



Lake Technical College

2020 - 2021

Master Plan of Instruction  
CNC Production Specialist

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The mission of Lake Technical College is to be an integral component of the economic growth and development in our communities by offering a variety of high quality career-education and training opportunities.

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# **LAKE TECHNICAL COLLEGE**

## **CNC Production Specialist**

### **INTRODUCTION**

**CNC Production Specialist** is a 600 hour program and is responsible for training individuals to attain an entry-level status in the manufacturing field. The program covers a broad range of instruction in CNC machining. An appropriate amount of time is spent in each area to thoroughly cover needed instructional material as well as to gain manipulative skills competence. The program utilizes both theory and practical application of material to help the students gain needed knowledge and skills. Each student must successfully complete written test material on theory and related topics as well as successfully demonstrate the practical application of this information in the shop environment.

The students will learn shop safety procedures, the history of machining, CNC programming (Mill and Lathe), CNC setup procedures, blueprint reading and measurement skills. After students have seen a demonstration of each unit, they practice all skills using simulation software and CNC machines.

Students will be evaluated by the faculty on their machining skills, their ability to work safely, and their professional skills (e.g., appearance, dress, attendance and compliance with school and program policies and procedures).

After completion of all program competencies, students may elect to test for certification.

### **PROGRAM MISSION**

The mission of the CNC Production Specialist program is to prepare students for employment or advanced training in the manufacturing/ machine shop industry.

### **CNC PRODUCTION SPECIALIST PHILOSOPHY**

We believe in assisting the student in the development of his/her ability to get along with others, show integrity, develop safe professional skills both on and off the job, evidence personal and job cleanliness and demonstrate the ability to become a better adjusted, more productive citizen.

### **ADMISSION REQUIREMENTS**

Applicants must be at least 16 years of age and should be academically, physically, and emotionally capable of meeting the demands of the chosen program. Applicants make initial application through the Admissions Office. A minimum skills evaluation is part of the admission process.

The CNC Production Specialist program has the following minimum admissions requirements:

1. Complete an LTC online application.
2. Take the basic skills examination, if required.
3. Meet with a career advisor.
4. It is highly recommended that students confer with the program faculty prior to actual enrollment.

A high school diploma or GED is not required to enroll. However, it is recommended that all students complete either a high school diploma or a GED prior to program completion.

### **TESTING REQUIREMENTS**

All applicants for Career and Technical Education (CTE) programs 450 hours or more, with the exception of Florida Law Enforcement Academy applicants, must take a state mandated basic skills examination. Scores are good for two years and must be valid at the time of enrollment.

Assessment instruments meeting this requirement include (must be within 2 years of enrollment to be considered valid):

- A **common placement test** where a minimum score has been achieved pursuant to Rule 6A-10.0315, F.A.C.;
- Tests of Adult Basic Education (**TABE**) 11 & 12; and,
- 2014 GED® Tests: **Reasoning through Language Arts** and/or **Mathematics Reasoning** where a minimum score (145) as required in Rule 6A-6A.6.021, Florida Administrative Code (F.A.C.) has been achieved.
- CASAS Goals

Applicants transferring appropriately leveled TABE, GED test sections, or common placement tests must do so by having an official score report sent directly to the Admissions Office prior to enrollment in the program. Scores brought by hand will be accepted only if document provided by the outside testing center is in a sealed envelope. **Standardized tests scores are valid for two years.**

Several exemptions to basic skills testing are accepted. In order to be exempt, a student must submit official documentation to a career advisor for verification of an exemption:

- Applicants who possess a **documented degree** in applied science (AAS) level or higher;
- Applicants who earned a **Florida standard high school diploma, 2007 or later** (see withdrawal codes for standard);
- Applicants who are serving as an **active duty member** of any branch of the United States Armed Services;
- Documented passing scores on **state-designated industry certification** tests may be used;
- Any student enrolled in an **apprenticeship program** that is registered with FDOE in accordance with Chapter 446.

If a student has met or exceeded standard scores on one area of one test, they may use another test to meet the additional skill area requirements. It is acceptable to combine test scores from more than one test. (Rule 6A-10.315, F.A.C.)

Required basic skills exit scores may be waived for documented special needs students as per Florida guidelines. The student must enroll in Applied Academics for Adult Education (AAAE) and begin remediation in order to meet the exit requirements of the CTE program in which the student is enrolled. A student, with a documented disability, who is approaching completion (**mastered 90% of the competencies**) of the CTE program and has not met TABE scores, may be considered for a TABE exemption.

