.NET APPLICATION DEVELOPMENT & PROGRAMMING

MASTER PLAN OF INSTRUCTION 2018 - 2019

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MISSION

The mission of Fort Myers Technical College is to provide high quality career and technical training, in order to prepare students for current and emerging industries, delivered by a professional and caring staff in a positive learning environment.

The School District of Lee County does not discriminate on the basis of gender, race, color, age, religion, sex, sexual orientation, national or ethnic origin, marital status, or disability in the provision of educational programs, activities or employment policies as required by Title IX, Title VI, Title VII, Age Discrimination Act of 1967 and Section 504 of the Rehabilitation Act of 1973, 1992, Americans with Disabilities Act, the Florida Educational Equity Act of 1984 and the Boy Scouts of America Equal Access Act. Questions, complaints, or requests for additional information regarding discrimination or harassment may be sent to: Equity Coordinator, Fort Myers Technical College, 3800 Michigan Ave., Fort Myers, FL 33916, (239) 334-4544.

Lack of English language skills will not be a barrier to admission and participation. The district may assess each student's ability to benefit from specific programs through placement tests and counseling, and, if necessary, will provide services or referrals to better prepare students for successful participation.

FMTC
FORT MYERS TECHNICAL COLLEGE

Fort Myers Technical College
3800 Michigan Avenue
Fort Myers, FL 33916
(239) 334-4544

THE SCHOOL DISTRICT OF LEE COUNTY

.NET Application Development and Programming

INTRODUCTION

.NET Application Development and Programming prepares students for employment as a professional Microsoft developer in three disciplines: Web applications, mobile apps, and holographic computing (Microsoft HoloLens). The program is 1050 hours, unless one has completed the Web Application Development and Programming course; then, it is 450 hours. Students will learn many skills including: database integration, looping structures, and responsive design.

PROGRAM MISSION

The mission of.NET Application Development and Programming is to prepare students for careers in the growing fields of .NET, Universal Windows App development and holographic computing. The learning experience involves hands-on experience with real-world projects, utilizing current technologies.

PROGRAM PHILOSOPHY

The program philosophy is "Nobody is left behind." Regardless of your learning style or background in information technology, your instructor will do everything possible to ensure your comprehension of the material. You can rest assured that your learning experience is our first priority.

We believe that competent workers in the high-performance workplace need:

1. Skills in communications, mathematics, critical thinking, teamwork, and effective work habits.
2. Training in emerging concepts and technologies.
3. Relevant work-based learning experience.

We will provide a caring atmosphere that promotes a high degree of student-faculty interaction and fosters development of business and industry partnerships.

PROGRAM CONTENT

The topics covered include:

- ASP.NET
- Holographic Computing (Microsoft HoloLens.)
- Universal Windows App development
- Visual C#
- SQL Server
- JavaScript
- AJAX
- User authentication
- Session management
- Employability skills

ESSENTIAL TRAINING TASKS

Physical Requirements

- View text at short range and long range, and detect errors such as a missing semi-colon.
- Remain seated for extended periods of time, with short breaks of 30-90 seconds every 20 minutes.

Cognitive Requirements

- Listen to and understand information and ideas presented through spoken words and sentences.
- Communicate information and ideas in speaking so others will understand.
- Determine when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.
- Read and understand information and ideas presented in writing.
- Develop specific goals and plans to prioritize, organize, and accomplish your work.

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 post-secondary student's accommodations plan to meet individual needs to ensure equal access. Post-secondary students with disabilities must self-identify, present documentation, required accommodations if needed, and develop a plan with their post-secondary service provider. Accommodations received in post-secondary 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 and assessments, time demands and schedules, learning environment, assistive technology, and special communication systems. Documentation of the accommodations requested and services provided are maintained in a confidential file.

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 Student Services. Tuition is waived for eligible high school dual-enrolled students. Failure to pay all fees due at the time class begins will result in the student not being able to attend class and/or clinical.

