



2008 - 2009

Master Plan of Instruction
Business Computer Programming

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MISSION: Lake Technical Center's mission is to meet the educational needs of the community by offering a variety of high quality career-technical training opportunities.

charting new directions

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LAKE TECHNICAL CENTER

Business Computer Programming

INTRODUCTION

Over the last few decades, it has become normal business practice to be dependent upon computer technology. Not only do businesses rely on computers for their accounting and payroll, they now use computers for operations as diverse as climate control, employee communications, competitive research, and automated manufacturing. These operations may be integrated into a company-wide business tracking system or may operate as independent islands of technology. Regardless of the implementation, the reliable operation of computer software has become a necessity for business success and has created a need for employees skilled in the field. The Computer Programming program will address the need for entry-level employees skilled in computer software.

COMPUTER PROGRAMMING PHILOSOPHY

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

PROGRAM OVERVIEW

This program is designed to prepare students for entry employment as a computer programmer and to provide supplemental training for persons previously or currently employed in this occupation. Although principles and concepts will be taught, the application of skills will be emphasized so that students who complete the program will have a portfolio of programs they have developed or enhanced to demonstrate the targeted skills.

The program is designed as an open-entry/open-exit, 1200-hour competency-based, individualized program of study in which students may gain the minimum job entry-level skills in computer programming.

TEST OF ADULT BASIC EDUCATION (TABE)

The Florida Legislature requires that students without an associate's degree or higher be tested using the Test of Adult Basic Education (TABE) to determine levels of reading, math, and language skills. This test is given prior to entering the program and helps staff and student in determining the career fields in which each student can be successful.

According to Florida Department of Education rules, students who fail all or parts of the TABE may only retest using a different TABE version after at least 60 documented hours of remediation in the Vocational Preparatory Instruction (VPI) lab or 6 weeks, whichever is sooner. 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 State mandated minimum TABE exit scores for their program are considered to be enrolled under "Ability to Benefit" status (see catalog) and must begin attending remediation classes in the VPI lab, regularly attend VPI classes outside of their program hours and make acceptable progress as determined by the VPI instructor. Students who do not meet TABE scores may not receive a certificate of completion as per Florida Department of Education rules.

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.

Computer Programming has the following minimum admission requirements:

- The student must complete a Lake Technical Center application.
- The student must be at least 16 years of age in order to enroll.

- The student must take the TABE.

Students must meet the following minimum basic-skills grade levels in order to receive a certificate in this program: Mathematics 10.0, Language 10.0, and Reading 10.0. These grade-level numbers correspond to grade equivalent scores obtained on one of the state-designated basic-skills examinations. If a student does not meet the basic-skills level required for completion of the program, the student should schedule remediation concurrently in the Vocational Preparatory Instruction lab (VPI). The actual amount of additional time required for remediation beyond the occupational program hours will depend upon each individual student's needs.

Clerical Perception are 60%, 60%, 60%, and 80%, respectively. Students below these levels may have difficulty successfully completing the computer programming training.

ESSENTIAL ABILITIES

To successfully complete the Computer Programming program, a student must have certain essential abilities. These physical requirements are considered essential to successfully complete the program:

- Ability to operate a keyboard and computer mouse
- Ability to manipulate computer diskettes
- Ability to see a computer monitor
- Ability to read computer and related equipment and software manuals
- Ability to tolerate moderate noise levels
- Ability to communicate and be understood.

These mental and emotional abilities are necessary to successfully complete the program:

- Ability to work with others
- Ability to make decisions and judgments
- Ability to cope with anger/hostility of others in a calm manner
- Ability to cope with moderate to high levels of stress
- Ability to cope with frustration
- Ability to assist with problem resolution
- Ability to demonstrate a high degree of patience
- Ability to plan and organize daily activities
- Ability to apply common sense understanding to carry out instructions furnished in both written and oral form
- Ability to perform repetitive tasks
- Ability to work without close, direct supervision
- Ability to work on multiple tasks and priorities
- Ability to perform and complete tasks of relative complexity, including mathematical operations.

TUITION

Tuition is charged for adult students at a reasonable rate that may vary slightly from year to year and is due prior to the first day of each semester. Current fee information is available from the Admissions Office. Tuition is waived for eligible high school dual-enrolled students.

CLASS SCHEDULE

Full-time students attend class from 8:15 AM to 2:15 PM Monday through Friday with a 30 minute lunch period. This schedule provides 5-1/2 hours of instruction each day for a total of 27-1/2 hours per five-day week, excluding holidays and school breaks as outlined in the current school calendar.

TEXTBOOKS

Please see your instructor for the most current list and prices.

