

July 2001

Florida Department of Education  
CURRICULUM FRAMEWORK

Program Title: Business Computer Programming  
Program Type: Job Preparatory  
Occupational Area: Business Technology Education  
Components: Core and Five Occupational Completion Points

Secondary PSAV

<b>Program Numbers:</b>	<b>8206300</b>		<b>B070310</b>
CIP Number:	0507.039901		0507.039901
Grade Level:	9-12, 30, 31		30, 31
Standard Length:	8 credits		1200 hours
Certification:	BUS ED @4 1 @2		BUS ED @4 1 @2
	VOE @7		VOE @7
	TEACH CBE @7		TEACH CBE @7
	BUS DP @7 G		BUS DP @7 G
	TEC ELEC \$7 G		TEC ELEC \$7 G
	ELECT DP @7 G		ELECT DP @7 G
	BOOKKEEPIN @4 @7 G		BOOKKEEPIN @4 @7 G

[OCP C, D, and E Only]  
Additional certification accepted: COMP SCI @6 @2                      COMP SCI @6 @2

VSO: FBLA                      Phi Beta Lambda  
BPA                      BPA  
Coop Method: Yes                      Yes  
Apprenticeship: No                      No  
Facility Code: 212                      212

Basic Skills:

Math	9
Language	9
Reading	9

I. **PURPOSE:** This program is designed to prepare students for employment as a General Office Clerk I, General Office Clerk II, Computer Programmer Aide, Junior Programmer and Computer Programming Specialist and to provide supplemental training for persons previously or currently employed in any of these occupations.

This program offers a broad foundation of knowledge and skills expanding the traditional role of the Junior Programmer. The content includes converting problems into detailed plans; writing code into computer language; testing, monitoring, debugging, documenting, and maintaining computer programs; and designing programs for specific uses and machines.

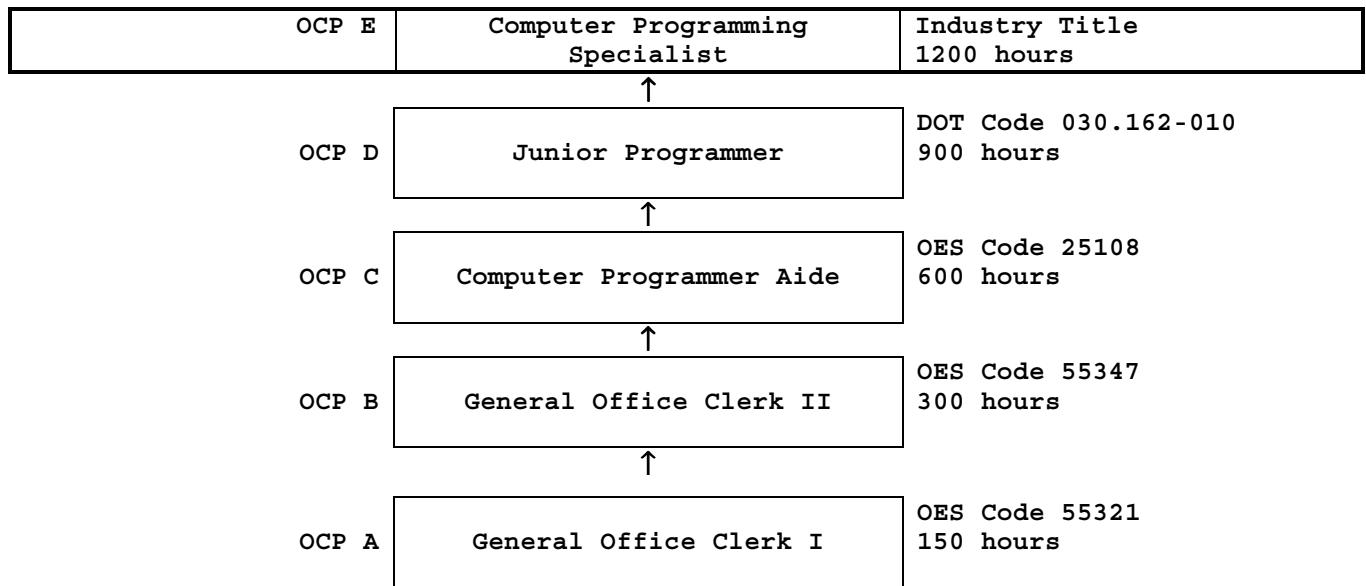
This program focuses on broad, transferable skills and stresses understanding and demonstration of the following elements of the computer programming industry: planning; management; finance; technical and production skills; underlying principles of technology; labor issues; community issues; and health, safety, and environmental issues.

II. **PROGRAM STRUCTURE:** This program is a planned sequence of instruction consisting of the Business Technology Education Core (Business Systems

and Technology 1 - OCP A and Business Systems and Technology 2 - OCP B) and two additional occupational completion points. Secondary or postsecondary students who have previously completed the Business Technology Education Core will not have to repeat the core. A student who completes the applicable competencies at any occupational completion point may either continue with the training program or exit as an occupational completer.

