

**J. Sargeant Reynolds Community College
Course Content Summary**

Course Prefix and Number: WEL 145

Credits: 3

Course Title: Welding Metallurgy

Course Description (including lecture hours, lab hours, total contacts)

Studies steel classifications, heat treatment procedures, properties of ferrous and non-ferrous metals. Discusses techniques and practices of testing welded joints and destructive/nondestructive, visual magnetic and fluorescent testing. Lecture 3 hours per week.

General Course Purpose

A required course for the Welding Career Studies Certificate program

Course Prerequisites/Corequisites (*Entry-level competencies **required** for enrollment*)

None

Course Objectives (Each item should complete the following sentence.)

Upon completing the course, the student will be able to:

- a. Develop a basic understanding of the types of metals and their classification
- b. Identify the more commonly used metals
- c. Display an understanding of heat treating and hardening processes
- d. Display an understanding of basic testing procedures used in welding
- e. Display an understanding of the effects of heat on various metals.

Major Topics to be Included

- a. Classification of metals
- b. Properties of metals
- c. Identification of metals
- d. Heat treatment
- e. Hardening processes
- f. Testing procedures

Effective Date of Course Content Summary (Month, Date Year): 2/12/09