North Central State College

MASTER SYLLABUS
2019-2020

A. Academic Division: Business, Industry and Technology

B. Discipline: Manufacturing

C. Course Number and Title: MFGT1640 Computer Aided Manufacturing I

D. Course Coordinator: Chris Barker
Assistant Dean: Toni Johnson, PhD

Instructor Information:
- Name: Click here to enter text.
- Office Location: Click here to enter text.
- Office Hours: Click here to enter text.
- Phone Number: Click here to enter text.
- E-Mail Address Click here to enter text.

E. Credit Hours: 2
Lecture: 1 hour
Laboratory: 2 hours

F. Prerequisites: MFGT1110, and either MATH1070 or ACT Math Score ≥21 or COMPASS Algebra ≥31

G. Syllabus Effective Date: Fall, 2019

H. Textbook(s) Title:

Precision Machining Technology
- Author(s): Hoffman, Hopewell, Janes
- Copyright Year: 2014
- Edition: 2nd
- ISBN #: 9781285444543

I. Workbook(s) and/or Lab Manual: Haas training materials provided by instructor.

J. Course Description: Students will use simulation software to verify programs written in G and M codes. Haas mill and lathe trainers will be used in conjunction with a Haas CNC Mill for select lab exercises. Students will complete supporting documents such as lettered prints, tool drawings, set up sheets and code.

K. College-Wide Learning Outcomes:

College-Wide Learning Outcome	Assessments - - How it is met & When it is met
Communication – Written	
Communication – Speech	
Intercultural Knowledge and Competence	
Critical Thinking	
Information Literacy	
Quantitative Literacy	

L. Course Outcomes and Assessment Methods:

Upon successful completion of this course, the student shall:

Outcomes	Assessments – How it is met & When it is met
1. Practice safe operation of CNC machine tools.	Week 1 and throughout semester: Written test and Final Exam, Lab performance.
2. Create a CAD file and write a program using the appropriate machine codes for a FANUC controlled CNC 3 axis milling machine.	Introduced second week of semester. Programs will be verified on the simulators.
3. Write codes to use cycles, profiling, circular interpolation, cutter compensation and subroutines.	Introduced fourth week of semester. Programs will be verified on the simulators.
4. Create a working CAD file and write program using the appropriate machine codes for a FANUC controlled CNC lathe.	Introduced second week of semester. Programs will be verified on the simulators Test, worksheets, lab performance.
5. Write codes to use cycles, profiling, circular interpolation, tool nose compensation and subroutines.	Introduced fourth week of semester Programs will be verified on the simulators. Tests, worksheets, lab performance.
6. Complete project(s) consisting of lettered drawing, tool prints, stock prints, fixture print (if needed), program, operator instructions, and other related documents for a mill project and/or lathe project.	Fourth week of semester Programs will be verified on the simulators. Tests, worksheets, lab performance.

M. Topical Timeline (Subject to Change):

1. History of CNC – week 1
2. CNC vs. Manual Equipment – week 1
3. Best Programming Practices
   a. Introduced second week of semester, students will use Haas training materials and Predator simulation software to write programs to perform specified operations on CNC milling machine: Linear Interpolation – week 2 to 15
4. Circular Interpolation, Cycles in the G80 series, Polar coordinates
   a. Introduced second week of semester, students will use Haas training materials and Predator simulation software to write programs to perform specified operations on CNC milling machine.
5. Loops and subroutines
6. Post Processors
   a. Introduced fourth week of semester, students will use Haas training materials and Predator simulation software to write programs to perform specified operations on CNC milling machine.
7. Safety and CNC setups
   a. Throughout the semester, students will observe safety rules for set-up and operation of CNC machine tools, demonstrated by searing safety glasses and keeping doors and guards in proper positions on the machines.
8. Haas CNC trainer lab sessions – week 7 to 15
9. Programming for CNC lathes
   a. Introduced eighth week of semester, students will use Haas training materials and Predator simulation software to write programs to perform specified operations on CNC lathe.
10. Haas CNC Mill lab sessions
    a. Week 10 to end of semester.
11. Student will complete programming projects and fabricate selected part(s) on CNC machines(s).
    a. Week three to end of semester

N. Course Assignments:

1. Complete assigned reading materials and worksheets.
2. Evaluate and "letter" CNC prints.
3. Develop accurate code for program(s).
4. Complete scheduled tests.
5. Complete scheduled programming projects.
6. Complete final exam.

O. Recommended Grading Scale:

NUMERIC	GRADE	POINTS	DEFINITION
93–100	A	4.00	Superior
90–92	A-	3.67	Superior
87–89	B+	3.33	Above Average
83–86	B	3.00	Above Average
80–82	B-	2.67	Above Average
77–79	C+	2.33	Average
73–76	C	2.00	Average
70-72	C-	1.67	Below Average
67–69	D+	1.33	Below Average
63-66	D	1.00	Below Average
60-62	D-	0.67	Poor
00-59	F	0.00	Failure

P. Grading and Testing Guidelines:

Click here to enter text.

Q. Examination Policy:

Click here to enter text.

R. Class Attendance and Homework Make-Up Policy:

Click here to enter text.

S. Classroom Expectations:

Click here to enter text.

T. College Procedures/Policies:

Important information regarding College Procedures and Policies can be found on the syllabus supplement located at https://sharept.ncstatecollege.edu/committees/1/curriculum/SiteAssets/SitePages/Home/SYLLABUS%20SUPPLEMENT.pdf

The information can also be found Choose an item.