The following diagram illustrates the Computer Programming (Business Computer Programming) program structure:

**Computer Technology Cluster  
Secondary and Postsecondary Adult Vocational**



When offered at the secondary level, this program consists of the following courses which include the Business Technology Education Core:

- Business Technology Education Core
- 8209020 - Business Systems and Technology 1
- 8209030 - Business Systems and Technology 2
  
- 8206010 - Business Computer Programming 1
- 8206020 - Business Computer Programming 2
- 8206030 - Business Computer Programming 3
- 8206040 - Business Computer Programming 4
- 8206050 - Business Computer Programming 5
- 8206060 - Business Computer Programming 6

- III. **LABORATORY ACTIVITIES:** Laboratory activities are an integral part of this program and may include the use of keyboarding systems; data entry devices; local area networks; and microcomputer, midrange, and mainframe computer systems.
  
- IV. **SPECIAL NOTES:** Future Business Leaders of America (secondary) and Phi Beta Lambda (postsecondary) are the appropriate vocational student organizations for providing leadership learning experiences and for reinforcing specific vocational skills. Vocational student organizations, when provided, shall be an integral part of the vocational instructional program, and the activities of such

organizations are defined as part of the curriculum in accordance with Rule 6A-6.065, FAC.

Cooperative training - OJT is appropriate for this program. Whenever cooperative training - 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; a workstation 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.

In accordance with Rule 6A-10.040, FAC., the minimum basic skills grade levels required for postsecondary adult vocational students is: Mathematics 9.0, Language 9.0, Reading 9.0. These grade level numbers correspond to a grade equivalent score obtained on a state designated basic skills examination.

This program may be offered in courses. Vocational credit shall be awarded to the student on a transcript in accordance with Section 230.643 F.S.

The standard length of this program is 1200 hours.

To be transferable statewide between institutions, this program must have been reviewed, and a "transfer value" assigned the curriculum content by the appropriate Statewide Course Numbering System discipline committee. This does not preclude institutions from developing specific program or course articulation agreements with each other.

The particular outcomes and student performance standards which the handicapped student must master to earn credit must be specified in the student's individual educational plan (IEP). Additional credits may be earned when outcomes and standards are mastered in accordance with the requirements indicated in subsequent IEPs. The job title for which the student is being trained must be designated in the IEP.

SCANS Competencies: Instructional strategies for this program must include methods that require students to identify, organize, and use resources appropriately; to work with each other cooperatively and productively; to acquire and use information; to understand social, organizational, and technological systems; and to work with a variety of tools and equipment. Instructional strategies must also incorporate the methods to improve students' personal qualities and high-order thinking skills.

Equipment List: A generic equipment list is available for this program.

**OCCUPATIONAL COMPLETION POINT - DATA CODE A**  
**GENERAL OFFICE CLERK I - OES Code 55321**

- 01.0 Demonstrate knowledge, skill, and application of information systems to accomplish job objectives and enhance workplace performance. Apply ergonomic principles applicable to the configuration of computer workstations. [Student Performance Standards: 01.01, 01.02, 01.03, 01.04, 01.05, 01.06, 01.07, 01.08.]
- 02.0 Use technology to enhance communications in technical reading, writing, speaking, listening, and viewing. [Student Performance Standards: 02.01, 02.02, 02.03, 02.04, 02.05.]

- 03.0 Use technology to apply and enhance communication skills in technical reading, writing. [Student Performance Standards: 03.01, 03.02, 03.03, 03.04, 03.05, 03.06.]
- 04.0 Develop an awareness of management functions and organizational structures as they relate to today's workplace and employer/employee roles. Demonstrate initiative, courtesy, loyalty, honesty, cooperation, and punctuality as a team member. [Student Performance Standards: 04.01, 04.02, 04.03.]
- 05.0 Practice quality performance in the learning environment and the workplace. [Student Performance Standards: 05.01, 05.02.]
- 06.0 Incorporate appropriate leadership and supervision techniques, customer service strategies, and standards of personal ethics to accomplish job objectives and enhance workplace performance. [Student Performance Standards: 06.01, 06.02, 06.03.]
- 07.0 Apply mathematical operations and processes as well as financial planning strategies to commonly occurring situations in the workplace to accomplish job objectives and enhance workplace performance. [Student Performance Standards: 07.01, 07.02, 07.03.]
- 08.0 Assess personal strengths and weaknesses as they relate to job objectives, career exploration, personal development, and life goals. [Student Performance Standards: 08.01, 08.02, 08.03.]
- 09.0 Incorporate knowledge gained from individual assessment and job/career exploration to design an individual career plan that reflects the transition from school to work, lifelong learning, and personal and professional goals. Experience work-based learning through job shadowing, mentoring, e-coaching, etc. [Student Performance Standards: 09.01, 09.02, 09.03, 09.04, 09.05, 09.06, 09.07, 09.08, 09.09, 09.10.]
- 10.0 Demonstrate personal and interpersonal skills appropriate for the workplace. [Student Performance Standards: [10.01, 10.02, 10.03.]
- 11.0 Perform office functions and responsibilities to accomplish job objectives and enhance workplace performance. [Student Performance Standards: 11.01, 11.02.]

