

PERALTA COMMUNITY COLLEGE DISTRICT COURSE OUTLINE

COLLEGE:	Laney College	STATE APPROVAL DATE:	06/28/2016
ORIGINATOR:	Rosendo Del Toro Solis	STATE CONTROL NUMBER:	CCC000574634
		BOARD OF TRUSTEES APPROVAL DATE:	05/10/2016
		CURRICULUM COMMITTEE APPROVAL DATE:	01/29/2016
		CURRENT EFFECTIVE DATE:	08/22/2016

DIVISION/DEPARTMENT: Laney College

1. REQUESTED CREDIT CLASSIFICATION:

Credit - Degree Applicable
 Course is not a basic skills course.
 Program Applicable

2. DEPT/COURSE NO:

WDTEC 040

3. COURSE TITLE:

Computer-Assisted Machining Techniques in the Cabinet-Making Industry

4. COURSE: Laney Course Updating

TOP NO. 0952.50

5. UNITS: 4.00

HRS/WK LEC: 2.00 Total: 35.00

HRS/WK LAB: 6.00 Total: 105.00

HRS/WK TBA:

6. NO. OF TIMES OFFERED AS SELETED TOPIC: AVERAGE ENROLLMENT:

7. JUSTIFICATION FOR COURSE:

Required for (Two-Year) Certificate of completion in Wood Technology. Recent changes in new technologies, techniques procedures and materials in the wood working industry require new hires to be well versed in computer assisted layout and manufacturing technique. Wood Technology Advisor Committee strongly supports this change.

8. COURSE/CATALOG DESCRIPTION

Advanced techniques of computer-assisted design and construction techniques found in the modern cabinet shop: Software and CNC machinery commonly used in the woodworking industry.

9. OTHER CATALOG INFORMATION

- a. Modular: No If yes, how many modules:
- b. Open entry/open exit: No
- c. Grading Policy: Letter Grade Only
- d. Eligible for credit by Exam: No
- e. Repeatable according to state guidelines: No
- f. Required for degree/certificate (specify):
Existing - Wood Technology
- g. Meets GE/Transfer requirements (specify):
- h. C-ID Number: Expiration Date:

- i. Are there prerequisites/corequisites/recommended preparation for this course? Yes
Date of last prereq/coreq validation: 01/29/2016

- 10. LIST STUDENT PERFORMANCE OBJECTIVES (EXIT SKILLS):** (Objectives must define the exit skills required of students and include criteria identified in Items 12, 14, and 15 - critical thinking, essay writing, problem solving, written/verbal communications, computational skills, working with others, workplace needs, SCANS competencies, all aspects of the industry, etc.)(See SCANS/All Aspects of Industry Worksheet.)

Students will be able to:

1. Describe the applications of computer assisted machining techniques to current industry practices and their associated advantages and disadvantages .
2. Identify individual machining tasks in an assigned project which may best be assisted by computer, both in casework and millwork operations.
3. Using a variety of appropriate software, develop both dimensional and parametric programs for the CNC Machine Center
4. Construct and update a library of part programs which will support machining operations for a given project.
5. Select appropriate tooling, change tooling if necessary identify and alter machine tool files if necessary.
6. Operate CNC Machinery in a safe, accurate and efficient manner to produce components for project.
7. Assemble parts in their corresponding manner in order to meet specifications.
8. Evaluate the engineering and construction process in terms of work flow labor and material cost as well as the overall quality of the project.

- 11A. COURSE CONTENT:** List major topics to be covered. This section must be more than listing chapter headings from a textbook. Outline the course content, including essential topics, major subdivisions, and supporting details. It should include enough information so that a faculty member from any institution will have a clear understanding of the material taught in the course and the approximate length of time devoted to each. There should be congruence among the catalog description, lecture and/or lab content, student performance objectives, and the student learning outcomes. List percent of time spent on each topic; ensure percentages total 100%.

LECTURE CONTENT:

1. Applications of computer-assisted teaching techniques
5%
 - a. Boring Operations
 - b. Sawing Operations
 - c. Contour Cutting
 - d. Optimized Programming
2. Survey and applications of programming software
5%
 - a. WoodWop
 - b. Cabinet Ware
 - c. Cabiniet Vision
 - d. AutoCad
3. Introduction to the CNC Machining Center.
5%
 - a. Operation
 - b. Maintenance

