



TENTATIVE—SUBJECT TO CHANGE

AMCA 2110 CNC Fundamentals COURSE SYLLABUS Spring Semester 2021 (202114)

COURSE INFORMATION

Credit Hours/Minutes: 4/4500

Campus/Class Location: Swainsboro/6110

Class Meets: Monday, Tuesday, Wednesday, & Thursday / 8:30AM to 9:45AM

Course Reference Number (CRN): 40086

INSTRUCTOR CONTACT INFORMATION

Instructor Name: James Yearty

Email Address: [James Yearty \(jyearty@southeasterntech.edu\)](mailto:jyearty@southeasterntech.edu)

Campus/Office Location: Swainsboro/6111

Office Hours: 12:30 to 2:30PM Monday Tuesday Wednesday & Thursday **“Due to the uncertainties of COVID-19, contact instructor by phone or email to make an appointment.”**

Phone: (478) 289-2323

Tutoring Hours (if applicable): Schedule with instructor as needed

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 \(https://catalog.southeasterntech.edu/college-catalog/downloads/current.pdf\)](https://catalog.southeasterntech.edu/college-catalog/downloads/current.pdf).

REQUIRED TEXT

CNC Machining Fundamentals and Applications, ISBN-13: 978-1-59070-790-6

REQUIRED SUPPLIES & SOFTWARE

Each student should have the following: Spiral notebook, pen, pencil, highlighter, 0-1 micrometer, 6” flexible rule, 0-6” dial caliper, pocket scriber, deburr tool, & safety glasses. You will not be permitted to borrow from the Instructor or your fellow classmates.

Students should not share login credentials with others and should change passwords periodically to maintain security.

COURSE DESCRIPTION

Provides a comprehensive introduction to computer numerical controlled (CNC) machining processes. Topics include safety, Computer Numerical Control of Machinery, setup and operation of CNC machinery, introduction to programming of CNC machinery, introduction to CAD/CAM.

MAJOR COURSE COMPETENCIES

1. Safety
2. Computer Numerical Control
3. Setup and Operation
4. Introduction to Programming
5. Introduction to CAD/CAM

CO-REQUISITE(S)

MCHT 1012 Blueprint Reading for Machine Tool

COURSE OUTLINE

Introduces students to Safety, Computer Numerical Control, Setup and Operation, Introduction to Programming, and Introduction to CAD/CAM.

GENERAL EDUCATION CORE COMPETENCIES

Southeastern Technical College 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

Tests and assignments must be completed on specified date. Students are also responsible for policies and procedures in the STC E-Catalog.

COVID-19 MASK REQUIREMENT

Masks or face coverings must be worn at all times while on the campus of Southeastern Technical College. This measure is being implemented to reduce COVID-19 related health risks for everyone engaged in the educational process. Masks or face coverings must be worn over the nose and mouth, in accordance with the Centers for Disease Control and Prevention (CDC). A student's refusal to wear a mask or face covering will be considered a classroom disruption and the student may be asked to leave campus and/or receive further discipline.

COVID-19 SIGNS AND SYMPTOMS

We encourage individuals to monitor for the signs and symptoms of COVID-19 prior to coming on campus.

If you have experienced the symptoms listed below or have a body temperature 100.4°F or higher, we encourage you to self-quarantine at home and contact a primary care physician's office, local urgent care facility, or health department for further direction. Please notify your instructor(s) by email and do not come on campus for any reason.

| COVID-19 Key Symptoms |
|---|
| Fever or felt feverish |
| Cough: new or worsening, not attributed to another health condition |
| Shortness of breath, not attributed to another health condition |
| New loss of taste or smell |

| COVID-19 Key Symptoms |
|--|
| Chills; Repeated shaking with chills |
| Sore throat, not attributed to another health condition |
| Muscle pain, not attributed to another health condition or exercise |
| Headache, not attributed to another health condition |
| Diarrhea (unless due to known cause) |
| In the past 14 days, if you: |
| Have had close contact with or are caring for an individual diagnosed with COVID-19 at home (not in healthcare setting), please do not come on campus and contact your instructor (s). |

COVID-19 SELF-REPORTING REQUIREMENT

Students, who test positive for COVID-19 or who have been exposed to a COVID-19 positive person, are required to self-report using the [COVID 19 Health Reporting Form](#). **ADD** Report all positive cases of COVID-19 to your instructor and [Stephannie Waters](#), Exposure Control Coordinator, swaters@southeasterntech.edu, 912-538-3195.

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.

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.

Instructors are responsible for determining whether missed work may be made up and the content and dates for makeup work is at the discretion of the instructor.

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.

STUDENTS WITH DISABILITIES

Students with disabilities who believe that they may need accommodations in this class based on the impact of a disability are encouraged to contact the appropriate campus coordinator to request services.

Swainsboro Campus: [Macy Gay](#) (mgay@southeasterntech.edu), 478-289-2274, Building 1, Room 1210

Vidalia Campus: [Helen Thomas](#) (hthomas@southeasterntech.edu), 912-538-3126, Building A, Room 165

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 make arrangements with the appropriate campus coordinator.