**OCCUPATIONAL COMPLETION POINT - DATA CODE B**

**GENERAL OFFICE CLERK - OES Code 55347**

- 01.0 Demonstrate knowledge, skill, and application of information systems to accomplish job objectives and enhance workplace performance. [Student Performance Standards: 01.07, 01.08, 01.09, 01.10, 01.11, 01.12.]
- 02.0 Apply communication skills (reading, writing, speaking, listening, and viewing) in a courteous, concise, and correct manner on personal and professional levels. [Student Performance Standards: 02.07, 02.08, 02.09.]
- 03.0 Use technology to enhance the effectiveness of communications in order to accomplish job objectives and enhance workplace performance. [Student Performance Standards: 03.03, 03.04, 03.05, 03.06, 03.08, 03.09, 03.10.]
- 04.0 Use information to accomplish job objectives and enhance workplace performance. [Student Performance Standards: 04.03.]
- 05.0 Analyze current and emerging workplace trends and issues and determine potential impact on career and job objectives and workplace performance. [Student Performance Standards: 05.03, 05.04.]
- 06.0 Develop an awareness of management functions and organizational structures as they relate to today's workplace and employer/employee roles. [Student Performance Standards: 06.03, 06.04.]
- 07.0 Practice quality performance in the learning environment and the workplace. [Student Performance Standards: 07.03, 07.04.]

- 08.0 Incorporate appropriate leadership and supervision techniques, customer service strategies, and standards of personal ethics to accomplish job objectives and enhance workplace performance. [Student Performance Standards: 08.04, 08.05.]
- 09.0 Apply mathematical operations and processes as well as financial planning strategies to commonly occurring situations in the workplace to accomplish job objectives and enhance workplace performance. [Student Performance Standard: 09.05.]
- 10.0 Assess personal strengths and weaknesses as they relate to job objectives, career exploration, personal development, and life goals. [Student Performance Standards: 10.03, 10.04.]
- 11.0 Incorporate knowledge gained from individual assessment and job/career exploration to design an individual career plan that reflects the transition from school to work, lifelong learning, and personal and professional goals. [Student Performance Standards: 11.05, 11.06, 11.07.]
- 12.0 Demonstrate human relations/interpersonal skills appropriate for the workplace. [Student Performance Standards: 12.01, 12.02.]
- 13.0 Perform office functions and responsibilities to accomplish job objectives and enhance workplace performance. [Student Performance Standards: 13.01.]

**OCCUPATIONAL COMPLETION POINT - DATA CODE C  
COMPUTER PROGRAMMER AIDE - OES Code 25108**

Intended outcomes of OCP A and OCP B must be completed previously or concurrently. After completing the following additional competencies in a single language, as appropriate, the student will have achieved the occupational completion point of Computer Programmer Aide and the student will be able to:

- 10.0 Assess personal strengths and weaknesses as they relate to job objectives, career exploration, personal develop, and life goals. [Student Performance Standards: 10.06, 10.07, 10.08, 10.9.]
- 20.0 Participate in work-based learning experiences. [Student Performance Standards: 20.25, 20.26, 20.27.]
- 23.0 Identify functions of information processing. [Student Performance Standards: 23.01, 23.02, 23.03, 23.04, 23.05, 23.06, 23.07, 23.08, 23.09, 23.10, 23.11, 23.12, 23.13.]
- 24.0 Identify functions of computers. [Student Performance Standards: 24.01, 24.02, 24.03, 24.04, 24.05, 24.06.]
- 25.0 Test programs. [Student Performance Standards 25.01, 25.03, 25.04, 25.05, 25.06, 25.07, 25.08, 25.09.]
- 26.0 Plan program design. [Student Performance Standards: 26.01, 26.02, 26.03, 26.04, 26.05, 26.07.]
- 27.0 Code programs. [Student Performance Standards: 27.01, 27.02, 27.03, 27.04, 27.05, 27.07, 27.08, 27.09, 27.10.]
- 28.0 Perform program maintenance. [Student Performance Standards: 28.01, 28.02, 28.03, 28.04, 28.05.]
- 29.0 Create and maintain documentation. [Student Performance Standards: 29.01, 29.02, 29.03.]
- 30.0 Evaluate assigned business computer programming tasks. [Student Performance Standard: 30.01.]
- 31.0 Develop an understanding of basic financial business concepts. [Student Performance Standards: 31.01, 31.02.]
- 32.0 Understand the integrated nature of corporate systems. [Student Performance Standards: 32.01, 32.02.]
- 33.0 Demonstrate an understanding of operating systems, environments, and platforms. [Student Performance Standards: 33.01, 33.02, 33.03.]
- 34.0 Develop an awareness of software quality assurance. [Student

- Performance Standards: 34.01, 34.03, 34.04.]
- 35.0 Implement enhanced program structures. [Student Performance Standards: 35.01, 35.02, 35.03, 35.04, 35.05, 35.06, 35.08, 35.10, 35.11, 35.12.]
- 36.0 Develop an understanding of programming techniques and concepts. [Student Performance Standards: 36.01, 36.02, 36.04, 36.06, 36.07, .]

