Course Syllabus
MFG-228 CNC Programming II

Semester and year:
Course Number:
Meeting Times and Locations:

Instructor:
Office Location:
Phone:
Office Hours:
Email Address:

COURSE DESCRIPTION:

MFG-228 CNC Programming II expands the students' knowledge of programming Computer Numerical Control Equipment with the concentration on CNC turning and machining centers and the introduction of CAM programming software. Included in this course will be the study of advanced programming techniques, NC code generation using MasterCAM software and advanced investigation of CNC programming problems. Students will receive hands on programming experience using industry preferred software and controllers.
2 lecture, 2 lab, 3 credits
Prerequisites: MFG 128 CNC Programming I
Co-requisites: None

STUDENT LEARNING OBJECTIVES:

As a result of meeting the requirements in this course, students will be able to:	Student performance on these objectives will be measured by:
1. Write and store an advanced CNC program on a computer and use DNC to upload and download programs.	Graded Exams.
2. Troubleshoot a program which contains errors and provide solutions to effect proper operation.	Graded hands-on lab work and Exams.
3. Demonstrate the ability to setup the tooling and work piece; qualify the work piece as required; qualify the tools to the control and establish the initial tool values or offsets.	Graded Exercises.
4. Demonstrate the ability to diagnose and repair CNC programs.	Graded Exercises and hands-on lab work.
5. Write alternative programs for special CNC applications	Graded Exercises and hands-on lab work

COURSE CONTENT:

CHAPTER	TOPIC

CNC Programming Handbook

CHAPTER	TOPIC
1.	Main Program and Subprograms Part 1
2.	Main Program and Subprograms Part 1
3.	Review of Operational procedures and safety guidelines
5.	Subprogram Functions Pt. 1
6.	Subprogram Functions Pt. 2
10.	Subprogram Development Pt. 1
11.	Subprogram Development Pt. 2
12.	Toolpath Geometry Development Pt.1
13.	Toolpath Geometry Development Pt.2
15.	Axis Programming
16.	Program Verifications
17.	Detection Errors

Handouts:
Post Processors
Intro To MasterCAM Software
Live Tooling Concepts and Applications

 All machining courses will include instruction on safe operation of equipment, handling and storage of materials.

TEXTBOOK: CNC Programming Handbook, Peter Smid, Third Edition, Industrial Press, Inc. 2007. ISBN: 978-0-8311-3347-4 .

Supplementary Reading: Peter Smid, Fanuc CNC Custom Macros, Practical Resources for Fanuc Custom Macro B Users, Industrial Press Inc., ISBN (0-8311-)3157-8

EVALUATION:
A. Projects . . . . 70 %
B. Final Examination. . . . .   20 %
C. Class Participation 10%
                    TOTAL 100%

Assignments will have specific due dates. Assignments submitted after that date will be lowered one full letter grade per class meeting that they are late.

ATTENDANCE POLICY:

If a student is absent from the lecture portion of the class, it will be recorded as an absence for the entire class period. If a student is absent from the laboratory portion of the class, it will be recorded as an absence from that portion of the class only.

A letter grade will be deducted from the class participation portion of your final grade for each absence beyond three absences from either portion of a class period.

SPECIAL NOTES: **A final grade cannot be assigned for the course until all projects and examinations for the course have been completed.**
Make-up examinations will be administered in accordance with the

<div style="text-align: center;">instructor's and division's policy.</div>

FACULTY ABSENCE PROCEDURE: Please note well.

A daily listing will appear in the glass case located in the main hall A bldg. which will indicate all classes which are cancelled.   Students can consult this case before going to class. If students find a class cancelled which has not been listed, they should report this to the divisional dean's office (A325) or to the evening/Saturday office (L113).

CALENDAR:

Class Meeting	Date	Topic	Chapter
1.	_____	Review CNC Basics	3
2.	_____	Intro to Sub Programs and Macro's	1,2,5,6
3.	_____	Macro Development	5,6
4.	_____	Variables in Macro Programming	10, 11
5.	_____	**EXAM 1** Variables in Macro Programming	12,13
6.	_____	Axis Programming	15
7.	_____	Troubleshooting Macro's	14,16,17
8.	_____	Variables and Similar Parts	20
9.	_____	Basic Macro Development	20
10.	_____	**EXAM 2** Basic Macro Development	20
11.	_____	DNC Communication and Upload	--
12.	_____	Program Macro Verification	14,17
13.	_____	Project Development Using Macro's	20,
14.	_____	Project Verification	--
15	_____	**FINAL EXAM** Project Verification	--

All BCC students enrolled in credit courses are entitled to a WebAdvisor account. With WebAdvisor, you may register online, check your schedule, room assignments, GPA, and find out what courses you need to take. To find out more about WebAdvisor or to sign up online, visit <http://go.bergen.edu>! While there, please make sure you give us your preferred email address. You'll find directions how to do this at <http://go.bergen.edu/email>.