Swainsboro Campus: [Macy Gay \(mgay@southeasterntech.edu\)](mailto:mgay@southeasterntech.edu), 478-289-2274, Building 1, Room 1210

Vidalia Campus: [Helen Thomas \(hthomas@southeasterntech.edu\)](mailto:hthomas@southeasterntech.edu), 912-538-3126, Building A, Room 165

It is strongly encouraged that requests for consideration be made **PRIOR** to delivery and early enough in the pregnancy to ensure that all the required documentation is secured before the absence occurs. Requests made after delivery **MAY NOT** be accommodated. The coordinator will contact your instructor to discuss accommodations when all required documentation has been received. The instructor will then discuss a plan with you to make up missed assignments.

WITHDRAWAL PROCEDURE

Students wishing to officially withdraw from a course(s) or all courses after the drop/add period and prior to the 65% point of the term in which student is enrolled (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" (Withdrawn) is assigned for the course(s) when the student completes the withdrawal form.

Important – Student-initiated withdrawals are not allowed after the 65% point. After the 65% point of the term in which student is enrolled, the student has earned the right to a letter grade and will receive a grade for the course. Please note: Abandoning a course(s) instead of following official withdrawal procedures may result in a grade of "F" (Failing 0-59) being assigned.

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

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. A grade of "W" will count in attempted hour calculations for the purpose of Financial Aid.

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

Make up test will be at the discretion of the instructor.

ACADEMIC DISHONESTY POLICY

The Southeastern Technical College Academic Dishonesty Policy states that 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 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 third 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 (TCSG) and its constituent Technical Colleges do not discriminate on the basis of race, color, creed, national or ethnic origin, gender, 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 nondiscrimination policy encompasses the operation of all technical college-administered programs, federally financed programs, educational programs and activities involving admissions, scholarships and loans, student life, and athletics. It also applies to the recruitment and employment of personnel and contracting for goods and services.

All work and campus environments shall be free from unlawful forms of discrimination, harassment and retaliation as outlined under Title IX of the Educational Amendments of 1972, Title VI and Title VII of the Civil Rights Act of 1964, as amended, the Age Discrimination in Employment Act of 1967, as amended, Executive Order 11246, as amended, the Vietnam Era Veterans Readjustment Act of 1974, as amended, Section 504 of the Rehabilitation Act of 1973, as amended, the Americans With Disabilities Act of 1990, as amended, the Equal Pay Act, Lilly Ledbetter Fair Pay Act of 2009, the Georgia Fair Employment Act of 1978, as amended, the Immigration Reform and Control Act of 1986, the Genetic Information Nondiscrimination Act of 2008, the Workforce Investment Act of 1998 and other related mandates under TCSG Policy, federal or state statutes.

The Technical College System and Technical Colleges shall promote the realization of equal opportunity through a positive continuing program of specific practices designed to ensure the full realization of equal opportunity.

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 165 Phone: 912-538-3126 Email: Helen Thomas hthomas@southeasterntech.edu | Lanie Jonas, Director of Human Resources Vidalia Campus 3001 East 1 st Street, Vidalia Office 138B Phone: 912-538-3230 Email: Lanie Jonas ljonas@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 |
|------------------------------|-------------------|
| Reviews & Activities | 25% |
| Projects & Tests | 40% |
| Final Exam | 35% |

GRADING SCALE

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

AMCA 2110 CNC Fundamentals
Fall Semester 202112 Lesson Plan
 Subject to change

| Date/Week | Chapter/Lesson | Content | Assignments & Tests Due Dates | Competency Area |
|---------------------|---|---|--|--------------------|
| 1/11/21 Day 1 | | First day of class/Class Introduction—Syllabi, Outline | | 1,2,3,4,a,b,c |
| 1/11-1/14 Week 1 | Chapter 1 Numerical Control and CNC Lesson 2 Shop Safety | CNC Machining Fundamentals and Applications Instructor to give demonstrations on manual lathes & mills Fundamentals of CNC Machining shop binder handout | Chapter 1 Review page 28 & Lesson 2 Safety test due 1/14/21 | 1,2,3,4,a,b,c |
| 1/18-1/21 Week 2 | Chapter 2 Axis and Coordinate System Lesson 4 Coordinate Systems | CNC Machining Fundamentals and Applications Fundamentals of CNC Machining shop binder handout | Chapter 2 Review page 47 & Activities 1,2,3,&4 page 48 due 1/21/21 | 1,2,3,4,a,b,c |
| 1/25-1/28 Week 3 | Chapter 3 CNC Math Chapter 4 CNC Machining Centers | CNC Machining Fundamentals and Applications CNC Machining Fundamentals and Applications | Chapter 3 Review pages 72-74 & Activity 1 page 75 & Chapter 4 Review page 95 due 1/28/21 | 1,2,3,4,a,b,c |
| 2/1-2/4 Week 4 | Lesson 3 CNC Tools Chapter 5 CNC Machining Center Tools, Inserts, Speeds, and Feeds | Fundamentals of CNC Machining shop binder handout CNC Machining Fundamentals and Applications | Chapter 5 Review page 119 due 2/4/21 ADD IMMERSE | 1,2,3,4,a,b,c |
| 2/8-2/11 Week 5 | Chapter 6 Machining Center Carbide Insert Fundamentals | CNC Machining Fundamentals and Applications | Chapter 6 Review page 131 due 2/10/21 | 1,2,3,4,a,b,c |
| 2/11/21 | Chapters 1,2,3,4,5,6 | | Students will take 1 st test 2/11/21 | 1,2,3,4,a,b,c |