**OCCUPATIONAL COMPLETION POINT - DATA CODE D**  
**JUNIOR PROGRAMMER - DOT Code 030.162-010**

Intended outcomes of OCP A, OCP B, and OCP C must be completed previously. After completing the following competencies in a single language, as appropriate, the student will have achieved the occupational completion point of Junior Programmer and the student will be able to:

- 20.0 Participate in work-based learning experiences. [Student Performance Standards: 20.25, 20.26, 20.27, 20.28.]
- 23.0 Identify functions of information processing. [Student Performance Standards: 23.11, 23.12.]
- 24.0 Identify functions of computers. [Student Performance Standard: 24.07.]
- 25.0 Test programs. [Student Performance Standard: 25.02.]
- 26.0 Plan program design. [Student Performance Standard: 26.06.]
- 27.0 Code programs. [Student Performance Standard: 27.06.]
- 28.0 Perform program maintenance. [Student Performance Standards: 28.06, 28.07.]
- 30.0 Evaluate assigned business computer programming tasks. [Student Performance Standards: 30.02, 30.03.]
- 34.0 Develop an awareness of software quality assurance. [Student Performance Standard: 34.02.]
- 35.0 Implement enhanced program structures. [Student Performance Standards: 35.07, 35.09, 35.14, 35.15.]
- 36.0 Develop an understanding of programming techniques and concepts. [Student Performance Standards: 36.03, 36.05.]

**OCCUPATIONAL COMPLETION POINT - DATA CODE E**  
**COMPUTER PROGRAMMING SPECIALIST - Industry Title**

Intended outcomes of OCP A, OCP B, OCP C, and OCP D must be completed previously. After completing the following competencies in **two or more languages**, the student will have achieved the occupational completion point of Computer Programming Specialist and the student will be able to:

- 25.0 Test programs. [Student Performance Standards: 25.01, 25.02, 25.03, 25.04, 25.05, 25.06, 25.07, 25.08, 25.09]
- 26.0 Plan program design. [Student Performance Standards: 26.01, 26.02, 26.03, 26.04, 26.05 26.07]
- 27.0 Code programs. [Student Performance Standards: [27.01, 27.02, 27.03, 27.04, 27.05, 27.07, 27.08, 27.09, .27.10]
- 28.0 Perform program maintenance. [ Student Performance Standards: [28.01, 28.02, 28.03, 28.04, 28.05, 28.06, 28.07]
- 29.0 Create and maintain documentation. [Student Performance Standards: [29.01, 29.02, 29.03]
- 30.0 Evaluate assigned business computer programming tasks. [Student Performance Standards: [30.02, 30.03]
- 33.0 Demonstrate an understanding of operating systems,

environments, and platforms. [Student Performance Standards: [33.02, 33.04]

34.0 Develop an awareness of software quality assurance, [Student Performance Standards: [34.02]

35.0 Implement enhanced program structures. [Student Performance Standards: [35.01, 35.02, 35.03, 35.04, 35.05, 35.06, 35.07, 35.23, 35.08, 35.09, 35.10, 35.11, 35.12, 35.14, 35.15, 35.16]

36.0 Develop an understanding of programming techniques and concepts. [Student Performance Standards: [36.05]

Florida Department of Education  
STUDENT PERFORMANCE STANDARDS

OCCUPATIONAL COMPLETION POINT - DATA CODE A  
GENERAL OFFICE CLERK I - OES 55321

**INFORMATION SYSTEMS**

- 01.00 DEMONSTRATE KNOWLEDGE, SKILL, AND APPLICATION OF INFORMATION SYSTEMS TO ACCOMPLISH JOB OBJECTIVES AND ENHANCE WORKPLACE PERFORMANCE. APPLY ERGONOMIC PRINCIPLES APPLICABLE TO THE CONFIGURATION OF COMPUTER WORKSTATIONS.—The student will be able to:
- 01.01 Develop keyboarding skills to enter and manipulate text and data. LA.B.1.4.3
  - 01.02 Describe and use current and emerging computer technology and software to perform personal and business related tasks. LA.B.2.4.4
  - 01.03 Identify and describe communications and networking systems used in workplace environments.
  - 01.04 Use reference materials such as on-line help, vendor bulletin boards, tutorials, and manuals available for application software. LA.B.2.4.4, LA.A.2.4.6
  - 01.05 Demonstrate basic file management skills. LA.A.2.4.2, LA.B.2.4.4, LA.B.2.4.6
  - 01.06 Troubleshoot problems with computer software, hardware, peripherals, and other office equipment. LA.D.2.4.4
  - 01.07 Describe ethical issues and problems associated with computers and information systems.
  - 01.08 Apply ergonomic principles applicable to the configuration of computer workstations.