High school students are loaned textbooks required for program completion. It is suggested that high school students purchase workbooks that are used in the program to allow them to complete assignments with greater ease. The total cost for workbooks will vary.

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.

FINANCIAL AID

Policies and guidelines for the administration of all financial aid are established according to federal and state law by a financial aid committee and published in the Financial Aid Policies and Procedures Manual. 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).

Financial Aid personnel are available daily to assist students with financial aid needs and requests. The Financial Aid Coordinator is also the liaison for all local agencies.

ATTENDANCE POLICY

In Florida, public technical centers are on a clock-hour rather than a credit hour system and are thus required by federal financial aid guidelines to have and adhere to an attendance policy. In addition, students should understand that in-state tuition only pays for approximately 25% of the cost of education, with the state taxpayers contributing the other 75%. The burden is on the school to ensure that these funds are spent in the most effective fashion, e.g., that students make good use of the available resources.

Absences

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 instructor on or before the date of absence.

Lake Technical Center's *Student Responsibilities*, available in the current school catalog, states that, "The expectation of the Lake County School Board is that all students will be in attendance each day of the school year." The student attendance code for each postsecondary program is consistent with industry standards as recommended by the program advisory committee and approved by the administration of Lake Tech.

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.

Students with excessive absences will be subject to penalties such as loss of financial aid, lower grades, withdrawal from the program, and prohibition from re-enrollment in the next grading period.

If a student has missed 20% of scheduled classes by the middle of a first grading period, or at any cumulative time thereafter, the student will sign an acknowledgement that he/she has been notified by the instructor that continued absences may pose a threat to grades and program enrollment. School Intervention Team meetings will be held, as necessary, in attempts to alleviate issues resulting in excessive absences and to counsel the student of possible alternatives and consequences.

Students who are absent, excused or unexcused, for six (6) consecutive class sessions will be withdrawn from membership in their program. A withdrawn student must wait until the next enrollment period to re-register. A Student Intervention Team will review all applications for reenrollment.

Only regularly scheduled class hours will be reported for attendance. Make-up time will not be accepted.

Tardiness

Students are expected to be in their seats promptly in the morning, after break, and after lunch. Students must notify the instructor before the start of class of any anticipated tardiness and an expected arrival time.

COMPUTER PROGRAMMING GRADING POLICY

To be successful in the Computer Programming program, a student must comply with certain policies. Additionally, each student needs to demonstrate proficiency in the skills taught and appropriate work habits. These policies and the method by which each student will be graded are discussed below.

Each student will be evaluated based on three primary factors: knowledge, skills, and work habits. Grades are recorded in the student's individual record and in the instructor's grade book as required but not less than one grade per week. The total average grade for each grading period and the final course grade is based on a weighted percentage as follows:

- Knowledge - 33 $\frac{1}{3}$ %
- Skill - 33 $\frac{1}{3}$ %
- Work Habits - 33 $\frac{1}{3}$ %.

Number grades are issued using the following scale:

90-100	Excellent
80- 89	Passing
< 80	Failing

The factors that contribute to grades for knowledge, skills, and work habits are discussed in each of the following three sections.

Knowledge Grades

A student's knowledge is measured by written and oral tests. Written and oral tests will vary according to the material being tested. Because more advanced skills depend on the application of more basic skills, tests should be assumed to be cumulative.

At the end of the grading period, the average of the written and oral tests will contribute 33 $\frac{1}{3}$ % to the overall grade in that grading period.

Skills Grades

Students will demonstrate their proficiency in the targeted skills through the successful and timely completion of assigned projects and tasks within defined parameters. The skills grade is based on the instructor's observation of how the student performs the assigned projects including but not limited to:

- Following written and oral instructions;
- Producing accurate, professional results;
- Completion of the project to meet specified requirements;
- Application of good programming principles;
- Documentation of the functions of the program for future maintenance and/or enhancement;
- Appropriate time management to complete the assigned tasks;
- Documentation of the correct use of the program for the targeted customer; and
- Completion of the project within specified time and resource constraints.

Some projects may be assigned as team projects to reflect a normal work environment. Teams may vary from two to four members. For team projects, the skills grade will also reflect the instructor's observation on how well the student:

- Meets the needs of the team;
- Divides the work according to individual strengths and weaknesses;
- Works professionally and cohesively with other members of the team;
- Communicates with other team members; and
- Evaluates the work of others.

At the end of the grading period, the average of the skills grades will contribute 33⅓% to the overall grade in that grading period.

