THREE RIVERS COMMUNITY-TECHNICAL COLLEGE
COURSE OUTLINE

Course Number/Title: MEC K262 Materials Science

Lecture 3 hrs Laboratory 0 hrs Credit 3 hrs Contact 3 hrs

Course Description: A study of the structure and properties of engineering materials. Materials selection, processing, and heat treatment are discussed. The changes in structure and properties during forming, machining, and heat treating operations are discussed.

Method: Lecture

Text: Materials Science and Metallurgy, Pollack

Prerequisites: MFG K102 / K103 Co-Requisites: MEC K263

COURSE TOPICS/CONTENT

	HOURS
1. Classification of materials	5
2. Physical and mechanical properties of materials	10
3. Structure of materials	10
4. Strengthening mechanisms	8
5. Heat treatment	5
6. Specifications for materials	2
7. Phase Diagrams	5
TOTAL HOURS:	45

Date: February 12, 2008

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Program Coordinator: *Robert Lantz*

Department Chairperson: *Tony Benoit*

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Measurable Objectives

1. Define how ore refinement effects the product
2. To provide students with the background to understand how carbon effects iron in physical properties and crystalline structure
3. To understand how the addition of alloys effects physical properties and why
4. To determine how heat treating effects physical and crystalline properties and why.