**WORKPLACE COMMUNICATIONS**

- 02.00 USE TECHNOLOGY TO APPLY AND ENHANCE COMMUNICATION SKILLS IN TECHNICAL READING, WRITING, SPEAKING, LISTENING, AND VIEWING—The student will be able to:
- 02.01 Select and use appropriate modes of communication for specific job and work situations. LA.B.2.4.4
  - 02.02 Organize ideas and communicate oral and written messages appropriate to listeners and situations in workplace and business environments. LA.B.2.4.2
  - 02.03 Use listening, speaking, and nonverbal skills and strategies to communicate effectively with supervisors, co-workers, and customers. LA.C.1.4.1, LA.C.3.4.1, HE.B.3.4.1
  - 02.04 Select and use standard written business communication formats. LA.B.1.4.1, LA.B.1.4.3
  - 02.05 Use professional business vocabulary appropriate for entry-level jobs in business environments. LA.A.1.4.3
- 03.00 USE TECHNOLOGY TO APPLY AND ENHANCE COMMUNICATION SKILLS IN TECHNICAL READING, WRITING —The student will be able to:
- 03.01 Select and use word processing software and accompanying features to enhance written business communications. LA.B.1.4.1



- 03.02 Use the writing process to create/edit business documents appropriate to the subject matter, purpose, and audience.  
LA.B.1.4.1, LA.B.1.4.2, LA.B.1.4.3
- 03.03 Use database, spreadsheet, presentation software, scheduling, and integrated software packages to enhance communications.  
LA.B.2.4.1, LA.B.2.4.2
- 03.04 Explore and demonstrate effective and efficient use of telecommunications systems including telephone techniques for handling incoming and placing outgoing business calls. LA.B.1.4.3
- 03.05 Use computer networks (e.g., Internet, on-line databases, e-mail) to facilitate collaborative or individual learning and communication.
- 03.06 Respond to and utilize information derived from multiple sources (e.g., written documents, instructions, e-mail, voice mail) to solve business problems and complete business tasks.

#### **MANAGEMENT**

04.0 DEVELOP AN AWARENESS OF MANAGEMENT FUNCTIONS AND ORGANIZATIONAL STRUCTURES AS THEY RELATE TO TODAY'S WORKPLACE AND EMPLOYER/EMPLOYEE ROLES. DEMONSTRATE INITIATIVE, COURTESY, LOYALTY, HONESTY, COOPERATION AND PUNCTUALITY AS A TEAM MEMBER—The student will be able to:

- 04.01 Explore, design, implement, and evaluate organizational structures and cultures for managing project teams.
- 04.02 Explore and demonstrate an awareness of current trends in business and the employee's role in maintaining productive business environments in today's global workplace.
- 04.03 Collaborate with individuals and teams to complete tasks and solve business-related problems and demonstrate initiative, courtesy, loyalty, honesty, cooperation, and punctuality as a team member.

#### **CURRENT TRENDS/ISSUES IN THE WORKPLACE**

05.0 PRACTICE QUALITY PERFORMANCE IN THE LEARNING ENVIRONMENT AND THE WORKPLACE—The student will be able to:

- 05.01 Assess personal, peer, and group performance and identify and implement strategies for improvement (e.g., organizational skills, note taking/outlining, advance organizers, reasoning skills, problem-solving and decision-making skills).
- 05.02 Develop criteria for assessing products and processes that incorporate effective business practices (e.g., time management, productivity, total quality management).

#### **MANAGEMENT**

06.0 INCORPORATE APPROPRIATE LEADERSHIP AND SUPERVISION TECHNIQUES, CUSTOMER SERVICE STRATEGIES, AND STANDARDS OF PERSONAL ETHICS TO ACCOMPLISH JOB OBJECTIVES AND ENHANCE WORKPLACE PERFORMANCE—The student will be able to:

- 06.01 Demonstrate an awareness of quality service and the personal and professional standards required to establish an effective service-based culture in the workplace, business, or learning environment.
- 06.02 Identify, analyze, and implement managerial skills necessary for maintaining a high quality work environment, goals, and strategic planning in business settings.
- 06.03 Follow accepted rules, regulations, policies, procedures, processes, and workplace safety.

