COMMON COURSE OUTLINE: Course discipline/number/title: PMT 1255: Basics of CNC Machining and Turning

A. CATALOG DESCRIPTION
   1. Credits: 1 (1 credit lecture/0 credits lab)
   2. Hours/Week: 1 hour lecture/0 hours lab
   3. Prerequisites (Course discipline/number): None
   4. Co-requisites (Course discipline/number): PMT 1095, PMT 1105, PMT 1115, PMT 1300
   5. MnTC Goals (if any): NA

   This course describes the basic components of a CNC milling and turning center with using various devices on the machines. Emphasis will also be placed on safe application and handling of the equipment.

B. DATE LAST REVISED (Month, year): March, 2013

C. OUTLINE OF MAJOR CONTENT AREAS:
   1. Definition of a CNC Mill and CNC Lathe
   2. History of the CNC Mill and CNC Lathe
   3. From Mill to Machining Center
   4. Types of CNC Machining Centers and Turning Centers
   5. Basic Setup on the Machining Center and Turning Center
   6. Control Devices of the Machining Center and Turning Center
   7. How a Machining Center and Turning Center Work and Cut
   8. Cutting Variables for CNC Mill and CNC Lathe
   9. Milling Cutters for the Machining Center and Turning Center
   10. CNC Milling and Lathe Operations
   11. CNC Milling Hole-Making Operations
   12. Cutting Tool Materials and cutting tools
   13. Toolholders, Toolchangers, and Workholding for the Machining centers and Turning Centers
   14. Turret and Common Components of the Turning Center
   15. CNC Lathe Outer and Inner Diameter Operations

D. LEARNING OUTCOMES (GENERAL): The student will be able to:
   1. Identify the basic components of a CNC machining and turning center.
   2. Describe the basic components of a CNC machining and turning center.
   3. Practice and perfect the use of basic components of a CNC machining and turning center.
   4. Demonstrate safe use of the CNC machining and turning center.
   5. Set up the equipment safely.

E. LEARNING OUTCOMES (MNTC): NA

F. METHODS FOR EVALUATION OF STUDENT LEARNING:
   1. Online learning
   2. Successful completion of online lessons
   3. Successful completion of online assessments

G. RCTC CORE OUTCOME(S) ADDRESSED:
   - Communication
   - Critical Thinking
   - Global Awareness/Diversity
   - Civic Responsibility
   - Personal/Professional Accountability
   - Aesthetic Response

H. SPECIAL INFORMATION (if any): None