Work Habits Grades

Effective work habits are the cornerstone of successful employment. Computer Programming students are expected to demonstrate productive work habits during all phases of enrollment. The work habits grade is based on personal conduct including, but not limited to, promptness, attendance, professional behavior, teamwork, presentation, and completion of assigned tasks.

Effective work habits are evaluated on the work habits form that is completed as part of the program training and includes the following areas:

- Attendance and Appearance—the number of days the student attends class each week; calling in when unable to attend; maintaining dress and grooming appropriate for industry.
- Punctuality—being on time to class in the morning, after break, and lunch; calling in before class when late or absent.
- Cooperation—working well with others; making decisions; coping with frustration, anger and hostility of others in a calm manner; taking proper care of equipment; following safety standards; appropriate attention to security of systems and software.
- Productivity—following directions; coping with moderate to high levels of stress; staying on task and working without close, direct supervision.
- Communication—coping with confrontation; assisting in problem resolution; demonstrating self-control; accepting constructive criticism; clear, concise written and verbal communication; professional tone and language; appropriate requests for clarification, assistance and materials.

Information technology can be a high pressure, fast-paced environment. The following work habits areas are also critically important to being successful in an information technology career. Students should:

- Start each day fresh with a positive attitude;
- Get enough rest and exercise;
- Eat a diet that will enable you to be alert while in class and at work;
- Identify and pursue realistic personal and workplace goals;
- Learn foundation business skills necessary for effective workplace performance;
- Keep personal issues separated from professional challenges;
- Understand and be able to communicate program goals;
- Learn to identify priorities and be able to deal with rapidly changing priorities;
- Develop an increasing level of personal responsibility in the workplace;
- Work and communicate with members of diverse cultures effectively;
- Develop clear, accurate, effective communication skills with co-workers, instructors, supervisors, and customers;
- Develop self-assessment skills;
- Learn constantly changing software applications and learn to deal with constantly changing technological environments;
- Take initiative when appropriate;
- Develop effective problem-solving skills;
- Develop effective decision-making skills;
- Learn the basic business environment in today's global economy;
- Be accountable to an instructor, supervisor, or co-workers for progress on a task or assignment;
- Be able to receive constructive criticism in a positive manner and make the changes necessary to improve performance;
- Develop good time management skills; and
- Stay focused on skills; avoid negativity about weaknesses, whether those weaknesses are professional or personal.

Your instructor will give you feedback on your progress on these work habits. This feedback may be in written form or in verbal form. It is important that you learn to accept feedback from your instructor and your employer in a positive fashion. All feedback given by your instructor will be given to aid you in improving your classroom and on-the-job performance. Some feedback may be given when other people—students, co-workers, customers, etc.—are present. There are times when the feedback may relate to a personal quality that is interfering with effective

classroom or work performance. Inappropriate reactions to feedback include: yelling; cursing; leaving the room or work area; blaming someone--another class member or a co-worker; blaming your instructor; arguing; making excuses; becoming sarcastic; and slamming materials or equipment. Repeated demonstrations of inability to deal with constructive feedback will result in referral to a School Intervention Team (SIT) meeting. A severe inability to deal with constructive criticism using the recommendations and guidelines that are developed in a SIT meeting can result in the recommendation of a program change or recommendation of termination of enrollment by your instructor, a school counselor, and other school officials.

In addition to the items listed here, it is expected that all Lake Technical Center students will follow the posted classroom rules of conduct and other rules of conduct contained in the Lake Technical Center catalog and Student Code of Conduct.

At the end of each grading period, weekly grades will be averaged and this average will contribute 33⅓% to the overall grade in that grading period.

DRESS POLICY

As stated in the Student Responsibilities approved by the Lake Technical Center Charter School Board and available in the current school catalog, students who attend Lake Technical Center shall dress in a manner appropriate for the job in which they are receiving training, including any special protective gear and professional uniforms. The postsecondary program student dress code is consistent with industry standards as recommended by the program advisory committee and approved by the administration of Lake Technical Center.

Students in the Computer Programming program are expected to wear clothing appropriate to the job for which they are being trained.

Normal classroom attire will be clean, neat, modest, in good repair, and appropriately sized. "Appropriately sized" is defined to mean clothing that is neither constricting nor more than one size larger than the normal waist size. Attire will also comply with any requirements of Lake Technical Center and be neither distracting nor offensive. Blue jeans are permitted provided they meet the requirements specified above. Shorts that are appropriate for business wear are permitted if they are part of a coordinated outfit and meet the requirements above. Students who are inappropriately dressed may be excused from class and counted as absent at the instructor's discretion. The normal attendance policy will apply to these absences.

