

SYLLABUS

DIVISION: Business and Engineering Technology

REVISED: Spring Term 2013

CURRICULA IN WHICH COURSE IS TAUGHT: Precision Machining Technology

COURSE NUMBER AND TITLE: MAC 221 – Advanced Machine Tool Operations I

CREDIT HOURS: 7 HOURS/WK LEC: 4 HOURS/WK LAB: 9 LEC/LAB COMB: 13

I. CATALOG DESCRIPTION:

- Learn to program a HAAS TL-1 CNC Lathe in G-code for various operations, including facing, turning, drilling, boring, tapping and chasing treads.
- Learn to program a Prototrak 2-axis CNC controller on a Clausing vertical milling machine for various operations, including milling, boring, drilling and tapping.

II. RELATIONSHIP OF THE COURSE TO CURRICULA OBJECTIVES:

- To develop in the student an understanding of these machines and the ability to operate them.

III. REQUIRED BACKGROUND/PREREQUISITES:

- MAC 101-102-121

IV. COURSE CONTENT:

- 1st Week - Run "Jack Screw Base 050" on TL-1 and write program and run "Adapter Plate 020" on prototrak mill
- 2nd Week - Run "Screw 051" on TL-1 and write program and run "Cam 021" on prototrak mill
- 3rd Week – Run "Ball Screw 052" on TL-1 and write program and run "CNC02 Block" on prototrak mill
- 4th Week – Run "CAP 053" on TL-1 and run special part production on HAAS HL-2 CNC mill
- 5th Week – Keys and Keyseats/CNC Milling
- 6th Week – CNC Milling
- 7th Week – CNC Milling
- 8th Week – CNC Milling

V. THE FOLLOWING GENERAL EDUCATION OBJECTIVES WILL BE ADDRESSED IN THIS COURSE (Place X by all that apply)

 X Communications

 X Personal Development

 X Critical Thinking

 X Quantitative Reasoning

 X Cultural & Social Understanding

 Scientific Reasoning

 X Information Literacy

VI. LEARNER OUTCOMES**VII. EVALUATION**

Learner outcome 1st week <ul style="list-style-type: none"> • Understand CNC turning and Conversational milling.... • Navigate the computer to program and run the prescribed parts.... 	Evaluation method Lab exercises In class assignments
Learner outcome 2nd week <ul style="list-style-type: none"> • Understand CNC turning and Conversational milling.... • Navigate the computer to program and run the prescribed parts.... 	Evaluation method Lab exercises In class assignments
Learner outcome 3rd week <ul style="list-style-type: none"> • Understand Advanced CNC turning • Navigate the computer to program and run advanced parts 	Evaluation method Lab exercises In class assignments
Learner outcome 4th week <ul style="list-style-type: none"> • Understand Advanced CNC turning • Navigate the computer to program and run advanced parts 	Evaluation method Lab exercises In class assignments
Learner outcome <ul style="list-style-type: none"> • CNC Milling 	Evaluation method Lab exercises In class assignments

VIII. Over 90% of students will successfully complete this class.