



**AMCA2150 - CNC LATHE MANUAL PROGRAMMING
COURSE SYLLABUS
Spring Semester 2018**

COURSE INFORMATION

Credit Hours/Minutes: 5/5250
Class Location: Lab 6112/Class Room 6110
Class Meets: 4:30 – 8:00 PM, MW
CRN: 40351

INSTRUCTOR CONTACT INFORMATION

Instructor Name: David G. Mills
Office Location: Room 6111
Office Hours: 2:30 – 4:00 PM, MW
Email Address: [David Mills \(dmills@southeasterntech.edu\)](mailto:dmills@southeasterntech.edu)
Phone: 478-289-2323
Fax Number: 478-289-2276

SOUTHEASTERN TECHNICAL COLLEGE'S (STC) CATALOG AND HANDBOOK

Students are responsible for all policies and procedures and all other information included in Southeastern Technical College's [Catalog and Handbook \(http://www.southeasterntech.edu/student-affairs/catalog-handbook.php\)](http://www.southeasterntech.edu/student-affairs/catalog-handbook.php).

REQUIRED TEXT

Introduction to Computer Numerical Control (CNC), Fifth Edition, James V. Valentino, Joseph Goldenberg, ISBN-13: 978-0-13-217603-3, ISBN-10: 0-13-217603-3

REQUIRED SUPPLIES & SOFTWARE

Pens, Pencils, Paper, Safety Glasses

COURSE DESCRIPTION

This course provides instruction for the safe operation and manual programming of computer numerical controlled (CNC) Lathes. Topics include: safety, calculation for programming, program codes and structure, program run and editing of programs.

MAJOR COURSE COMPETENCIES

Safety, Programming Calculations, Program Codes and Structure, Program Run and Editing

PREREQUISITE(S)

Instructor Approval

COURSE OUTLINE

- 1 Safety
 - A. Explain the safe measures and problems which apply specifically to automated movements of cutting tools on a Lathe.
 - B. Demonstrate programming procedures for safe part run.
 - C. Identify safety problems with tool turret indexing or tail stock applications.
 - D. Determine what work holding devices and support attachments would cause problems during automated operations.

- 2 Programming Calculations
 - A. Calculate proper feeds, speeds and depth of cuts for given cutters for given part programs for the CNC Lathe.
 - B. Calculate proper cutter positions for rough and finish passes on given part shapes when programming for a CNC Lathe.
 - C. Calculate drilling depth for given drill diameters for holes in CNC Lathe programs.
 - D. Calculate drill peck amounts for given drill diameter and part materials for CNC Lathe programs.

- 3 Program Codes and Structure
 - A. Define the various G and M codes and their functions used in CNC Lathe programming.
 - B. Discuss the related machine tool movements resulting from the codes entered into the programmable controller of a CNC Lathe.
 - C. Determine order of operations, part holding and part referencing for given part programs to be ran on a CNC Lathe.
 - D. Determine proper tooling for given part programs to be ran on a CNC Lathe.
 - E. Program linear and circular interpolation moves on a CNC Lathe.
 - F. Program required hole operations on a CNC Lathe for a given part shape.
 - G. Demonstrate proper use of canned cycles in CNC Lathe part programming.
 - H. Demonstrate proper use of tool nose radius compensation in CNC Lathe part programming.
 - I. Discuss use of program looping and sub-programs in CNC Lathe part programming.

- 4 Program Run and Editing
 - A. Setup and load part programs in a CNC Lathe for part run.
 - B. Dry run part programs for checking purposes on a CNC Lathe.
 - C. Trouble shoot part program for programming errors and part dimensional accuracy.
 - D. Edit part program for optimal program run time and tool life.

GENERAL EDUCATION CORE COMPETENCIES

STC has identified the following general education core competencies that graduates will attain:

1. The ability to utilize standard written English.
2. The ability to solve practical mathematical problems.
3. The ability to read, analyze, and interpret information.

STUDENT REQUIREMENTS

Students are expected to come prepared for each class meeting, focused and ready to learn.