On certain designated days, students will be required to dress in normal business attire. This is defined to be clothing that would be acceptable on most business days in most business offices in which customers may be present. On other designated days, students will be required to dress in business attire suitable for a job interview. This is defined to be clothing that would be acceptable for most job candidates to wear to a standard job interview. If a student is absent on a designated day, they will dress in normal business attire or business attire suitable for a job interview on their next day of attendance. Designated days will be announced at least five class days in advance.

Attire which is not appropriate for program attendance includes:

1. Tank tops, less than sleeveless attire, midriff revealing tops
2. Clothing with inappropriate slogans
3. Flip-flops and thongs

NOTE - Remember that you are preparing for employment in a position in which public relations may be a factor in your success. Individual desires cannot always take precedence.

PLAN OF INSTRUCTIONAL PRACTICES

The Computer Programming curriculum at Lake Technical Center is designed as an open-entry, individualized, competency-based method of instruction. Qualified students may enter the program at the beginning or mid-point of each semester; please see the school calendar for start dates. The student proceeds through the prepared curriculum individually, with a minimum of supervision and at the student's own pace, within the limits set by the program instructor.

The instructor follows the student's progress making suggestions, as required, so that the individual will gain the knowledge and experience in a minimum of time.

The student is required to successfully complete the total number of competencies listed in the curriculum. The average student will successfully complete the total curriculum of 5 courses in approximately 1200 hours. Some learners might require more hours, while a fast learner could finish in fewer hours.

Teaching Methods

With open-entry/open-exit, competency-based instruction, the student body typically consists of individuals at various levels in their progress through the curriculum. For this reason, a minimum of formal classroom instruction time is used in the learning process. However, the instructor may lecture and conduct class talks to explain a concept when multiple students might benefit from this.

Students are encouraged to communicate with each other. More advanced students act as mentors for new students demonstrating procedures, answering questions, and helping each other. This creates "double learning situations" in which the idea is reinforced with the advanced student while the newer student gains additional knowledge or skills. The instructor manages this process by creating learning situations and pairing the proctor student with the learner. The instructor then becomes the final authority to answer the unresolved questions and to demonstrate procedures.

Provisions for Individual Differences

Among the provisions made to allow for individual differences are:

- Pre-testing to determine entry level;
- Individualized instruction;
- Individual project assignments;
- Referral for basic skills remediation; and
- Progress Reporting.

Learning Aids

Students will each be assigned a computer workstation on which they will do their assigned tasks. The student is required to perform various tasks on their assigned workstation. Tasks are selected to parallel actual computer industry-related work using actual tools that may be encountered in the field. The student must follow accepted work rules, safety requirements, and housekeeping habits that would be encountered on the job. The student will be responsible for his or her assigned workstation and will be held liable for any damage to the workstation or inappropriate use of the workstation. All students are required to maintain a neat and orderly workstation. Workstations are to remain with the standard set-up.

Students may be required to purchase books or other learning aids that they may need in their future career. Any items a student purchases for their own use will be the property of the student when the student exits the program.

When writing computer programs, students will use editors, compilers, program debuggers, and other software aids. Students will be responsible for the appropriate use of this software including the respect of all copyrights and licenses. Students may not make copies of any licensed software in part or in total.

Laboratory Activities

Laboratory activities are an integral part of this program. These activities provide instruction in the use of programming tools, materials, and processes found in the industry. Students will use various types of computer programs for analyzing, debugging, and developing computer programs.

Key Competencies

The Computer Programming program is designed to teach certain key competencies as described by the Florida Department of Education's Business Computer Programming curriculum framework. These competencies will be taught as a unit that may target an individual competency or a set of related competencies.

Before beginning the study for a specific unit, a student may take a pretest to determine the student's entry-level knowledge and skills. If key prerequisite skills are missing, the student may be required to do remedial study. When the student has demonstrated the mastery of prerequisite skills for a given unit, they may begin the study of that unit.

The study may include any or all of the following:

- Assigned reading;
- Writing a specific computer program or subroutine;
- Modifying a specific program or subroutine;

- Documenting a computer program or subroutine; and
- Reviewing a computer program or subroutine.

When the student has completed the unit of study, a written test is used to evaluate the student's knowledge of related information and theory. The student's progress, skills, and knowledge are evaluated and a determination is made allowing the student to progress to the next competency or go back to the previous unit for additional study or lab work. The instructor uses a checklist to be sure that no area is overlooked.

The instructor maintains a record of all assignments and tests completed by each student. Students may request copies of these records weekly.