CLASS SCHEDULE

Daytime certificated classes meet Monday through Friday from 8:00 A.M. until 2:30 P.M. This amounts to 30 hours of classroom instruction per week. Lunch breaks are 30 minutes in length.

ATTENDANCE POLICY

In an effort to develop appropriate employability skills, FMTC 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. 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.

All adult students are expected to be in attendance at least 90% of their scheduled hours during each semester. Adult students failing to maintain the 90% attendance standard may not be permitted to continue in their program and may be required to sit out one full semester, unless administration approves to waive the 90% standard based on special circumstances.

Absences
A student who is absent for 6 consecutive class sessions, without prior approval and without contact with the instructor, will be withdrawn from enrollment in his/her program. A student withdrawn for absenteeism must petition administration to return. Students exhibiting a pattern of consecutive absences of 4 days may be subject to dismissal as determined by a School Intervention Team. 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 are late for class, including returning late from lunch, must clock in. Students who leave school early must notify their instructor and clock out. This time out of class is recorded as time absent and is counted against the required 90% attendance. Excessive tardies or early departures will be reported to the Security Specialist and will result in a meeting with the School Intervention Team.

Adult students who know they will be out of school for an extended period of time (4 days or longer) may apply for a Leave of Absence from their program. A Leave of Absence will be granted only once during a twelve-month period. STUDENTS WHO EXERCISE A LEAVE OF ABSENCE MAY HAVE TO EXTEND THEIR TIME IN THEIR PROGRAM AND PAY ADDITIONAL FEES.

Leaving Campus During School Hours
Students must notify their instructor when leaving campus early. This is for the safety of students, to accurately track time, and to allow the instructor to best utilize instructional resources.

PLAN OF INSTRUCTIONAL PRACTICES

Teaching Methods
These include hands-on coding exercises, client project work, lecture presentations, group work, and independent learning through viewing of online videos.

Safety
The student is expected to adhere to safety standards in a normal I.T. environment such as:

- Exercising caution when handling electronic equipment
- Walking (not running, with rare exceptions)
- Not throwing objects
- Not bringing food/drink into the classroom environment

Evaluation
Class performance, quizzes, tests, attendance, portfolio assessments, completion of project assignments, decision-making, work habits, achievement of entry-level competencies, and other methods are used for evaluation.

Work-Based Activities
Work-based learning activities play an integral part of the curriculum of FMTC's 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 'real world' experience using the knowledge and skills attained in the program. Second, the activity provides the instructor 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 activities to provide customer service opportunities under the direct supervision of the program instructor.
- 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 instructor.
- 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 instructor.

Cooperative Education

Cooperative training is available for students and coordinated by the instructor and career specialist. Cooperative training is for students who have shown competence in program training that indicates readiness for placement in an on-the-job program. High school students participating in the cooperative job placement program must be in the 12th grade. To be eligible for a cooperative education experience, students must have completed one-half of the required program hours and requirements.

Students may be returned to the program for additional training if they do not function satisfactorily on the job or when the cooperative agreement is terminated at the request of the student, parent, employer, or program instructor. Veterans will be accepted into the program in accordance with the Department of Veterans Affairs approved program.

Additional information regarding cooperative opportunities may be obtained from the program instructor or career specialist.

Job Shadowing

Job shadowing experiences, or volunteer experiences, are available to students as part of their program training. 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 or career specialist.

GRADING PROCEDURE

Teacher Grading Procedure

Student grades are based on skills demonstrated in 3 categories:

1. Attendance (absences, tardiness, early departures, etc.)	33%
2. Academic Technical (lab work, digital portfolio, etc.)	34%
3. Employability (group work skills, etc.)	33%

A standard scale as listed below may be used to establish a letter grade:

A: 90-100%
B: 80-89%
C: 70-79%
D: 60-69%
F: 0-59%

Fort Myers Technical College is a postsecondary institute designed to provide trained individuals to industry. The approved postsecondary program grading requirements must be met if the student is to receive a certificate.

Program Progress
Students are required to complete the program of training within the hours allotted by the State of Florida for completion. Progress must be at a rate that will allow completion of the program with the number of membership hours stated in the Curriculum Frameworks.