Homework assignments will be collected for a grade.

There may be in class graded activities planned in which you will not be able to participate if you are not prepared for that day's class.

Unannounced quizzes or in class assignments are subject to be given every day. A grade of zero will be assigned for any quizzes or in class assignments missed.

Students are expected to complete all tests, and other assignments on the scheduled dates.

Students are responsible for policies and procedures include in the STC Catalog.

ATTENDANCE GUIDELINES

Class attendance is a very important aspect of a student's success. Being absent from class prevents students from receiving the full benefit of a course and also interrupts the learning process. Southeastern Technical College considers both tardiness and leaving early as types of absenteeism. Responsibility for class attendance rests with the student. Regular and punctual attendance at all scheduled classes is required for student success. Students will be expected to complete all work required by the instructor as described in the individual course syllabus. Work or assignments missed as a result of a student absence may be made up only if prearranged with the instructor. Make up work will only be allowed in extreme cases. The content and dates for makeup work is at the discretion of the instructor.

Instructors have the right to give unannounced quizzes/assignments. Students who miss an unannounced quiz or assignment will receive a grade of 0. Students who stop attending class, but do not formally withdraw, may receive a grade of "F" (Failing 0-59) and face financial aid repercussions in upcoming semesters.

Students will not be withdrawn by an instructor for attendance; however, all instructors will keep records of graded assignments and student participation in course activities. The completion dates of these activities will be used to determine a student's last date of attendance in the event a student withdraws, stops attending, or receives an "F" in a course.

SPECIAL NEEDS

Students with disabilities who believe that they may need accommodations in this class based on the impact of a disability are encouraged to contact [Helen Thomas \(hthomas@southeasterntech.edu\)](mailto:hthomas@southeasterntech.edu), 912-538-3126, to coordinate reasonable accommodations.

SPECIFIC ABSENCES

Provisions for Instructional Time missed because of documented absences due to jury duty, military duty, court duty, or required job training will be made at the discretion of the instructor.

PREGNANCY

Southeastern Technical College does not discriminate on the basis of pregnancy. However, we can offer accommodations to students who are pregnant that need special consideration to successfully complete the course. If you think you will need accommodations due to pregnancy, please advise me and make appropriate arrangements with [Helen Thomas \(hthomas@southeasterntech.edu\)](mailto:hthomas@southeasterntech.edu), 912-538-3126.

WITHDRAWAL PROCEDURE

Students wishing to officially withdraw from a course(s) or all courses after the drop/add period and prior to the 65% portion of the semester (date will be posted on the school calendar) must speak with a Career Counselor in Student Affairs and complete a Student Withdrawal Form. A grade of "W" is assigned when the student completes the withdrawal form from the course.

Students who are dropped from courses due to attendance (see your course syllabus for attendance policy) after drop/add until the 65% point of the semester will receive a "W" for the course. Abandoning a course(s) instead of following official withdrawal procedures may result in a grade of "F" being assigned.

After the 65% portion of the semester, the student will receive a grade for the course. (Please note: A zero will be given for all missed assignments.)

There is no refund for partial reduction of hours. Withdrawals may affect students' eligibility for financial aid for the current semester and in the future, so a student must also speak with a representative of the Financial Aid Office to determine any financial penalties that may be assessed due to the withdrawal. All grades, including grades of "W", will count in attempted hour calculations for the purpose of Financial Aid.

Remember - Informing your instructor that you will not return to his/her course does not satisfy the approved withdrawal procedure outlined above.

MAKEUP GUIDELINES (TESTS, QUIZZES, HOMEWORK, PROJECTS, ETC...)

Makeup of tests, quizzes and other assignments will only be considered where arrangements are made prior to completion date scheduled or test dates.

ACADEMIC DISHONESTY POLICY

The Southeastern Technical College Academic Dishonesty Policy states All forms of academic dishonesty, including but not limited to cheating on tests, plagiarism, collusion, and falsification of information, will call for discipline. The policy can also be found in the Southeastern Technical College Catalog and Student Handbook.