## COMPUTATION AND FINANCE

07.0 APPLY MATHEMATICAL OPERATIONS AND PROCESSES AS WELL AS FINANCIAL PLANNING STRATEGIES TO COMMONLY OCCURRING SITUATIONS IN THE WORKPLACE AND TO ACCOMPLISH JOB OBJECTIVES AND ENHANCE WORKPLACE PERFORMANCE—The student will be able to:

- 07.01 Analyze, interpret, compile and demonstrate the ability to present/communicate data in understandable and measurable terms using common statistical procedures. MA.E.1.4.1, MA.E.A.4.2
- 07.02 Use common standards of measurement including the metric system in solving work-related or business problems (e.g., length, weight, currency, time). MA.B.3.4.1
- 07.03 Select and use the correct mathematical processes and tools to solve complex problem settings that are typical of business settings and use formulas when appropriate. MA.A.3.4.3

## JOB READINESS AND CAREER DEVELOPMENT

08.0 ASSESS PERSONAL STRENGTHS AND WEAKNESSES AS THEY RELATE TO JOB OBJECTIVES, CAREER EXPLORATION, PERSONAL DEVELOPMENT, AND LIFE GOALS—The student will be able to:

- 08.01 Assess, analyze and reassess individual talents, aptitudes, interests, and personal characteristics as they relate to potential future careers in business environments.
- 08.02 Use personal assessment tools to identify personal strengths and weaknesses related to learning and work environments.
- 08.03 Analyze job and career requirements and relate career interests to opportunities in the global economy.

09.0 INCORPORATE KNOWLEDGE GAINED FROM INDIVIDUAL ASSESSMENT AND JOB/CAREER EXPLORATION TO DESIGN AN INDIVIDUAL CAREER PLAN THAT REFLECTS THE TRANSITION FROM SCHOOL TO WORK, LIFELONG LEARNING, AND PERSONAL AND PROFESSIONAL GOALS. EXPERIENCE WORK-BASED LEARNING THROUGH JOB SHADOWING, MENTORING, E-COACHING, ETC. —The student will be able to:

- 09.01 Analyze personal skills and aptitudes in comparison with various business related job and career options.
- 09.02 Use career resources to develop an information base that reflects local and global business related occupations and opportunities for continuing education and workplace experience.
- 09.03 Demonstrate job-seeking skills required for entry-level employment (e.g., resume, application, interview, follow up). LA.C.3.4.4
- 09.04 Design, initiate, refine, and implement a plan to facilitate personal growth and skill development related to anticipated job requirements and career expectations.
- 09.06 Demonstrate an awareness of specific job requirements and career paths (e.g., requirements, characteristics needed) in business environments.
- 09.07 Demonstrate an awareness of the potential impact of local and global trends on career plans and life goals.
- 09.08 Experience work-based learning through volunteerism, job shadowing, mentoring, e-coaching, etc.

## HUMAN RELATIONS/INTERPERSONAL SKILLS

10.0 DEMONSTRATE PERSONAL AND INTERPERSONAL SKILLS APPROPRIATE FOR THE WORKPLACE—The student will be able to:

- 10.01 Accept constructive criticism. SS.B.1.4.5
- 10.02 Apply appropriate strategies to manage and resolve conflict in work situations. LA.D.1.4.2, SS.B.1.4.5, HE.B.3.4.5
- 10.03 Demonstrate personal and interpersonal skills appropriate for the workplace (e.g., responsibility, dependability, punctuality, integrity, positive attitude, initiative, and respect for self and others, professional dress, etc.).

**ADMINISTRATIVE OFFICE PROCEDURES**

11.0 PERFORM OFFICE FUNCTIONS AND RESPONSIBILITIES TO ACCOMPLISH JOB OBJECTIVES AND ENHANCE WORKPLACE PERFORMANCE—The student will be able to:

- 11.01 Perform business tasks (e.g., filing and records management, scheduling, reprographics, mail handling, etc.). LA.A.2.4.4, LA.A.2.4.7, LA.A.2.4.8, LA.B.2.4.2
- 11.02 Demonstrate knowledge of ethical behavior in a business environment (e.g., confidentiality of information, employee right to know, hiring practices, plagiarism, copyright violations, sexual harassment, mission statement, code of ethics, etc.).

**OCCUPATIONAL COMPLETION POINT - DATA CODE B  
GENERAL OFFICE CLERK - OES 55347**

Intended outcomes of OCP A must be completed previously or concurrently.

**INFORMATION SYSTEMS**

01.0 DEMONSTRATE KNOWLEDGE, SKILL, AND APPLICATION OF INFORMATION SYSTEMS TO ACCOMPLISH JOB OBJECTIVES AND ENHANCE WORKPLACE PERFORMANCE—The student will be able to:

- 01.07 Enhance proficiency with touch keyboarding skills (speed and accuracy) to enter and manipulate data.
- 01.08 Use current and emerging computer technology and software to perform personal and business related tasks, solve problems, and organize and communicate information.
- 01.07 Troubleshoot problems with computer hardware, peripherals, and other office equipment.
- 01.10 Use communications and networking systems to perform tasks and solve problems in business environments.
- 01.11 Describe ergonomic principles important to the configuration of computer workstations.
- 01.12 Describe ethical issues and problems associated with computers and information systems.

**WORKPLACE COMMUNICATIONS**

02.0 APPLY COMMUNICATION SKILLS (READING, WRITING, SPEAKING, LISTENING, AND VIEWING) IN A COURTEOUS, CONCISE, AND CORRECT MANNER ON PERSONAL AND PROFESSIONAL LEVELS—The student will be able to:

- 02.07 Select and use modes of communications appropriate to specific job and workplace situations.
- 02.08 Select and use standard written communication formats used for professional and business communication.
- 02.09 Use professional business vocabulary appropriate for internal and

external communications in business environments.