According to Florida Department of Education rules, students who do not meet basic skills exit scores may only retest after 60 documented hours of remediation in the Applied Academics for Adult Education lab or three months if not attending AAAE. Students may not retake the same test version for six months. We, therefore, strongly recommend that students test early, especially for licensure programs, in order to allow time for remediation and retesting should the need arise.

Students who do not meet the minimum basic skills exit scores set by the Florida Department of Education for their program must begin attending remediation classes in the AAAE lab prior to or at the time of enrollment in a Career and Technical Education program and make acceptable progress as determined by the AAAE faculty. Students should meet state mandated basic skills requirements by the time they have completed 50% of their program. Students who do not meet state mandated basic skills exit scores may not receive a certificate of completion as per Florida Department of Education rules.

Applicants transferring appropriately leveled TABE, PERT or other accepted standardized test scores from other testing centers must do so by having an official score report sent directly to the Admissions Office prior to enrollment in the program. Scores brought by hand will be accepted only if document provided by the outside testing center is in a sealed envelope.

Basic skills test scores are good for two years and must be valid at the time of enrollment. Basic skills scores that expire during continuous enrollment remain valid until the end of such enrollment. Under continuous enrollment, students must be enrolled at least 50% of one semester per school year and may miss no more than one consecutive semester. Continuous enrollment applies to attendance in a single program.

The basic skills exit scores for this program are: Reading, 9; Math, 10; and Language, 9.

## ESSENTIAL TRAINING TASKS

### Physical Requirements

Ability to:

- |  |  |
|--|--|
| 1. Reach                                     | 5. Exhibit a high degree of finger dexterity |
| 2. Exhibit a high degree of manual dexterity | 6. See (near acuity)                         |
| 3. Stoop                                     | 7. Lift 50 pounds or less                    |
| 4. Crouch and/or bend                        | 8. Communicate                               |

## **Mental and Emotional Requirements**

Ability to:

1. Work with others
2. Make decisions
3. Cope with anger/hostility of others in a calm manner
4. Cope with moderate to high levels of stress
5. Cope with confrontation
6. Cope with frustration
7. Assist with problem resolution
8. Demonstrate a high degree of patience
9. Plan and organize daily activities
10. Tolerate moderate noise level
11. Apply common sense understanding to carry out instructions furnished in both written and oral form
12. Measure accurately
13. Work without close, direct supervision
14. Work on multiple tasks and priorities
15. Perform and complete tasks of relative complexity
16. Perform basic mathematical operations
17. Demonstrate mechanical skills

## **ACCOMMODATIONS**

Federal and state legislation requires the provision of accommodations for students with disabilities as identified on the secondary student's IEP or 504 plan or postsecondary student's accommodations plan to meet individual needs to ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their postsecondary provider.

Students desiring accommodations or updates to their accommodations are encouraged to self-identify as early in the program as possible. In order to receive disability accommodations, students must self-disclose the disability to the Special Populations Coordinator and provide documentation that clearly shows evidence of a disability and applicable accommodations. The Special Populations Coordinator will schedule a meeting with the student and faculty to discuss the documented disability and applicable accommodations.

Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments, assessments, time demands, schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodation requested and provided is maintained in a confidential file.

Students in need of academic accommodations for a disability may consult with the Special Populations Coordinator to arrange appropriate accommodations. Students are required to give reasonable notice (typically 5 working days) prior to requesting an accommodation.

## **MATERIALS**

Students are required to purchase the following equipment, supplies, and textbooks:

- Safety glasses.
- Class shirts.
- Closed toe shoes.

## **TUITION**

Tuition is charged for adult students at a rate established by the State legislature. Current fee information is available in the Admissions Office. Tuition is waived for eligible high school dual-enrolled students. Tuition is due prior to the first day of each semester based on the Lake Technical College payment calendar. Failure to pay all fees due at the time class begins will result in not being able to attend class and/or clinical if applicable.

## **CLASS SCHEDULE**

Full-time Day students attend class from 8:15 AM to 4:15 PM, Monday through Thursday, with a 30-minute lunch period. This schedule provides 7.5 hours of instruction each day for a total of 30 hours per five-day week, excluding holidays and school breaks as outlined in the current school calendar.