| Date/Week | Chapter/Lesson | Content | Assignments & Tests Due Dates | Competency Area |
|----------------------|---|--|--|------------------------|
| 2/15-2/18 Week 6 | Chapter 7 Programming Process for Machining Centers Chapter 8 Programming Codes for Machining Centers Lesson 5 CNC Programming Language | CNC Machining Fundamentals and Applications CNC Machining Fundamentals and Applications Fundamentals of CNC Machining shop binder handout | Chapter 7 Review page 142 & Activity page 143 & Chapter 8 Review page 168 due 2/18/21 | 1,2,3,4,a,b,c |
| 2/22-2/25 Week 7 | Chapter 9 Program Format for Vertical Machining Centers Chapter 10 Canned Cycles for Machining Centers | CNC Machining Fundamentals and Applications CNC Machining Fundamentals and Applications | Chapter 9 Review page 185 Activities 1,2,&3 pages 187 thru 192 & Chapter 10 Review with Activity 1 page 209 due 2/24/21 | 1,2,3,4,a,b,c |
| 2/25/21 | Chapters 7,8,9 & 10 | | Students will take 2nd test 2/25/21 | 1,2,3,4,a,b,c |
| 3/1-3/4 Week 8 | Lesson 6 CNC Operation | Fundamentals of CNC Machining shop binder handout | Students completing milling part set-up project of Lesson 6 | 1,2,3,4,a,b,c |
| 3/8-3/11 Week 9 | Lesson 6 CNC Operation | Fundamentals of CNC Machining shop binder handout | Students completing milling part set-up project of Lesson 6 for grade by 3-11-21 | 1,2,3,4,a,b,c |
| 3/15-3/18 Week 10 | Chapter 11 Turning Centers Chapter 12 Turning Center Tools, Inserts, Speeds, And Feeds Chapter 13 Programming Process for Turning Centers | CNC Machining Fundamentals and Applications CNC Machining Fundamentals and Applications CNC Machining Fundamentals and Applications | Chapter 11 Review page 223 & Chapter 12 Review page 237 with Activity 1; Chapter 13 Review page 251 with Activity Program 1 & 2 page 252 thru 254, due 3/17/21 | 1,2,3,4,a,b,c |
| 3/18/21 | Chapters 11,12 & 13 | | Students will take 3 rd test 3/18/21 | 1,2,3,4,a,b,c |

| Date/Week | Chapter/Lesson | Content | Assignments & Tests Due Dates | Competency Area |
|----------------------|--|--|--|-----------------|
| 3/22-3/25 Week 11 | Chapter 14 Programming Codes for Turning Centers Chapter 15 Canned Cycles for Turning Centers | CNC Machining Fundamentals and Applications CNC Machining Fundamentals and Applications | Chapter 14 Review page 272 with Activities 1,2,&3 pages 273-274, & Chapter 15 Review page 295 with Activities 1,2,3,&4 pages 295-296 due 3/24/21 | 1,2,3,4,a,b,c |
| 3/25/21 | Chapters 14 &15 | | Students will take 4th test 3/25/21 | 1,2,3,4,a,b,c |
| 3/29-4/1 Week 12 | Lesson 8 CNC Turning | Fundamentals of CNC Machining shop binder handout | Students completing lathe part set-up project of Lesson 8 | 1,2,3,4,a,b,c |
| 4/12-4/15 Week 13 | Lesson 8 CNC Turning | Fundamentals of CNC Machining shop binder handout | Students completing lathe part set-up project of Lesson 8 for grade by 4/15/21 | 1,2,3,4,a,b,c |
| 4/19-4/22 Week 14 | Chapter 16 Subprograms Chapter 17 Electrical Discharge Machining CAD/CAM | CNC Machining Fundamentals and Applications CNC Machining Fundamentals and Applications Shop handout | Chapter 16 Review page 301 With Activity 1 & Chapter 17 Review page 314 due 4/21/21 | 5,a,b,c |
| 4/22/21 | Chapters 16,17 & CAD/CAM | ADD CAD | Students will take 5TH test 11/19/20 | 1,2,3,4,5,a,b,c |
| 4/26-4/29 Week 15 | Review | Review for final exam | Final exam due 4/29/21 | 1,2,3,4,5,a,b,c |
| | | | | |

COMPETENCY AREAS: (WILL VARY FOR EACH COURSE/TAKEN FROM STATE STANDARDS)

1. Safety
2. Computer Numerical Control
3. Setup and Operation
4. Introduction to Programming
5. Introduction to CAD/CAM

GENERAL CORE EDUCATIONAL COMPETENCIES:

- a) The ability to utilize standard written English.
- b) The ability to solve practical mathematical problems.
- c) The ability to read, analyze, and interpret information.