03.0 USE TECHNOLOGY TO ENHANCE THE EFFECTIVENESS OF COMMUNICATIONS IN ORDER TO ACCOMPLISH JOB OBJECTIVES AND ENHANCE WORKPLACE PERFORMANCE—The student will be able to:

- 03.03 Use the writing process to create business-related documents appropriate to the subject matter, purpose, and audience.
- 03.04 Revise and edit business-related documents to ensure correct grammar, spelling, punctuation, and format.
- 03.05 Use database, spreadsheet, and integrated software packages to enhance written business communications.
- 03.06 Use presentation software to enhance personal and professional communications.
- 03.08 Use computer networks (e.g., Internet, on-line databases, e-mail) to facilitate collaborative or individual learning and communication.
- 03.09 Explore current and emerging telecommunication systems.
- 03.10 Discuss communication systems—cultural, organizational, technological, and interpersonal.

04.0 USE INFORMATION TO ACCOMPLISH JOB OBJECTIVES AND ENHANCE WORKPLACE PERFORMANCE—The student will be able to:

- 04.03 Respond to and utilize information derived from multiple sources (e.g., written documents, instructions, e-mail) to solve business problems and complete business tasks.

#### **CURRENT TRENDS/ISSUES IN THE WORKPLACE**

05.0 ANALYZE CURRENT AND EMERGING WORKPLACE TRENDS AND ISSUES AND DETERMINE POTENTIAL IMPACT ON CAREER AND JOB OBJECTIVES AND WORKPLACE PERFORMANCE—The student will be able to:

- 05.03 Identify, define, and discuss current trends and issues that impact global and local business/workplace environments.
- 05.04 Communicate (individually and in groups) current and emerging business trends and recommend strategies for controlling the impact of these trends on personal and professional levels.

#### **MANAGEMENT**

06.0 DEVELOP AN AWARENESS OF MANAGEMENT FUNCTIONS AND ORGANIZATIONAL STRUCTURES AS THEY RELATE TO TODAY'S WORKPLACE AND EMPLOYER/EMPLOYEE ROLES—The student will be able to:

- 06.03 Design, implement, and evaluate organizational structures for managing project teams.
- 06.04 Demonstrate an awareness of the employee's role in maintaining productive business environments in today's workplace.

07.0 PRACTICE QUALITY PERFORMANCE IN THE LEARNING ENVIRONMENT AND THE WORKPLACE—The student will be able to:

- 07.03 Routinely assess personal performance and identify and implement strategies for improvement.
- 07.04 Assess peers and/or group members' performance in order to develop and implement strategies for improvement.

08.0 INCORPORATE APPROPRIATE LEADERSHIP AND SUPERVISION TECHNIQUES, CUSTOMER SERVICE STRATEGIES, AND STANDARDS OF PERSONAL ETHICS TO ACCOMPLISH JOB

OBJECTIVES AND ENHANCE WORKPLACE PERFORMANCE—The student will be able to:

- 08.04 Develop and implement a plan for maintaining quality service and production in a workplace, business, or learning environment.
- 08.05 Facilitate focus group discussions regarding service, supervision, and ethical considerations that impact the workplace, business, or learning environment.

#### **COMPUTATION AND FINANCE**

09.0 APPLY MATHEMATICAL OPERATIONS AND PROCESSES AS WELL AS FINANCIAL PLANNING STRATEGIES TO COMMONLY OCCURRING SITUATIONS IN THE WORKPLACE TO ACCOMPLISH JOB OBJECTIVES AND ENHANCE WORKPLACE PERFORMANCE—The student will be able to:

- 09.05 Use common standards of measurement in solving work-related or business problems (e.g., length, weight, currency, time).

#### **JOB READINESS AND CAREER DEVELOPMENT**

10.0 ASSESS PERSONAL STRENGTHS AND WEAKNESSES AS THEY RELATE TO JOB OBJECTIVES, CAREER EXPLORATION, PERSONAL DEVELOPMENT, AND LIFE GOALS—The student will be able to:

- 10.03 Analyze job and career requirements and relate career interests to opportunities in the global economy.
- 10.04 Reassess and analyze individual talents, interests, and personal characteristics and relate to desired career options.

11.0 INCORPORATE KNOWLEDGE GAINED FROM INDIVIDUAL ASSESSMENT AND JOB/CAREER EXPLORATION TO DESIGN AN INDIVIDUAL CAREER PLAN THAT REFLECTS THE TRANSITION FROM SCHOOL TO WORK, LIFELONG LEARNING, AND PERSONAL AND PROFESSIONAL GOALS--The student will be able to:

- 11.05 Refine and implement a plan to facilitate personal growth and skill development related to anticipated job requirements and career expectations.
- 11.07 Demonstrate an awareness of specific job requirements and career paths (e.g., requirements, characteristics needed) in business environments.
- 11.07 Demonstrate an awareness of the potential impact of local and global trends on career plans and life goals.