Job Shadowing

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

Cooperative Training

Cooperative or on-the-job (OJT) training is appropriate for this program. Whenever OJT is offered, the following are required for each student: a training plan signed by the student, teacher, and employer, which includes instructional objectives and a list of on-the-job and in-school learning experiences; and a work station that reflects equipment, skills and tasks that are relevant to the occupation which the student has chosen as a career goal. The student must receive compensation for work performed.

JOB DESCRIPTION

Computer programmers write, test, enhance, document, and maintain the detailed instructions that tell computer hardware how to function. These detailed instructions are called computer programs or computer software and may be written in a variety of formats called programming languages. Without computer programs, a computer would not know how to start, handle input from keyboards and other input devices, send information to computer monitors and other output devices, or perform any of the many functions computers can now do. Examples of computer programs include:

- Operating systems such as Windows and Unix;
- Device drivers to control computer devices;
- Computer games;
- Spreadsheets; and
- Databases.

A single programmer may write simple computer programs in a matter of minutes while more complex programs may require the efforts of many programmers over a period of a year or more.

Computer programs are written by humans and designed to meet the needs of humans. Consequently, computer programmers usually work in close contact with other people. A computer programmer must work closely with the current and future users of a program to best understand exactly what they need the computer program to do and how it must be done to meet their needs. Most computer programs are developed, maintained, enhanced, and tested with the help of other programmers. Consequently, a computer programmer must work well with other members of the team. All of this requires a computer programmer to have excellent communication skills, both written and verbal.

A computer programmer may be required to do any or all of the following tasks:

- Install computer programs and/or customize the installation to meet specific requirements;
- Meet with current or future users of a computer program to identify their requirements of a computer program;
- Write documents that explain how a computer program can be used;
- Design a computer program including how all of its functions work together;
- Modify an existing computer program to correct a problem in its current function;

- Modify an existing computer program to add new features;
- Test a computer program to ensure it performs its functions without errors;
- Document how a computer program is designed so that others can modify it in the future;
- Work with other computer programmers to develop or maintain a computer program;
- Read and understand technical literature to understand how computer hardware and/or software works;
- Plan a schedule for completing a computer program with the specified functions; and
- Identify the hardware and software requirements for a current or future computer program.

Computer programmers are professionals. Ultimately, a computer programmer is a problem solver and the problems they solve vary significantly in complexity and urgency. To do this well, a computer programmer must be:

- Flexible;
- Creative;
- Responsible to their customers, team members, and management;
- Able to work on many diverse tasks;
- Able to prioritize their work according to its urgency;
- Able to meet deadlines; and
- Skilled in working with people.

GENERAL SCHOOL INFORMATION

Campus Safety

Basic safety standards, which will include fire drills, weather drills, lockdowns, equipment usage, and traffic regulations, will be covered in the program orientation and within the program as applicable. These basic safety standards will be reinforced throughout the program enrollment. Students should immediately report any safety concerns to an instructor or administrator. Please refer to the school catalog for more 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 instructor, complete a test to measure that competence.

Food and Drink in Program Areas

Food and drinks are confined to the Student Center and designated areas. Food and drinks other than water are not allowed in classroom and laboratory areas. Water is permitted in these areas provided it is in a closed, covered container that will not spill if the container is tipped. This is to protect the equipment and furnishings in the classroom and laboratory areas.

Leaving Campus During School Hours

All students who leave campus due to sickness or personal reasons during the scheduled class time are required to inform their program instructor. High school students may leave campus by checking out in the Admissions Office with parental permission and an instructor referral.

Lunch

Food services are provided on the main campus by the Culinary Institute and are available during breaks and lunch. In order to avoid congestion in the Student Center, each class is assigned a time for break and lunch.

Adult students may leave the LTC campus during the scheduled 30-minute lunch break as long as they are able to return to the program on time. High school students may not leave the LTC campus during the lunch break.

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 10 mph speed limit is enforced. In consideration of the neighbors and classes in session, loud music in vehicles on campus is prohibited.

Smoking

Smoking is only allowed in the designated smoking area. Please dispose of smoking materials in the designated containers.

COURSE CURRICULUM AND OBJECTIVES

The standard length of this program is 1200 hours. The program is a planned sequence of instruction consisting of five occupational completion points as set forth in the Florida Department of Education curriculum frameworks.

The course content includes, but is not limited to, the use, installation, design, development, maintenance, debugging, and documentation of computer programs. Students will also become familiar with project management as it relates to the development and maintenance of computer programs. Students who complete the first three occupational completion points will be able to develop computer programs in one computer programming language. Students who complete the five occupational completion points will be competent in two computer programming languages. The course content also includes communication, leadership skills, human relations, employability skills, and safe, efficient work practices.

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