Virginia Western Community College
IND 113
Materials & Processes in Manufacturing

Prerequisites
There are no prerequisites for this course

Course Description
Studies materials and processes for the manufacture of products. Investigates the nature of various materials. Examines the manufacturing processes of industry and their effects on materials.

This class will provide the background information necessary to understand why some materials are better than others. The content is for individuals who need to understand materials, their properties, and how manufacturing changes these properties. Content addresses the many varieties of materials and their uses. An emphasis is placed on metals.

Semester Credits: 3 Lecture Hours: 3

Required Materials

Tooling U 120 Day Subscription Edition: N/A
Author: Tooling U
Publisher: TOOLING UNIVERSITY
Availability: VWCC Bookstore or on-line via www.toolingu.com

Course Outcomes

At the completion of this course, the student should be able to:

- Understand the fundamentals of manufacturing and manufacturing processes
- Understand scales of material structure and product shapes
- Understand the physical limitations of the materials we are studying
- Understand manufacturing processes such as Casting, Forming, Cutting, and Joining
- Know the important aspects of how each material is used
- Describe the characteristics of crystalline and non-crystalline materials
- Describe general behavior of metals, ceramics and plastics
- Specify and interpret results of basic materials tests
- Identify strengths and limitations of basic manufacturing processes
- Recommend appropriate manufacturing processes based on material, desired attributes and cost

Topical Description

Introduction to Materials

Material Classification and Properties, Quiz

Mechanical Properties of Metal

Metal Manufacturing

Metal Classification

Ferrous Metals and Alloys, Quiz

Plastic Properties & Processes, Quiz

Nonferrous Metals, Ceramics

Composites

More Ceramics

Review

Final Exam

Notes to Instructors

1. The final exam is worth 15% of the final grade.

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