Failure to progress at this rate will require the student to meet with the program instructor, career specialist, and an administrator in order to identify an appropriate completion point or to assist the student in selecting a more appropriate training program.

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

Attendance: Attends class, arrives/leaves on time; begins and ends work as expected.
Character: Displays loyalty, honesty, trustworthiness, dependability, reliability, initiative, self-discipline, and self-responsibility; displays a high level of effort and commitment to performing and completing work.
Teamwork: Respects the right of others; respects confidentiality; is cooperative; is assertive; displays a customer service attitude; seeks opportunities for continuous learning; demonstrates mannerly behavior; encourages and facilitates cooperation, pride, trust, and group identity; fosters commitment and team spirit.
Appearance: Displays appropriate dress, grooming, hygiene, and etiquette; wears full regulation uniform.
Attitude: Displays a willingness to cooperate and accept constructive criticism; sets realistic expectations; approaches assignments with interest.
Productivity: Is prepared for class by reading assignments and completing homework; contributes to class discussions; and involvement in lab activities (in other words, no sleeping or daydreaming). Follows safety practices; conserves and maintains equipment and supplies; keeps work area neat and clean; follows directions and procedures; makes up assignments and tests punctually; notifies proper authorities of situations presenting potential safety hazards; does not use or knowingly permits others to use tools and equipment improperly; stays on task and utilizes time constructively.
Organization: Manifests skill in prioritizing and management of time and stress; demonstrates flexibility in adapting to changes.
Communication: Communicates accurate information to others in a professional and courteous manner; displays appropriate nonverbal (eye contact, body language) and oral (listening, telephone etiquette, grammar) skills; asks pertinent questions; listens attentively to others, notifies instructor in advance of absences or tardies.

SATISFACTORY ACADEMIC PROGRESS

In order to receive and continue to receive financial assistance of any type, a student must maintain satisfactory academic progress. The Financial Aid Advisor will require a progress report to be completed by the student's instructor and submitted to the Financial Aid Office prior to each disbursement.

Students are considered to be making Satisfactory Academic Progress (SAP) if they successfully complete their scheduled clock hours, achieve a specific cumulative grade evaluation or grade point average (GPA), and do not exceed the maximum time limits to complete their course of study. Each Student Academic Progress will be checked at 450 clock hours and prior to subsequent disbursements for students enrolled in programs one academic year or greater. Progress will be checked at the half-way point for programs less than one academic year. No SAP is required prior to the first disbursement.

REQUIREMENTS FOR A CERTIFICATE

All competencies specified in the State of Florida Curriculum Frameworks for the program must be successfully completed. Successful completion is at least a 75% average in the areas of skills, knowledge, and work habits.

Proficiency in the competency standards listed in the Master Plan of Instruction must be demonstrated.

Students must meet minimum Test of Adult Basic Education (TABE) skill requirements (or qualify for an exemption) prior to graduation.

In addition to the requirements above, the recommendation of the instructor for certification includes: consideration of personal appearance, employability skills, a willingness to learn and to work, punctuality, cooperative attitude, and appropriate work habits.

Students who exit the program early and have successfully completed each course or the competencies of an Occupational Completion Point (OCP), will be issued a partial certificate. This certificate does not require a student to master the state-mandated basic skills level.

.NET STUDENT DRESS CODE

Students who attend FMTC 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 must be neither distracting nor offensive and be clean, neat, modest, in good repair, and appropriately sized.

Administration has the final authority for determining whether or not a student's apparel conforms to the dress code. When 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.

Dress Code/Uniforms Required: Business attire: collared shirts (tucked into pants at the waist), slacks (no jeans), appropriate length skirts or dresses, sleeved blouses or shirts, appropriate shoes (no tennis shoes, flip flops/shower shoes, athletic shoes, sandals, or canvas shoes). Also required: business suit/interview suit.

