CNC PROGRAMMING I

COURSE SYLLABUS

Revised 1/3/2012

C - L - CR
0 - 9 - 3

COURSE NUMBER: MTT 254

PREREQUISITE(S): MTT 253

CO-REQUISITE(S): None

COURSE DESCRIPTIONS This course is a study of CNC programming, including machine language and detailed procedures needed for CNC operations.

TEXTBOOK(S): Nanfara, Frank, Uccello, Tony and Derek Murphey. *The CNC Workshop Version 2.0.* Mission: Schroff Development Corporation, 2002. ISBN: 1-58503-083-X

REFERENCE(S): None

OTHER REQUIRED MATERIALS, TOOLS, AND EQUIPMENT: Statistical Calculator
Clear Safety Glasses

METHOD OF INSTRUCTION: This course will be taught by classroom lecture and machine demonstration. Projects assigned must be completed to blueprint specifications for grade.

GRADING SYSTEM:

90	-	100	=	A
80	-	89	=	B
70	-	79	=	C
60	-	69	=	D
Below	-	60	=	F

GRADE CALCULATION METHOD:

Lab Projects	=	20%
Mid-Term	=	20%
Participation	=	20%
Final Exam	=	40%
		100%

80% of Lab Projects must be successfully completed with a mimimum grade of a “C” to complete course. If a student fails his/her lab projects; the course must be repeated.

ATTENDANCE POLICY:

The student is responsible for punctual and regular attendance in all classes, laboratories, clinical, practical, internships, field trips, and other required class activities. The College does not grant excused absences; therefore, students are urged to reserve their absences for emergencies. When illness or other emergencies occur, the student is responsible for notifying instructors and completing missed work if approved for late submission by instructors.

- Students who miss an assignment, test, or exam due to an absence will be responsible for completing all work prior to the next scheduled class period or a zero will be issued for that grade, unless a prior arrangement has been made with the instructor.

- The student is tardy if not in class at the time the class is scheduled to begin and is admitted to class at the discretion of the instructor.

- A class participation grade consisting of attendance and punctuality will be 20% of the final grade for the class. Each absence will reduce this grade by 5%; two tardies will also equal one absence.

- Instructors maintain attendance records. However, it is the student's responsibility to withdraw from a course. A student enrolling in and attending at least one course session remains enrolled until the student initiates a withdrawal.

Withdrawal Policy: During the first 75% of the course, a student may initiate withdrawal and receive a grade of W. A student cannot initiate a withdrawal during the last 25% of the course. Extenuating circumstances require documentation and approval by the appropriate department head and academic dean.

Absences for Religious Holidays: Students who are absent from class in order to observe religious holidays are responsible for the content of any activities missed and for the completion of assignments occurring during the period of absence. Students who anticipate their observance of religious holidays will cause them to be absent from class and do not wish such absences to penalize their status in class should adhere to the following guidelines:

1. Observance of religious holidays resulting in three or fewer consecutive absences: Discuss the situation with the instructor and provide written notice at least one week prior to the absence(s). Develop (in writing) and instructor-approved plan which outlines the make up of activities and assignments.
2. Observances of religious holidays resulting in four or more consecutive absences: Discuss the situation with the instructor and provide the instructor with written notice within the first 10 days of the academic term. Develop an instructor-approved plan which outlines the make-up of activities and assignments.

ACADEMIC CONDUCT:

ACADEMIC DISHONESTY: Students are expected to uphold the integrity of the College's standard of conduct, specifically in regards to academic honesty. All forms of academic dishonesty including, but not limited to, cheating on assignments/tests, plagiarism, collusion, and falsification of information will call for disciplinary action. Disciplinary action imposed may include one or more of the following: written reprimand, loss of credit for assignment/test, termination from course, and probation, suspension, or expulsion from the College. For further explanation of this and other conduct codes, please refer to the Student Handbook.

CELLULAR PHONES AND PAGERS/BEEPERS: Cellular phones, pagers and beepers are not permitted to be turned on or used within the classroom. Use of these devices during classroom time will be considered a violation of the student code as it relates to "disruptive behavior."

CLASS/LAB PROCEDURES:

Students are required to:

1. Wear safety glasses while operating equipment.
2. Treat all equipment, tools, and instrument with proper care.
3. Thoroughly clean equipment and work area after each lab exercise.
4. Insure that all tools, etc. are returned to their proper places after each use.
5. Use good judgment and discretion while working in the shop.

ACCOMMODATIONS:

Inclement Weather Schedule:

•Check SCC Web Site: www.sccsc.edu
•Tune to **Channel-7** Local T.V. Station (CBS)
•Tune to an FM/AM Local radio station

Students who need special accommodations in this class because of a documented disability should notify Student Disability Services by calling (864) 592-4818, toll-free 1-800-922-3679; via email through the SCC web site at www.sccsc.edu/resources/disabilities; or by visiting the office located in the East Building Room 30-B on the SCC Central campus. Contacting Student Disability Services early in the semester gives the College an opportunity to provide necessary support services and appropriate accommodations.

COURSE COMPETENCIES & OBJECTIVES:

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

I. Demonstrate machining practices using tool offsets and workshifts.
   1. List and explain the use and function of tooling offsets and workshifts.
   2. Write programs using tooling offsets for lathes and mills.
   3. Demonstrate the use of offsets through required projects.

II. Demonstrate common programming features required to operate CNC Lathes and Mills.
   1. Set-Up the WPC, Tooling Offsets and Workshifts for all CNC operations.
   2. Write programs using G-Code programming formats.
   3. Write programs using Can Cycle operations.

III. Demonstrate CNC techniques for specific machining operations.
   1. Explain and demonstrate cutter compensation.
   2. Explain and demonstrate drilling cycles.
   3. Explain and demonstrate threading cycles.
   4. Explain and demonstrate cycles required for Sub-Programming.

IV. Complete NIMS Level I CNC Turning Operator and CNC Millling Operator Online Exams.