Degree Applicable

Glendale Community College
March 2013

COURSE OUTLINE

COMPUTER AIDED MANUFACTURING 210
Basic Milling

I. Catalog Statement

Computer Aided Manufacturing 210 introduces the use of computers in programming numerical control milling machines.

Total Lecture Units: 3.0
Total Course Units: 3.0

Total Lecture Hours: 48.0
Total Faculty Contact Hours: 48.0

II. Course Entry Expectations

Skills Level Ranges: Reading 5; Writing 5; Listening 5/Speaking 5; Math 3.

III. Course Exit Standards

Upon successful completion of the required coursework the student should be able to:
1. compile a reference guide to be used in following classes later in the field;
2. demonstrate organizational skills by completing the reference guide and submitting it for a grade at the end of the course;
3. perform basic drawing of geometric shapes and translating them into the proper numerical format required by the equipment;
4. demonstrate a basic knowledge of the principles required to successfully complete a simple project.

IV. Course Content — Total Faculty Contact Hours: 48

A. General Introduction — 3 hours
   1. Scope of curriculum
   2. Course requirements
   3. Grading standards
   4. Methods of preparation

B. Familiarization — 6 hours
   1. Overview of textbook requirements
   2. Overview of workbook requirements
   3. Introduction to program
   4. Introduction to computer

5. Demonstration of computer operation
6. Demonstration of MasterCam program

C. Overview of Files — 6 hours
1. GE3 file, drawing
2. NCI file, definition
3. NC file, alpha numeric listing
4. File management

D. GE3 Explanation — 8 hours
1. Main menu format
2. Keystroke commands
3. Methods of drawing display
4. 2D drawing
5. Drawing levels
6. Storage and retrieval of files

E. NCI Explanation — 8 hours
1. Explanation of tool path development
2. Proper sequencing of cutting path
3. Tool library
4. Parameter set-up
5. Backplotting and plotting
6. Modification of NCI file

F. NC Explanation — 8 hours
1. Definition of NC program make-up
2. Format of the NC program layout
3. Methods of editing of the NC program
4. Modification of the NC

G. Downloading/Uploading to Controller — 6 hours
1. Setup of machine control
2. Setup of transferring computer
3. Proofing of program

H. Program Changes at Control: — 3 hours
1. Allowable machine control changes

V. **Methods of Instruction**

The following methods of instruction may be used in the course:
1. classroom lecture and discussion;
2. demonstrations;
3. films;
4. peer learning;
5. guest speakers.

VI. Out of Class Assignments

The following out of class assignments may be used in the course:
1. research projects;
2. written assignments.

VII. Methods of Evaluation

The following methods of evaluation may be used in the course:
1. midterm examinations;
2. presentations;
3. final examination.

VIII. Textbooks

MasterCam Applications Manual. Version 4.11, CNC Concepts, 1993
10th Grade Reading Level ISBN:

MasterCam Milling Handbook. Version 4.11, CNC Concepts, 1993
10th Grade Reading Level ISBN:

IX. Student Learning Outcomes

1. Student will know how to translate geometric drawings into proper numerical formats as required by the equipment.
2. Student will be able to understand the methods, procedures, and applications of programs.
3. Student will be able to demonstrate a basic knowledge of the principles required to successfully complete a simple project.