JOB DESCRIPTIONS

OCP A Information Technology Assistant (150 Hours)

Administrative Assistant/Web Design Intro Level

- Ability to perform basic math processes as they relate to .NET development
- Ability to list different operating systems
- Ability to code basic HTML and CSS

OCP B Computer Programmer Assistant (300 Hours)

Web Designer, Intermediate Level

- Understand various types of programming languages: compiled, interpreted, etc.
- Create and document programs with various control structures
- Understand teamwork and leadership skills used in the workplace

OCP C Computer Programmer (150 Hours)

.NET Developer, Intro Level

- Understand the principles of object-oriented programming (OOP)
- Debug client-side, server-side and OOP application code
- Understand basic project management principles

OCP D .NET Programmer (450 Hours)

.NET Developer, Intermediate Level/Windows Mobile App. Developer, Intro Level

- Ability to use .NET lexical units (identifiers, etc.)
- Ability to use .NET iterative control structures (loops, etc.)
- Ability to write programs that involve database integration, session management and error handling

TEXTBOOKS

No textbooks are required for this program.

REQUIRED MATERIALS

The student is expected to provide normal classroom supplies (pen, paper, etc.).

PROGRAM OBJECTIVES

See the attached Florida State Department of Education Curriculum Frameworks for program objectives and competencies.

Florida Department of Education
Curriculum Framework

Program Title: **.NET Application Development & Programming**
Program Type: **Career Preparatory**
Career Cluster: **Information Technology**

Program Number	Y700400
CIP Number	0511020314
Grade Level	30, 31
Standard Length	1050 hours
Teacher Certification	BUS ED 1 @2 COMP SCI 6 COMP PROG 7 G
CTSO	Phi Beta Lambda BPA
SOC Codes (all applicable)	15-1151 – Computer User Support Specialists 15-1131 – Computer Programmers
CTE Program Resources	http://www.fldoe.org/academics/career-adult-edu/career-tech-edu/program-resources.stml
Basic Skills Level	Mathematics: 9 Language: 9 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 Information Technology 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 Information Technology career cluster.
The content includes but is not limited to the fundamentals of programming and software development; procedural and object-oriented programming; creating .NET-based applications, including testing, monitoring, debugging, documenting, and maintaining .NET applications.

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 four occupational completion points, with OCPs A, B, and C.

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.

The following table illustrates the postsecondary program structure:

OCP	Course Number	Course Title	Course Length	SOC Code
A	OTA0040	Information Technology Assistant	150 hours	15-1151
B	CTS0041	Computer Programmer Assistant	300 hours	15-1131
C	CTS0044	Computer Programmer	150 hours	15-1131
D	CTS0032	.NET Programmer	450 hours	15-1131

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

Information Technology Assistant (OTA0040) is the first course in this and other programs within the Information Technology Career Cluster. Standards 01.0 – 14.0 are associated with this course.

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

01.0 Demonstrate knowledge, skill, and application of information systems to accomplish job objectives and enhance workplace performance.
02.0 Develop an awareness of microprocessors and digital computers.
03.0 Demonstrate an understanding of operating systems.
04.0 Use technology to enhance the effectiveness of communication skills utilizing word processing applications.
05.0 Use technology to enhance communication skills utilizing presentation applications.
06.0 Use technology to enhance the effectiveness of communication utilizing spreadsheet and database applications.
07.0 Use technology to enhance communication skills utilizing electronic mail.
08.0 Investigate individual assessment and job/career exploration and individual career planning that reflect the transition from school to work, lifelong learning, and personal and professional goals.
09.0 Incorporate appropriate leadership and supervision techniques, customer service strategies, and standards of personal ethics to accomplish job objectives and enhance workplace performance.
10.0 Demonstrate competence using computer networks, internet and online databases to facilitate collaborative or individual learning and communication.
11.0 Demonstrate competence in page design applicable to the WWW.

