

THREE RIVERS COMMUNITY-TECHNICAL COLLEGE
COURSE OUTLINE

Course Number/Title: MFG K119 Computer Controlled Laser Materials Processing Lab

Lecture 0 hrs Laboratory 2 hrs Credit 1 hrs Contact 2 hrs

Course Description: This course provides hands-on experiences reinforcing and supplementing the lecture course (MFG K118) content.

Method: Demonstrations and actual problem applications with personal computer and machines.

Text: The CNC Workbook. Nanfara, Frank. ISBN 0-201-65600-0

Prerequisites: TCN K105 & (PHO K101 or MEC K262)

Co-Requisites: MFG K118

COURSE TOPICS/CONTENT

	HOURS
1. Engineering Materials - Introduction to CNC	4
2. Athermal Processes	4
3. Surface Hardening; CNC Simulation	3
4. Surface Melting	4
5. Joining	3
6. Cutting; CNC Turning	4
7. Marking	4
8. Thermal Machining	4
 TOTAL HOURS	 30

Date: February 13, 2008

Prepared By: Patrick Knowles

Program Coordinator: Robert Lantz

Department Chairperson: Tony Benoit

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Measurable Objectives

The student will demonstrate fundamentals of Computer Controlled Laser Materials Processing Lab by completing laboratory assignments and application problems which include:

- Students will be able to discuss applications of lasers in manufacturing environments, how and why lasers work, and salient safety concerns regarding lasers.
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- Students will be able to express fundamental concepts regarding engineering materials, and how interaction with a laser induces structural change.
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- Students will be able to explain the various manufacturing processes that employ lasers.
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- Students will be able to comprehend fundamental computer numerical control programming concepts and apply them using simulation software.