

**Florida Department of Education
CURRICULUM FRAMEWORK**

Program Title: Exploration of Power & Transportation Technology
Occupational Area: Technology Education
Program Numbers: 8600240
CIP Number: 0821.0115EX
Grade Level: Secondary 6-9, & 30, 31
Standard Length: 0.5 Credits
Facility Design Code: 240, Related 808, 849, 851, 852
CTSO: Florida Technology Student Association (FL-TSA)
Certification: INDUS ARTS @4 @6
TRANSPORT @4
AUTO MECH @7G
GEN SHOP @4
GASENG RPR @7G
I ART-TEC 1 @2

- I. **MAJOR CONCEPTS/CONTENT:** The purpose of this course is for students to explore the kinds and levels of work performed in power and transportation technology. Laboratory experiences will allow student to explore the occupations, skills, and technologies of power and transportation technology. This program focuses on transferable skills and stresses understanding and demonstration of the technological tools, machines, instruments, materials, processes and systems in business and industry.

The content includes, but is not limited to, the exploratory study of power and transportation technology, occupations, skills, safety, human relations, and leadership.

- II. **LABORATORY ACTIVITIES:** Instruction and learning activities are provided in a laboratory setting using hands-on exploratory experiences with the tools and materials appropriate to the course content.
- III. **SPECIAL NOTE:** The Florida Technology Student Association (FL-TSA) is the appropriate Career and Technical Student Organization for providing leadership training experiences and reinforcing specific vocational skills. Career and Technical Student Organizations, shall be an integral part of the vocational instructional program, and the activities of such organizations are defined as part of the curriculum in accordance with Rule 6A-6.065, FAC. FL-TSA information can be obtained from the web site at <<http://www.florida-tsa.net>>.
- IV. **INTENDED OUTCOMES:** After successfully completing this program, the student will be able to:

- 01.0 Demonstrate proper and safe procedures while working with technological tools, apparatus, equipment, systems, and materials.
- 02.0 Exhibit positive human relations and leadership skills.
- 03.0 Demonstrate computer application literacy.
- 04.0 Apply basic skills in communications, mathematics, and science appropriate to technological content and learning activities.
- 05.0 Demonstrate and apply design/problem-solving processes.
- 06.0 Demonstrate technological literacy.
- 07.0 Display an understanding and appreciation for the dignity and worth of honest labor.

- 08.0 Discuss individual interests and aptitudes as they relate to a career.
- 09.0 Identify evolving technologies in power and transportation industries.
- 10.0 Perform special skills unique to power and transportation technologies.
- 11.0 Express a knowledge of the industries that deal with power and transportation technology.
- 12.0 List requisites and career opportunities for employment in power and transportation technology.
- 13.0 Identify kinds and levels of work common to the power and transportation technology.

**Florida Department of Education
STUDENT PERFORMANCE STANDARDS**

Program Title: Exploration of Power & Transportation Technology
Secondary Number: 8600240
Postsecondary Number:

- 01.00 DEMONSTRATE PROPER AND SAFE PROCEDURES WHILE WORKING WITH TECHNOLOGICAL TOOLS, APPARATUS, EQUIPMENT, SYSTEMS, AND MATERIALS--The student will be able to:
- 01.01 Follow laboratory safety rules and procedures.
 - 01.02 Demonstrate good housekeeping at work station within total laboratory.
 - 01.03 Conduct laboratory activities and equipment operations in a safe manner.
 - 01.04 Exercise care and respect for all tools, equipment, and materials.
 - 01.05 Identify color-coding safety standards.
 - 01.06 Safely use hand tools and power equipment.
 - 01.07 Explain fire prevention and safety precautions and practices for extinguishing fires.
 - 01.08 Identify harmful effects/potential dangers of familiar hazardous substances/devices to people and the environment.
- 02.00 EXHIBIT POSITIVE HUMAN RELATIONS AND LEADERSHIP SKILLS--The student will be able to:
- 02.01 Perform roles in a student personnel system or in the Florida Technology Student Association (FL-TSA).
 - 02.02 Work cooperatively with others.
- 03.00 DEMONSTRATE COMPUTER APPLICATION AND LITERACY--The student will be able to:
- 03.01 Define terms related to computer parts and usage.
 - 03.02 List ways in which computer are used in technology.
 - 03.03 Discuss advantages and disadvantages in the use of computers.
 - 03.04 Demonstrate the application of a computer.
- 04.00 APPLY BASIC SKILLS IN COMMUNICATIONS, MATHEMATICS, AND SCIENCE APPROPRIATE TO TECHNOLOGICAL CONTENT AND LEARNING ACTIVITIES--The student will be able to:
- 04.01 Use the features of books and reference materials, such as table of contents, preface, introduction, titles and subtitles, index, glossary, appendix, bibliography.
 - 04.02 Read and follow complex written directions.
 - 04.03 Find, understand, and apply information from a variety of sources (books, manuals, newspapers, periodicals, directories, reference works, computer printouts, and other printed matter or electronic sources such as video display terminals).
 - 04.04 Use and expand general and specialized vocabulary (including abbreviations, acronyms, and concepts) as appropriate to subject areas studied at the grade level.
 - 04.05 Write Standard English sentences with correct:
 - sentence structure;
 - verb forms;
 - punctuation, capitalization, possessives, plural forms, and other matters of mechanics;

