

Instructor: David Bothman, 2109 Engineering II, x4125, bothman@engineering.ucsb.edu

MasterCAM: Chris Kluczynski, clkeng@cnc-programming.net

Meeting times: Tuesday 5-8 PM, ESB 1003

Home page: http://www.me.ucsb.edu/course_pages/course_pages_s08/me158/me158_s08.html

This course will cover several aspects of computer aided manufacturing. Topics include:

- Creating programs to manufacture parts using MasterCAM
- Creating part programs from CAD models
- Programming parts that have complex surfaces
- Manual programming
- Transferring and checking programs on machine tools
- Operating tools
- Automated tool design and construction

The class includes:

- Lecture
- Computer lab instruction using MasterCAM
- Machining projects in the machine shop
- Individual manufacturing projects

Grading:

- Homework – 20%
- Quizzes – 40%
- Shop projects – 15%
- Final project – 25%

ABET Objectives:

- Can import CAD models into manufacturing software and can use the software to generate a program to fabricate the part on a computer controlled machine tool.
- Understands common work-holding and tooling options in computer aided manufacturing.
- Can set up and operate a computer controlled machine tool.
- Understands the mechanical structure and computer-based motion control system of automated tools.

Course schedule (subject to change):

Week	Date	Lecture	Lab	Homework / Exams
		ESB 1003	Shop	
1	1 April	What is CAM Coordinate systems Program structure Manual programming		HW #1 - Manual programming
2	8 April	Introduction to MasterCAM Creating and editing geometry in MasterCAM Lab #1 planning and sign-up		HW #2 – Creating and editing geometry
3	15 April	Job setup Creating toolpaths Post processing Generating programs for Lab#1		HW #3 - Mill programming
4	22 April	Selecting cutting tools for CNC machines Calculating feeds and speeds Work holding techniques Pocketing and surfacing Drilling and Tapping Importing geometry from CAD Quiz preparation Project introduction	Lab 1	HW #4 – Mill programming
5	29 April	Advanced mill programming Generating programs for Lab #2	Lab 1	HW #5 – Mill programming Quiz #1 in class
6	6 May	Lathe programming Work on project		HW #6 – Complex surfaces
7	13 May	Lathe programming	Lab 2	TBD
8	20 May	Programming for other tools Work on project	Lab 2	TBD
9	27 May	Work on project	Lab 2	
10	3 June	Quiz		Quiz #2 in class Projects due