## **ATTENDANCE POLICY**

In an effort to develop appropriate work ethics, Lake Tech students are expected to attend all class sessions. As is expected in the workplace, when it is necessary to be absent due to illness or emergency situations, all students are to notify the faculty on or before the date of absence. The student attendance policy for each postsecondary program is consistent with industry standards.

Campus attendance is kept via a computerized system. It is the responsibility of the student to **log in and out** in order to receive credit for class time. This allows the school to keep accurate attendance records for the actual number of hours and minutes attended. Faculty are not expected to manually enter student attendance. Only one override is permitted for failure to log in or out. Therefore, failure of a student to log in and out may result in a documented absence. Logging in or out for another student or having another student log in or out is unacceptable behavior and may result in dismissal.

Only regularly scheduled class hours will be reported for attendance. Practice exercises completed at home does not count toward hours in the program. Make-up time will not be accepted except as approved by the Executive Director of Lake Technical College.

### **Absences**

A student who is absent for six (6) consecutive class sessions will be withdrawn from enrollment in his/her program. A student withdrawn for absenteeism must petition administration to return. A student having medical documentation or documentation of an extenuating circumstance does not need to petition to return. Students exhibiting a pattern of consecutive absences less than six days will be subject to dismissal as determined by a School Intervention Team. Students with attendance issues will sign an acknowledgement that they have been notified that continued absences will pose a threat to grades and program enrollment. If the student's attendance does not improve but drops below 60%, the student will be withdrawn unless documentation regarding extenuating circumstances is provided to the Dean of Student Services.

Students in non-licensure programs must have achieved a minimum of 80% attendance at the end of each quarter. Students not having met this requirement will sign an acknowledgement that they have been notified that continued absences will pose a threat to grades and program enrollment. School Intervention Team meetings will be held as necessary to attempt to alleviate issues resulting in excessive absences and to counsel the student of possible alternatives and consequences. Students who miss more than 20% of their program will not be allowed to re-enroll the next semester and must wait until the following enrollment period to re-register unless the student's appeal to the Executive Director has been approved. Only regularly scheduled class hours will be reported for attendance.

If a student is going to be absent, they must notify the faculty on his office phone or email at least one half hour prior to the start of the class that day. Failure of notification will result in points taken away off Professional Skills and habitual offenders will have a School Intervention Team (SIT).

### **Tardiness**

As in the workplace, students are expected to be in their seats promptly in the morning, after break, and after lunch. Students are expected to notify the faculty before the start of class of any anticipated tardies. Any student who is tardy and/or leaves early for 20% or more of the number of days scheduled for any given 9-week period will be placed on academic probation. Probationary status will terminate when the number of tardies/early departures no longer exceeds 20% of the completed scheduled attendance days.

### **Leaving Campus During School Hours**

For safety reasons, students will notify their faculty when leaving campus early. Students may leave campus for lunch provided this is done within the allotted time.

## **BREAK TIME PROCEDURES**

- Breaks will be allowed at times indicated on the schedule unless directed otherwise by the LTC staff or Faculty.
- Students shall return promptly to the classroom after each break. Tardiness will affect your Professional Skills grade.
- Students may leave the grounds for lunch break provided they return within the 30-minute allotted time frame.
- Food and beverages are not allowed in the classrooms, with the exception of bottled water.

## **PLAN OF INSTRUCTIONAL PRACTICES**

### **Methods of Teaching**

Teaching methods that may be used are lecture, demonstration, discussion, group interaction, verbal and written quizzes, skill practice, individualized instruction, computerized tutorials, interactive learning, web-based learning, textbooks, projects, reports, simulations, hands-on computer experience, collaborative learning, video-taped instructions, guest speakers, field trips, and program job shadowing.

Learning methods used are self-paced and competency based. They are tested periodically with written and practical testing. Practical shop experiences are designed to enhance and reinforce the theories involved as well as to develop manipulative skill and good work and safety practices.

### **Teaching Aids**

- MTS interactive training software
- Machine simulators
- Tooling-U on-line classes

### **Online Access**

Technology is an integral part of our daily lives. From smart phones to electronic tablets, these devices are becoming items that many cannot function without. In addition, the Internet is changing the way education is delivered. Lake Technical College strives to ensure that our students are able to compete in this technology driven world. With this in mind, it is recommended that students have an online presence and access to the internet.

