

TECH PREP/MTAG CURRICULUM

Introduction to Manufacturing

Lesson Plan

Time Allotment: 8 hours
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MODULE DESCRIPTION

This module provides an overview of basic manufacturing processes and career opportunities within manufacturing. Students will participate in a manufacturing simulation in which they will analyze the manufacturing process for a product and redesign the process to incorporate a teaming approach.

MODULE OBJECTIVE

After completing this module, students should be able to analyze and execute a manufacturing process, identify problems in the process, and redesign the process for improvement during a simulated manufacturing line.

MTAG COMPETENCIES INTRODUCED

I5.1 List the steps involved to bring a product from the design stage to production.
D3.3 Integrate improvement processes

MANUFACTURING SKILL STANDARDS INTRODUCED (MSSC)

P1 Manufacturing Process: M. Skill in troubleshooting process to isolate the cause of problem
P1 Work Orders and Documentation: A. Skill in interpreting work orders to meet customer need.

PERFORMANCE CRITERIA

- Given the elements of the manufacturing process and a flowchart symbols template, students will create a flow diagram representing the process of bringing a product from design to delivery
- Students will redesign a manufacturing process to better satisfy customer requirements.
- Students will gather data, chart a process, and suggest and implement improvements.

SEQUENCING

Introduction

- Personal Introduction
- Module Description and Objectives
- Skill Checks for the Module

Part I: Manufacturing Processes

- Students' Experience with Manufacturing
- The Changing Face of Manufacturing
- Video Presentation: Manufacturing in the 21st Century
- Video Debriefing
- Basic Elements of Manufacturing
- Introduction to Production Processes
- Skill Check 1: Pencil Production Exercise
- Exercise Debriefing

Part II: Pen Factory Simulation

- Introduction
- First Production Run
- Debrief First Run
- Redesign the Process
- Second Production Run
- Skill Check 2
- Module Evaluation

SUPPLIES NEEDED

- Chart paper, 4 stands and marker pens
- One wooden pencil per person
- Videotape: "Manufacturing in the 21st Century"
- VCR and monitor
- For pen exercise: 200 pens for pen exercise, 6-8 pairs of scissors, long nose pliers, masking tape.

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RECOMMENDED STUDENT PREREQUISITES

Completed the following module:
Interpersonal Skills