- word choice and spelling.
- 04.06 Answer and ask questions coherently and concisely, and follow spoken instructions.
- 04.07 Identify and comprehend the main and subordinate ideas in lectures and discussions, ask questions to clarify information heard, and report accurately what others have said.
- 04.08 Perform with accuracy the computations of addition, subtraction, multiplication, and division using natural numbers, fractions, decimals and integers.
- 04.09 Make and use measurements in both traditional and metric units.
- 04.10 Formulate and solve problems in mathematical terms, selecting appropriate approaches and tools (mental computation, trial and error, paper-and-pencil techniques, calculator, and computer).
- 04.11 Solve work-related problems involving the basic arithmetic operations using whole numbers, fractions, decimals, and percents.
- 04.12 Describe the role of observation and experimentation in the development of scientific theories.
- 04.13 Gather scientific information through skills in laboratory, field and library work.
- 04.14 Draw conclusions or make inferences from data.
- 04.15 Apply basic scientific/technical solutions to the appropriate problems.

- 05.0 DEMONSTRATE AND APPLY DESIGN/PROBLEM-SOLVING PROCESSES--The student will be able to:
 - 05.01 Describe and explain steps in the design/problem-solving process.
 - 05.02 Propose solutions to given problems.
 - 05.03 Design and implement the optimal solution to a given problem.

- 06.0 DEMONSTRATE TECHNOLOGICAL LITERACY--The student will be able to:
 - 06.01 Outline major historical technological developments or events.
 - 06.02 Identify recent advances in technology.
 - 06.03 Explain problem-solving roles of technology.
 - 06.04 Forecast a technological decision.
 - 06.05 Make a technological decision.
 - 06.06 Define technology.

- 07.0 DISPLAY AN UNDERSTANDING AND APPRECIATION FOR THE DIGNITY AND WORTH OF HONEST LABOR--The student will be able to:
 - 07.01 Form an understanding and appreciation for work after listening to or observing technology workers.
 - 07.02 Form an understanding and appreciation for work after participating in a simulated technology group project in the laboratory.
 - 07.03 Form an understanding and appreciation for the roles and work of co-workers.

- 08.0 DISCUSS INDIVIDUAL INTERESTS AND APTITUDES AS THEY RELATE TO A CAREER--The student will be able to:
 - 08.01 Describe individual strengths and weaknesses.
 - 08.02 Discuss individual interests related to a career.
 - 08.03 Identify careers within specific areas of technology.
 - 08.04 Explore careers within specific areas of interest.

- 09.0 IDENTIFY EVOLVING TECHNOLOGIES IN POWER AND TRANSPORTATION INDUSTRIES--
The student will be able to:
- 09.01 List evolving technologies in power technology.
 - 09.02 List evolving technologies in transportation technology.
 - 09.03 Report on a recent evolving technology in power and transportation.
- 10.0 PERFORM SPECIAL SKILLS UNIQUE TO POWER AND TRANSPORTATION TECHNOLOGIES--
The student will be able to:
- 10.01 Disassemble and reassemble or perform maintenance on a muscle powered bicycle.
 - 10.02 Disassemble and reassemble or perform maintenance on a pneumatic or hydraulic device.
 - 10.03 Disassemble and reassemble or perform maintenance on an internal combustion engine.
 - 10.04 Disassemble and reassemble or perform maintenance on an electrical motor, generator, or alternator.
 - 10.05 Construct, maintain, or repair a land, water, or air/space vehicle.
 - 10.06 Construct a water-powered, wind-powered, steam-powered, thermal-powered, or solar-powered device.
- 11.0 EXPRESS A KNOWLEDGE OF THE INDUSTRIES THAT DEAL WITH POWER AND TRANSPORTATION TECHNOLOGY--The student will be able to:
- 11.01 Identify the technologies that supply or control energy sources.
 - 11.02 Identify technologies that produce power systems.
 - 11.03 Describe power and energy applications in transportation technology.
 - 11.04 List transportation systems produced or used by industries.
- 12.0 LIST REQUISITES AND CAREER OPPORTUNITIES FOR EMPLOYMENT IN POWER AND TRANSPORTATION TECHNOLOGY--The student will be able to:
- 12.01 List occupations, job requirements, and employment opportunities in power technology.
 - 12.02 List occupations and employment opportunities in transportation technology.
 - 12.03 List occupational training programs and academic programs available at the postsecondary levels in power and in transportation technologies.
- 13.0 IDENTIFY KINDS AND LEVELS OF WORK COMMON TO POWER AND TRANSPORTATION TECHNOLOGY--The student will be able to:
- 13.01 Identify kinds of work related to power technologies.
 - 13.02 Identify kinds of work related to transportation technologies.
 - 13.03 Identify semiskilled, skilled, and professional levels of work in power and transportation technology.