It is also important that students have an email address that they check on a regular basis. A lot of information may come to you through your email, so it is important that you check it regularly. If you do not have an email address, there are numerous services that provide FREE email addresses. Please make sure your faculty have a current, working email address for you. See your faculty for more information.

### **Social Media**

The advent of social media has created a world-wide communication medium for persons of all ages. While extremely popular, these websites have also created their own set of “not-so-popular” problems such as cyber-stalking, identity theft, cyber-bullying, cyber-cheating (posting of exam, or other course material), and a host of other nebulous challenges that users may face. Another reality associated with social media is its far-reaching consequences for those who share posts that may be seen by others as inappropriate.

Potential employers, current employers, civic, or educational organizations you may be associated with, and many others are looking at social media sites for information that may tell them things about an individual. Students should also be cautioned on how private their social media content really is – despite the settings on an account. All social media sites are potentially vulnerable. A simple search of how to view pages that are set as “private” for a popular social media website yielded numerous responses for ways to view the content. Everything from blogs to online videos offer to explain how to accomplish this task.

Students in all programs need to be cognizant of the fact that most professions rely on great moral character. It is recommended that when using social media, assume that all posts will be seen/read by everyone with access to the internet.

### **Laboratory Activities**

Shop or laboratory activities are an integral part of this program and provide instruction in various processes and techniques of machining and use of current industry standards, practices and techniques.

### **Work Based Activities**

Work-based learning activities play an integral part of the curriculum of Lake Technical College’s (LTC) career-technical training programs. These activities are planned with two objectives in mind. First, the activity provides students with the opportunity to develop and apply a “real world” experience using the knowledge and skills attained in the program. Second, the activity provides the faculty with objective input from potential employers or customers of program graduates. Each work-based activity has a written instructional plan outlining objectives, experiences, competencies and evaluation required during the activity.

Work-based activities are program specific and may include:

- Unpaid in-school shop/lab activities to provide customer service opportunities under the direct supervision of the program faculty.
- Unpaid job shadowing experiences that may include in-school or off-campus employer-based experiences under the supervision of a qualified employer representative who is working closely with the program faculty.
- Paid or unpaid cooperative training experiences conducted at the employer’s work location under the supervision of a qualified employer representative and under the direction of the program faculty.

### **Co-operative Education**

Co-operative training is available for students and coordinated by the program faculty. Co-operative training is for students who have shown competence in program training, which indicates readiness for placement in an on-the-job program. Students must be enrolled in their last course of their program in order to participate in Co-op. In addition, basic skills exit levels must be met and the student can have no outstanding debt with the school. Students must be enrolled in their last course of their program in order to participate in Co-op.

Students who do not function satisfactorily on the job may be returned to the program for additional training or when the co-operative agreement is terminated at the request of the student, the parent, the employer, or the program faculty.

Additional information regarding co-op opportunities may be obtained from the program faculty.

Veterans will be accepted into the program in accordance with the Department of Veterans Affairs policies.

### **Job Shadowing**

Job shadowing experiences or volunteer experiences are available to students who may benefit from the experience. These experiences are designed to give the student actual hands-on experience doing a variety of machining related tasks. Length and type of experiences will vary. The program faculty determines appropriateness of the experience. Additional information regarding job-shadowing experiences may be obtained from the program faculty.

**Student Job System** includes Shop lead man. The responsibilities include:

- a. Ensuring safety procedures are followed.
- b. Tools are checked in and out.
- c. Daily cleanup of work areas.

### **Career Dual Enrollment Students**

All students enrolled in Lake Technical College are expected to function as adults. High school students will be held to the same behavioral and performance standards as adult students.

## **GRADING PROCEDURE**

### **Grading Scale**

The grading policy for this program is as follows:

|        |           |
|--------|-----------|
| 90-100 | Excellent |
| 80- 89 | Passing   |
| < 80   | Failing   |

Lake Technical College is a postsecondary institution designed to provide trained individuals to industry. The grading scale for this program reflects industry standards. The approved postsecondary program grading requirements must be met if the student is to receive a certificate.

Program grades are based on the three criteria: Skills, Knowledge, and Professional Skills. Each area counts as one-third of the nine weeks' grade. Students will receive cumulative grades during each nine-week period. A minimum grade of 80% in each area is required in order to receive a passing grade. If a student's grade is below 80%, the student will be counseled as to what steps need to be taken to bring the grade to a satisfactory level.

