Southmoreland School District
Industrial Woodshop Curriculum Overview

Industrial Woodshop (6 Day) Overview:

This course will provide an introduction to common engineering materials including woods, plastics and metals. Course content will involve measurement and layout, material properties and material processing applications. Students will be expected to research and plan the design of their projects that will incorporate traditional material processing skills as well as integrate modern manufacturing through CNC machinery while maintaining high levels of safety in a production laboratory environment. Other secondary processes will include molding and forming processes, assembly methods, and finishing techniques.

Module Titles:

Module 1: Introduction to Woodworking
Module 2: Tool and Machine Safety
Module 3: Material Properties
Module 4: Machining Processes
Module 5: Joinery Basics & Assembly
Module 6: Design & Engineering Principles
Module 7: Finishing Processes

Module Overviews:

Module 1: Introduction to Woodworking
Students will be exposed to inch measurement and measurement tools. Students will apply the design process to planning projects and material selection. Students will integrate technical illustrations for plans and direction on patterns and project development.

Module 2: Tool and Machine Safety
Students will learn about various tools and machines within the material processing environment. Teacher lead demonstrations will be provided and all students must pass a written (and sometimes practical) examination of the machine to use within the course. *Student safety packets are good for the entire school year and must be completed each year.

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Module 3: Material Properties
Manufacturing is the processing of materials into finished products or goods. Students will explore a variety of material types and categorize them based on their chemical and physical properties. These must be reviewed during the development of finished goods to ensure materials are being used in the most efficient manner possible as well as maintaining the appropriate structural integrity.

Module 4: Machining Processes
Students will discuss primary machining processes; those that take raw materials from the earth and process into standard stock as we find in home improvement stores. Students will then discuss secondary processes which take that standard stock and produce finished goods, including the squaring procedures for wood materials. Students will explore or produce products that are commonly produced through casting and molding, forming, separating, conditioning, assembling, and finished processes.

Module 5: Joinery Basics & Assembly
As students will begin to assemble projects, students will look into various joinery methods for designing projects. Students will reinforce typical glue joints with various reinforcement strategies such as: biscuits, dowels, splines, and various hardware methods.

Module 6: Design & Engineering Principles
Students will develop independent projects within specified size and material constraints. Students will plan the process from start to finish, including blue prints / technical illustrations, flow process charts, bill of materials for materials selection.

Module 7: Finishing Processes
Students will complete projects by sanding to finish quality, removing imperfections such as burrs, burns and create smooth surfaces. Projects will receive a protective finish such as paint, lacquer, polyurethane, etc to enhance and seal the project for many years of existence. Finishing techniques will include: brushing, rolling, wiping and spraying methods.