PROCEDURE FOR ACADEMIC MISCONDUCT

The procedure for dealing with academic misconduct and dishonesty is as follows:

1. First Offense

Student will be assigned a grade of "0" for the test or assignment. Instructor keeps a record in course/program files and notes as first offense. The instructor will notify the student's program advisor, academic dean, and the Registrar at the student's home campus. The Registrar will input the incident into Banner for tracking purposes.

2. Second Offense

Student is given a grade of "WF" (Withdrawn Failing) for the course in which offense occurs. The instructor will notify the student's program advisor, academic dean, and the Registrar at the student's home campus indicating a "WF" has been issued as a result of second offense. The Registrar will input the incident into Banner for tracking purposes.

3. Third Offense

Student is given a grade of "WF" for the course in which the offense occurs. The instructor will notify the student's program advisor, academic dean, and the Registrar at the student's home campus indicating a "WF" has been issued as a result of second offense. The Vice President for Student Affairs, or designee, will notify the student of suspension from college for a specified period of time. The Registrar will input the incident into Banner for tracking purposes.

STATEMENT OF NON-DISCRIMINATION

The Technical College System of Georgia and its constituent Technical Colleges do not discriminate on the basis of race, color, creed, national or ethnic origin, sex, religion, disability, age, political affiliation or belief, genetic information, disabled veteran, veteran of the Vietnam Era, spouse of military member or citizenship status (except in those special circumstances permitted or mandated by law). This school is in compliance with Title VI of the Civil Rights Act of 1964, which prohibits discrimination on the basis of race, color, or national origin; with the provisions of Title IX of the Educational Amendments of 1972, which prohibits discrimination on the basis of gender; with the provisions of Section 504 of the Rehabilitation Act of 1973, which prohibits discrimination on the basis of handicap; and with the American with Disabilities Act (ADA).

The following individuals have been designated to handle inquiries regarding the nondiscrimination policies:

American With Disabilities Act (ADA)/Section 504 - Equity- Title IX (Students) – Office of Civil Rights (OCR) Compliance Officer	Title VI - Title IX (Employees) – Equal Employment Opportunity Commission (EEOC) Officer
Helen Thomas, Special Needs Specialist Vidalia Campus 3001 East 1 st Street, Vidalia Office 108 Phone: 912-538-3126 Email: Helen Thomas hthomas@southeasterntech.edu	Blythe Wilcox, Director of Human Resources Vidalia Campus 3001 East 1 st Street, Vidalia Office 138B Phone: 912-538-3147 Email: Blythe Wilcox bwilcox@southeasterntech.edu

ACCESSIBILITY STATEMENT

Southeastern Technical College is committed to making course content accessible to individuals to comply with the requirements of Section 508 of the Rehabilitation Act of Americans with Disabilities Act (ADA). If you find a problem that prevents access, please contact the course instructor.

GRIEVANCE PROCEDURES

Grievance procedures can be found in the Catalog and Handbook located on Southeastern Technical College's website.

ACCESS TO TECHNOLOGY

Students can now access Blackboard, Remote Lab Access, Student Email, Library Databases (Galileo), and BannerWeb via the mySTC portal or by clicking the Current Students link on the [Southeastern Technical College \(STC\) Website \(www.southeasterntech.edu\)](http://www.southeasterntech.edu).

TECHNICAL COLLEGE SYSTEM OF GEORGIA (TCSG) GUARANTEE/WARRANTY STATEMENT

The Technical College System of Georgia guarantees employers that graduates of State Technical Colleges shall possess skills and knowledge as prescribed by State Curriculum Standards. Should any graduate employee within two years of graduation be deemed lacking in said skills, that student shall be retrained in any State Technical College at no charge for instructional costs to either the student or the employer.

GRADING POLICY

Assessment/Assignment	Percentage
Tests	70%
Final Exam	15%
Homework, Quizzes, in class Assignments	15%

GRADING SCALE

Letter Grade	Range
A	90-100
B	80-89
C	70-79
D	60-69
F	0-59