> <li>• Explain the intricacies and importance of guidance systems</li> </ul>	<ul style="list-style-type: none"> <li>• 5-Weeks</li> </ul>

	<ul style="list-style-type: none"> <li>• Create a vehicle that incorporates propulsion and guidance systems</li> </ul>	
Power and Energy Systems	<ul style="list-style-type: none"> <li>• Explore the energy that surrounds us in relation to green technology</li> <li>• Compare and contrast different sources of energy</li> <li>• Design a model of a power plant system</li> <li>• Calculate the efficiency of a simple machine</li> <li>• Create a simple engine to demonstrate energy conversion/ creation</li> </ul>	<ul style="list-style-type: none"> <li>• 5-Weeks</li> </ul>

*\*Depending on the needs of the class or changes in the school year, the course outline is subject to change.*