12.0 Develop an awareness of emerging technologies.
13.0 Develop awareness of computer languages and software applications.
14.0 Demonstrate comprehension and communication skills.
15.0 Explore the characteristics, tasks, work attributes, options, and tools associated with a career in software development.
16.0 Demonstrate an understanding of the characteristics, use, and selection of numerical, non-numerical, and logical data types.
17.0 Distinguish between iterative and non-iterative program control structures.
18.0 Differentiate among high level, low level, procedural, object-oriented, compiled, interpreted, and translated programming languages.
19.0 Describe the processes, methods, and conventions for software development and maintenance.
20.0 Explain the types, uses, and limitations of testing for ensuring quality control.
21.0 Create a program design document using Unified Modeling Language (UML) or other common design tool.
22.0 Describe information security risks, threats, and strategies associated with software development.
23.0 Design a computer program to meet specific physical, operational, and interaction criteria.
24.0 Create and document a computer program that uses a variety of internal and control structures for manipulating varied data types.
25.0 Create and document an interactive computer program that employs functions, subroutines, or methods to receive, validate, and process user input.
26.0 Create a unit test plan, implement the plan, and report the results of testing.
27.0 Use oral and written communication skills in creating, expressing and interpreting information and ideas.
28.0 Solve problems using critical thinking skills, creativity and innovation.
29.0 Use information technology tools.
30.0 Demonstrate leadership and teamwork skills needed to accomplish team goals and objectives.
31.0 Describe the importance of professional ethics and legal responsibilities.
32.0 Explain key concepts that distinguish object-oriented programming from procedural programming.
33.0 Create a project plan that defines requirements, structural design, time estimates, and testing elements.
34.0 Design, document, and create object-oriented computer programs.
35.0 Design a unit test plan for an object-oriented computer program, test and debug the program, and report the results.
36.0 Develop an awareness of the changes taking place in the information age and how they fit into an evolving society.
37.0 Understand .NET primitive data types and their uses.
38.0 Describe the types and characteristics of lexical units in the .NET programming language.
39.0 Construct statements that use various .NET operators.
40.0 Construct and use .NET selection control structures.
41.0 Construct and use .NET iterative control structures.
42.0 Construct and use .NET structures for error handling.
43.0 Write .NET programs that define and use user-defined data types, including classes.
44.0 Write .NET programs that define and use methods.
45.0 Write programs that perform console input and output in a .NET program.
46.0 Use namespaces in a .NET program.
47.0 Use arrays in .NET programs.
48.0 Write .NET programs that use the object-oriented concept of inheritance.
49.0 Write .NET programs that use the object-oriented concept of polymorphism.
50.0 Write .NET programs that use the object-oriented concept of encapsulation.

51.0 Apply common programming style guidelines and conventions.
52.0 Use application life cycle management to develop and maintain .NET programs.
53.0 Use nullable values in a .NET program.
54.0 Use the .NET String and StringBuilder classes in an application.
55.0 Use .NET classes to perform stream input/output.
56.0 Use recursive functions to solve problems in .NET programs.
57.0 Write .NET programs that use interfaces.
58.0 Use .NET collections in applications.
59.0 Demonstrate knowledge of different types of .NET applications.
60.0 Demonstrate knowledge of .NET architecture and tools.
61.0 Demonstrate knowledge of Web applications.
62.0 Develop Web pages using HTML, CSS, JavaScript, and ASP.NET.
63.0 Develop .NET Windows Form applications.
64.0 Develop Windows Service applications and class libraries.
65.0 Demonstrate knowledge of database applications.
66.0 Demonstrate knowledge of structured query language (SQL) statements.
67.0 Develop .NET database applications.
68.0 Successfully work as a member of a software development team.
69.0 Manage time according to a plan.
70.0 Keep acceptable records of progress problems and solutions.
71.0 Plan, organize, and carry out a project plan.
72.0 Manage resources.
73.0 Use tools, materials, and processes in an appropriate and safe manner.
74.0 Demonstrate an understanding of the software development process.
75.0 Research content related to the project and document the results following industry conventions.
76.0 Use presentation skills, and appropriate media to describe the progress, results and outcomes of the experience.
77.0 Demonstrate competency in the area of expertise related to developing computer software using the .NET framework.