

ILLINOIS VALLEY COMMUNITY COLLEGE



COURSE OUTLINE

DIVISION: Workforce Development

COURSE: CNC 1200; Fundamentals of CNC Operations

Date: Spring 2015

Credit Hours: 3

Prerequisite(s): None

Delivery Method:

<input checked="" type="checkbox"/> Lecture	2 Contact Hours (1 contact = 1 credit hour)
<input type="checkbox"/> Seminar	0 Contact Hours (1 contact = 1 credit hour)
<input checked="" type="checkbox"/> Lab	2 Contact Hours (2 contact = 1 credit hour)
<input type="checkbox"/> Clinical	0 Contact Hours (3 contact = 1 credit hour)
<input type="checkbox"/> Online	
<input type="checkbox"/> Blended	

Offered: Fall Spring Summer

IAI Equivalent –**Only for Transfer Courses**–go to <http://www.itransfer.org>:

CATALOG DESCRIPTION:

In this course, the student will learn the basics of computer numerical control. They will, by the end of the semester, have a knowledge of the types of machines, purpose, and controls. They will also study basic CNC operation and programming.

GENERAL EDUCATION GOALS ADDRESSED

[See the last page of this form for more information.]

Upon completion of the course, the student will be able:

[Choose those goals that apply to this course.]

- To apply analytical and problem solving skills to personal, social and professional issues and situations.
- To communicate orally and in writing, socially and interpersonally.
- To develop an awareness of the contributions made to civilization by the diverse cultures of the world.
- To understand and use contemporary technology effectively and to understand its impact on the individual and society.
- To work and study effectively both individually and in collaboration with others.
- To understand what it means to act ethically and responsibly as an individual in one's career and as a member of society.
- To develop and maintain a healthy lifestyle physically, mentally, and spiritually.
- To appreciate the ongoing values of learning, self-improvement, and career planning.

EXPECTED LEARNING OUTCOMES AND RELATED COMPETENCIES:

[Outcomes related to course specific goals.]

Upon completion of the course, the student will be able to:

Students who successfully complete the above have demonstrated the skills to accomplish the following objectives:

- 1.0 After study and discussion the student will be able to operate control panel. will also be familiar with machine specifications.
- 2.0 After demonstration and lecture, the student will be able to discuss and describe the functional aspects of the machine controls.
- 3.0 Following lecture and lab demonstration, the student will be able to set up and operate machines.
- 4.0 After lecture and demonstration, the student will be able to align control and set-up, including tool data, offsets, taper trims, and overrides.
- 5.0 Upon completion of discussion and lecture, the student will be able to align machine, zero shift, establish program point.
- 6.0 Following lecture and demonstration, the student will be able to set-up machine in automatic cycle, including searching programs, unloading programs into memory, edit programs, and inseting blocks of information.
- 7.0 After demonstration and lecture, the student will be able to utilize the Manual Data input Controls.
- 8.0 Upon completion of lecture and demonstration, the student will be able to write and run basic programs on CNC Vertical Mill.

COURSE TOPICS AND CONTENT REQUIREMENTS:

- I. Safety Precautions System Description
- II. Functional Description of Controls
- III. Machine Set-up and Operation
- IV. Control Alignment
- V. Manual Data Input
- VI. Automatic Cycle Set-up and Operation
- VII. Operator Messages and Trouble Shooting
- VIII. Auxiliary Equipment Operation
- IX. Basic Programming

INSTRUCTIONAL METHODS:

1. Lecture
2. DVD/Demonstration
3. Practical Applications
4. Individualized Instruction
5. Guest Speakers
6. Hands-on lab work

INSTRUCTIONAL MATERIALS:

Mastertask Software

STUDENT REQUIREMENTS AND METHODS OF EVALUATION:

1. Problem solving
2. Skill proficiency
3. Technical knowledge

OTHER REFERENCES

Operations Manual, Okuma Mc4VA

Operations Manual, Bridgeport E-Z TRAK

Mastertask Software

Machinist Ready Reference ISBN: 0970339801

Introduction to Computer Numerical Control ISBN: 0-13-217603-3

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Course Competency/Assessment Methods Matrix

CNC 1200; Fundamentals of CNC Operations	Assessment Options																															
For each competency/outcome place an "X" below the method of assessment to be used.	Assessment of Student Learning	Article Review	Case Studies	Group Projects	Lab Work	Oral Presentations	Pre-Post Tests	Quizzes	Written Exams	Artifact Self Reflection of Growth	Capstone Projects	Comprehensive Written Exit Exam	Course Embedded Questions	Multi-Media Projects	Observation	Writing Samples	Portfolio Evaluation	Real World Projects	Reflective Journals	Applied Application (skills) Test	Oral Exit Interviews	Accreditation Reviews/Reports	Advisory Council Feedback	Employer Surveys	Graduate Surveys	Internship/Practicum /Site Supervisor Evaluation	Licensing Exam	In Class Feedback	Simulation	Interview	Written Report	Assignment
Assessment Measures – Are direct or indirect as indicated. List competencies/outcomes below.	Direct/ Indirect	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	I	I	I	I	D	D							
1.0 After study and discussion the student will be able to operate control panel. Will also be familiar with machine specifications.					X	X		X	X			X			X																	
2.0 After demonstration and lecture, the student will be able to discuss and describe the functional aspects of the machine controls.			X		X		X	X			X			X																		
3.0 Following lecture and lab demonstration, the student will be able to set up and operate machines.				X	X		X	X			X			X																		
4.0 After lecture and demonstration, the student will be able to align control and set-up, including tool data, offsets, taper trims, and overrides.				X	X		X	X			X			X																		

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5.0 Upon completion of discussion and lecture, the student will be able to align machine, zero shift, and establish program point.					X	X		X	X			X																				
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