### **Program Progress**

Students are expected to complete the program of training within the hours allotted by the State of Florida for completion. The student's rate of progress will be closely monitored by the faculty to ensure program completion in a timely manner. Most tests, projects, and similar assignments must be completed in class under the direction of the instructor. Practice exercises may be completed at home. Practice exercises completed at home does not count toward hours in the program.

### **Requirements for a Certificate**

All competencies specified in the State of Florida Curriculum Framework for the program must be successfully completed with at least an 80 percent in the areas of skills, knowledge, and professional skills. Students must also meet minimum TABE requirements prior to graduation.

### **Professional Skills**

Effective professional skills are the cornerstone to successful employment. Students are expected to demonstrate productive professional skills during all phases of enrollment. Faculty will work with students who need assistance in this area to improve the overall possibility for successful employment.

**Attendance:** Attends class for all scheduled hours assigned, arrives/leaves on time, contribute to class discussion and is actively involved in all activities.

**Character:** Displays academic integrity (inclusive of not committing plagiarism), trustworthiness, dependability, reliability, self-discipline, and self-responsibility.

**Teamwork:** Respects the rights of others; is a team worker; is cooperative; ensures confidentiality in all classroom, clinical and other matters; demonstrates professional behavior in interactions with peers, preceptors, and faculty.

**Appearance:** Displays appropriate dress, grooming, hygiene, and wears full regulation uniform of the day.

**Attitude:** Displays a willingness to cooperate and accept constructive criticism; sets realistic expectations; approaches assignments with interest and initiative.

**Productivity:** Follows safety practices; conserves materials and supplies; maintains equipment; stays on task and utilizes time constructively; demonstrates proactive learning through involvement in activities and contributions to class discussions.

**Organization:** Manifests skill in prioritizing and management of time and stress; demonstrates flexibility in handling change; completes assignments on time; uses work time appropriately.

**Communication:** Contacts faculty to report concerns; notifies faculty of tardy/absence one hour before start of class; seeks clarification and understanding through appropriate, pertinent questions.

**Leadership:** Displays leadership skills; appropriately handles conflict and concerns; demonstrates problem-solving capability; maintains appropriate relationships with supervisors/faculty and peers; follows the chain of command.

**Respect:** Deals appropriately with cultural/racial diversity; does not engage in harassment of any kind to include but not limited to verbal, nonverbal, and written; addresses faculty and peers in appropriate tone and with appropriate language to include but not limited to electronic (email, text, etc.) communications.

## **STUDENT DRESS CODE**

Students who attend Lake Tech shall dress in a manner appropriate for the job in which they are receiving training, including any special protective gear and professional uniforms. All clothing, makeup, and jewelry must be clean, neat, modest, in good repair, appropriately sized, and be neither distracting nor offensive.

The Executive Director or designee has the final authority for determining whether or not a student's apparel conforms to the dress code. If it is determined that it does not, students will be required to change into clothing which will conform to this code or leave campus. Students may return to campus when they have changed into appropriate clothing.

### **Minimum Program Dress Code**

1. Pants shall be worn fastened and at the waist. Pants should be dark colored, straight legged or boot cut (jeans are acceptable). Baggy pants are not permitted in any program area. Baggy pants are considered to be more than one size larger than the individual's waist. Shorts are not permitted.
2. Shoes must meet safety/industry standards. Sandals are not permitted
3. School polo shirt with the program logo are to be worn.
4. Clothing should be clean and in good repair.
5. For safety reasons, shorts, loose clothing, jewelry, and loose hair below the collar are not allowed.
6. Hats are only permitted in shop areas and must meet the faculty's specifications for safety and appropriateness.

## **REASONS FOR DISMISSAL FROM PROGRAM**

1. Unsatisfactory academic, lab or job shadow work.
2. Failure to comply with the student code of conduct.
3. Cheating in any manner.
4. Violations of the attendance policy.
5. Failure to satisfy identified probationary requirements within the stated time.
6. Failure to comply with requirements as stated in the Master Plan of Instruction.