- c. Tooling
- d. Tool and Maintenance Files
- e. Callibration
- 4. Programming for CNC 15%
 - a. Cabinet Ware.
 - I. Programming machining operations for casework
 - II. Job and parts Identification
 - III. Data Transfer to Machining centers
 - IV. Optimizing Machine parameters
 - b. Auto Cad 15%
 - I. Basic Geometrical Constructions in Auto CAD
 - II. Layering conventions
 - III. Linetypes and Machine Information
 - IV. creating DXF files
 - V. File transfer to Machining Centers
 - VI. Set up of machine parameters
 - c. WoodWop 4.5 15%
 - I. Boring operations
 - II. Grooving operations
 - III. Contour routing
 - IV. Parametric vs. Dimentional operations
 - V. optimized machining operations
- 5. Shop practices in CNC machining 15%
 - a. CNC Machining center (Weeks BP_80)
 - i. Using Wood Wop 4.5 to manage and control machinery
 - A. Machine operating parameters
 - B. Loading and trasfering files
 - C. Tool selectionand changing
 - D. Callibration procedures
 - E. maintenance files
 - ii. Material flow
 - iii. maintenance files
 - b. Secondary machining operations 5%
 - i. Edgebander
 - A. Safety

- B. Machine operations
 - C. Maintenance
- ii. Hinge insertion machine
 - A. Safety
 - B. Machine operations
 - C. Maintenance
- iii. Assembly
 - A. Safety
 - B. Work flow
 - C. Part identification
 - D. Tools and Fasteners
 - E. Adhesives
 - F. Clamping strategies
 - G. Quality control
- iv. File transfer to panel saw
- c. CNC machining center (WoodWop 4.5) 15%
 - i. Part identification
 - ii. Boring operations
 - iii. Grooving operations
 - iv. Contour routing

11B. LAB CONTENT:

Projects varie from class to class depending on available materials and level of class.

Projects utilize CNC machine and programing software in order to put together and build the given project.

Projects encompass concepts expressed during lecture.

1. Safety practices around large automated equipment and shop safety. 10%
2. Applications of computer-assisted teaching techniques 15%
3. Applications of programming software. Includes Wood Wop and cabinet vision. 15%
4. Operation and programming of CNC Machining Center. 20%

5. Routine maintenance on machine and upkeep and calibration 20%

6. Shop practices using panel saw and edgebander 20%

12. METHODS OF INSTRUCTION (List methods used to present course content.)

1. Directed Study
2. Activity
3. Discussion
4. Experiments
5. Field Experience
6. Field Trips
7. Individualized Instruction
8. Lab
9. Lecture
10. Multimedia Content
11. Observation and Demonstration
12. Projects
13. Threaded Discussions
14. Visiting Lecturers

13. ASSIGNMENTS: 7.00 hours/week (List all assignments, including library assignments. Requires two (2) hours of independent work outside of class for each unit/weekly lecture hour. Outside assignments are not required for lab-only courses, although they can be given.)

Out-of-class Assignments:

Casework and furniture projects using automated equipment. Written descriptions of construction, start-up and safety procedures. Reading of shop drawings, instructions and manuals in preparation for use of equipment.

ASSIGNMENTS ARE: (See definition of college level):

Primarily College Level

14. STUDENT ASSESSMENT: (Grades are based on):

ESSAY (Includes "blue book" exams and any written assignment of sufficient length and complexity to require students to select and organize ideas, to explain and support the ideas, and to demonstrate critical thinking skills.)

COMPUTATION SKILLS

NON-COMPUTATIONAL PROBLEM SOLVING (Critical thinking should be demonstrated by solving unfamiliar problems via various strategies.)

SKILL DEMONSTRATION

MULTIPLE CHOICE

15. TEXTS, READINGS, AND MATERIALS

A. Textbooks:

Architectural Woodwork Institute. 2014. *Architectural Woodwork Standards* 2nd. Architectural Woodwork Institute

Cabinet vision (1) [Software]. planet solutions. standard for wood technology in the industry

Handouts that are specific to the machine and or software.

Handouts on 32mm system.

FSC manual on tree harvesting and wood use

*Date is required: Transfer institutions require current publication date(s) within 5 years of outline addition/update.

B. Additional Resources:

Library/LRC Materials and Services:

The instructor, in consultation with a librarian, has reviewed the materials and services of the College Library/LRC in the subject areas related to the proposed new course

Are print materials adequate? Yes

Are nonprint materials adequate? Yes

Are electronic/online resources available? Yes

Are services adequate? No

Specific materials and/or services needed have been identified and discussed. Librarian comments:
Nothing at this time. catalogs are kept in WTECH

C. Readings listed in A and B above are: (See definition of college level):

Primarily college level

16. DESIGNATE OCCUPATIONAL CODE:

C - Occupational

17. LEVEL BELOW TRANSFER:

Y = Not Applicable

SUPPLEMENTAL PAGE

Use only if additional space is needed. (Type the item number which is to be continued, followed by "continued."
Show the page number in the blank at the bottom of the page. If the item being continued is on page 2 of the outline, the first supplemental page will be "2a." If additional supplemental pages are required for page 2, they are to be numbered as 2b, 2c, etc.)

1a. Prerequisites/Corequisites/Recommended Preparation:

PREREQUISITE(S):

WDTEC 030: CAD/CAM Techniques in the Cabinet-making Industry

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