## **GENERAL SCHOOL INFORMATION**

### **Campus Safety**

Lake Technical College makes every effort to provide a safe environment for all students, visitors, faculty and staff. Basic safety standards, which will include fire drills, weather drills, equipment usage, and traffic regulations, will be covered in the program orientation. These basic safety standards will be reinforced throughout the program enrollment. See the current school catalog for additional campus safety information.



### **Competency-based Instruction**

Any student who enters a LTC program with previous experience or educational background that would enable the student to successfully complete a test of competence in any area may, with the permission of the faculty, complete a test to measure that competence.

### **Follow Up**

Lake Technical College is proud of its graduates and celebrates the next step graduates take whether it is employment, military or further education. Prior to completing, students may visit the Career Success Center for assistance with employability skills such as resume writing. In addition, faculty may provide students with employment leads. However, it is up to the individual student to actively pursue employment opportunities. We like to hear how our graduates are doing and want to celebrate your successes so be sure to communicate with your faculty any employment, military, or further education you enter. Students are required to participate in an Exit Interview prior to their last day in their program.

### **Food and Drink in Program Areas**

To protect equipment and furnishings in the classroom and laboratory areas, only water, in closed, covered containers, is permitted. No other food or drinks are allowed, unless specific permission is granted by the faculty. However, under no circumstance may food or drinks be in the laboratory areas.

### **Lunch**

Food services are provided on the main campus in the Lake Tech Café and are available during breaks and lunch. Adult students may leave the LTC campus during the scheduled 30-minute lunch break as long as they return to the program on time.

### **Parking Regulations**

Students may park only in the south parking lot in spaces not designated as staff or customer service parking. For safety, loitering in or around vehicles once the vehicle is parked is not allowed, and a 5 mph speed limit is enforced. In consideration of the neighbors and classes in session, loud music in vehicles on campus is prohibited. Parking fee is \$10 and is to be paid in the Business Office.

### **Smoking**

Lake Tech is a tobacco free institution. The use of tobacco products of any kind, including e-cigarettes, is not permitted at any Lake Tech location, including the parking lots.

## **FINANCIAL AID**

Policies and guidelines for the administration of all financial aid are established according to federal and state law. Applicants complete an information form, Free Application for Federal Student Aid, and furnish documentation needed to verify eligibility. More information on the application process may be obtained in the Financial Aid Office.

The Financial Aid Office will assist students, where possible, with access to financial support offered by federal agencies (U.S. Department of Education – Pell Grants, Department of Veterans' Affairs), other state and local agencies and local organizations (scholarships).

## **JOB DESCRIPTION**

The CNC Production Specialist machines a wide range of raw material from plastics to exotic steels utilizing CNC machine tools. The work can be in a production environment or in a job shop environment. Entry level machinists are trained to operate different types of machine tools. In addition, Setup machinist would load programs and ensure the correct work holding devise(s) and tool(s) are loaded into the machine. The more experienced machinist advances to a CNC programmer. He/she studies blueprints and sketches to determine the type of correct machining operations, metals to use, and create the CNC code necessary to program the machine to manufacture the part. Quality Control techniques are used to evaluate the final the parts.

The work of the CNC Production Specialist is active and sometimes strenuous, but exceptional physical strength is not required. Prolonged standing is often necessary. Good physical condition, eyesight, and the ability to communicate are important.

The CNC Production Specialist work environment may or may not be climate controlled. Job conditions may be noisy.

## **HOURS**

The typical shop works a 40-hour work week with overtime as required. Many shops do run multiple shifts.

For the most recent book list for the CNC Production Specialist program, visit Lake Technical College's bookstore located in the Business Office.

### **MATERIALS**

Some instructional materials are audio/visual computerized tutorials. For hygienic reasons, students must furnish their own standard computer headphones to use in listening to the instructional programs.

### **PROGRAM OBJECTIVES**

See the attached Florida State Department of Education curriculum framework for program objectives and desired competencies.

**Florida Department of Education**  
**Curriculum Framework**

**Program Title:** CNC Production Specialist  
**Program Type:** Career Preparatory  
**Career Cluster:** Manufacturing

| Career Certificate Program – Career Preparatory |   |
|---|---|
| Program Number                                  | J200300   |
| CIP Number                                      | 0648050307  |
| Grade Level                                     | 30, 31  |
| Standard Length                                 | 600 hours   |
| Teacher Certification                           | Refer to the <b>Program Structure</b> section   |
| CTSO  | SkillsUSA   |
| SOC Codes (all applicable)                      | 51-4011 – Computer-Controlled Machine Tool Operators, Metal and Plastic<br>51-4012 – Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic                            |
| CTE Program Resources                           | <a href="http://www.fldoe.org/academics/career-adult-edu/career-tech-edu/program-resources.stml">http://www.fldoe.org/academics/career-adult-edu/career-tech-edu/program-resources.stml</a> |
| Basic Skills Level                              | Mathematics: 10<br>Language: 9<br>Reading: 9  |

### **Purpose**

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the manufacturing career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the manufacturing career cluster.

The content includes but is not limited to broad, transferable skills, stresses the understanding of all aspects of the computer numeric control as it relates to the machining industry, and demonstrates such elements of the industry as planning, management, finance, technical and production skills, underlying principles of technology, labor issues, community issues, and health, safety, and environmental issues.

**Additional Information** relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

### **Program Structure**

This program is a planned sequence of instruction consisting of two occupational completion points.

This program is comprised of courses which have been assigned course numbers in the SCNS (Statewide Course Numbering System) in accordance with Section 1007.24 (1), F.S. Career and Technical credit shall be awarded to the student on a transcript in accordance with Section 1001.44(3) (b), F.S.

To teach the course(s) listed below, instructors must hold at least one of the teacher certifications indicated for that course.

The following table illustrates the postsecondary program structure:

| OCP | Course Number | Course Title                 | Teacher Certification                      | Length    | SOC Code |
|-----|---------------|------------------------------|--|-----------|----------|
| A   | PMT0026       | CNC Production Technician I  | ENG 7G<br>MACH SHOP @7 7G<br>METAL WORK 7G | 300 hours | 51-4011  |
| B   | PMT0027       | CNC Production Technician II |  | 300 hours | 51-4012  |

### **Common Career Technical Core – Career Ready Practices**

Career Ready Practices describe the career-ready skills that educators should seek to develop in their students. These practices are not exclusive to a Career Pathway, program of study, discipline or level of education. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study.

1. Act as a responsible and contributing citizen and employee.
2. Apply appropriate academic and technical skills.
3. Attend to personal health and financial well-being.
4. Communicate clearly, effectively and with reason.
5. Consider the environmental, social and economic impacts of decisions.
6. Demonstrate creativity and innovation.
7. Employ valid and reliable research strategies.
8. Utilize critical thinking to make sense of problems and persevere in solving them.
9. Model integrity, ethical leadership and effective management.
10. Plan education and career path aligned to personal goals.
11. Use technology to enhance productivity.
12. Work productively in teams while using cultural/global competence.

### **Standards**

After successfully completing this program, the student will be able to perform the following:

- 01.0 Demonstrate an understanding of workplace safety and workplace organization.
- 02.0 Demonstrate an understanding of manufacturing methodology principles.
- 03.0 Solve basic job-related math problems.
- 04.0 Interpret basic blueprint information.
- 05.0 Perform basic metrology.
- 06.0 Demonstrate basic knowledge of manufacturing history and primary as well as secondary manufacturing processes.
- 07.0 Demonstrate basic understanding of geometric dimension and tolerance (GD&T)
- 08.0 Set up and operate drill presses.
- 09.0 Demonstrate the use of a CNC control panel.
- 10.0 Demonstrate an understanding of CNC machine systems.
- 11.0 Set up and operate a computerized-numerical-control (CNC) machine for lathe operations.
- 12.0 Set up and operate a computerized-numerical-control (CNC) machine for milling operations.
- 13.0 Demonstrate appropriate computerized-numerical-control (CNC) maintenance and troubleshooting.
- 14.0 Explain the importance of employability and entrepreneurship skills.
- 15.0 Demonstrate leadership and teamwork skills needed to accomplish team goals and objectives.
- 16.0 Solve problems using critical thinking skills, creativity and innovation.
- 17.0 Demonstrate first article inspection methods.
- 18.0 Demonstrate the technique of CNC milling
- 19.0 Perform advanced set up and operation of a computerized-numeric-control (CNC) mill machine.
- 20.0 Demonstrate the technique of CNC turning
- 21.0 Perform advanced set up and operation of a computerized-numeric-control (CNC) lathe machine.
- 22.0 Demonstrate basic computer-aided design/computer-aided manufacturing (CAD/CAM) processes.