#### **HUMAN RELATIONS/INTERPERSONAL SKILLS**

12.0 DEMONSTRATE HUMAN RELATIONS/INTERPERSONAL SKILLS APPROPRIATE FOR THE WORKPLACE—The student will be able to:

- 12.01 Accept constructive criticism.
- 12.02 Apply appropriate strategies to manage conflict in work situations.

#### **ADMINISTRATIVE OFFICE PROCEDURES**

13.0 PERFORM OFFICE FUNCTIONS AND RESPONSIBILITIES TO ACCOMPLISH JOB OBJECTIVES AND ENHANCE WORKPLACE PERFORMANCE—The student will be able to:

- 13.01 Perform office tasks (e.g., filing and records management, scheduling, reprographics, and mail handling).

**OCCUPATIONAL COMPLETION POINT - DATA CODE C  
COMPUTER PROGRAMMER AIDE - OES 25108**

Intended outcomes of OCP A and OCP B must be completed previously or concurrently. The following competencies are to be mastered in a single language, as appropriate.

**JOB READINESS AND CAREER DEVELOPMENT**

10.0 ASSESS PERSONAL STRENGTHS AND WEAKNESSES AS THEY RELATE TO JOB OBJECTIVES, CAREER EXPLORATION, PERSONAL DEVELOPMENT, AND LIFE GOALS—The student will be able to:

- 10.06 Investigate specific job opportunities in single language computer programming in the local job market.
- 10.07 Identify tasks performed by computer programming personnel.
- 10.08 Identify alternative career paths for computer programmers.
- 10.09 Investigate the need for additional training for computer programmers.

**WORK-BASED LEARNING**

20.0 PARTICIPATE IN WORK-BASED LEARNING EXPERIENCES—The student will be able to:

- 20.25 Participate in work-based learning experiences in a computer programming environment.
- 20.26 Discuss the use of technology in a computer programming environment.
- 20.27 Compare and contrast programming languages used in a computer programming environment.

**BUSINESS COMPUTER PROGRAMMING**

23.0 IDENTIFY FUNCTIONS OF INFORMATION PROCESSING—The student will be able to:

- 23.01 Identify characteristics of high-level languages.
- 23.02 Identify characteristics of operating systems.
- 23.03 Identify characteristics of sequential, indexed-sequential, random, and direct files.
- 23.04 Identify characteristics of a network.
- 23.05 Identify needs for software development in business.
- 23.06 Identify causes of software development problems in business.
- 23.07 Identify most appropriate languages for solving business problems.
- 23.08 Describe the difference between a database management system and a file management system.
- 23.09 Manipulate data between numbering systems.
- 23.10 Identify how numeric and non-numeric data are represented in memory.
- 23.13 Distinguish among integer, fixed-point, and floating-point calculations.

24.0 IDENTIFY FUNCTIONS OF COMPUTERS—The student will be able to:

- 24.01 Identify computer hardware and software.
- 24.02 Identify generic data processing terminology.
- 24.03 Identify advanced data processing terminology.
- 24.04 Sequence and define the steps in the input, processing, output, and storage cycle.
- 24.05 Identify examples of emerging hardware technology.

- 24.06 Illustrate various configurations of hardware components.
- 25.0 TEST PROGRAMS—The student will be able to:
  - 25.01 Develop a plan for testing programs.
  - 25.03 Develop data for use in program testing.
  - 25.04 Perform debugging activities.
  - 25.05 Distinguish among the different types of program and design errors.
  - 25.06 Evaluate program test results.
  - 25.07 Execute programs and subroutines as they relate to the total application.
  - 25.08 Use trace routines of compilers to assist in program debugging.
  - 25.09 Compile and run programs.
- 26.0 PLAN PROGRAM DESIGN—The student will be able to:
  - 26.01 Formulate a plan to determine program specifications individually or in groups.
  - 26.02 Use a graphical representation or pseudocode to represent the structure in a program or subroutine.
  - 26.03 Design programs to solve problems using problem-solving strategies.
  - 26.04 Prepare proper input/output layout specifications.
  - 26.05 Examine existing utility programs and subroutines for use with other programs.
  - 26.07 Manually trace the execution of programs and verify that programs follow the logic of their design as documented.
- 27.0 CODE PROGRAMS—The student will be able to:
  - 27.01 Utilize reference manuals.
  - 27.02 Write programs according to recognized programming standards.
  - 27.03 Write internal documentation statements as needed in the program source code.
  - 27.04 Code programs in high-level languages for business applications.
  - 27.05 Write code that accesses sequential, indexed sequential, random, and direct files.
  - 27.07 Code programs using logical statements (e.g., If-Then-Else, Do...While).
  - 27.08 Enter and modify source code using a program language editor.
  - 27.09 Code routines within programs that validate input data.
  - 27.10 Use the rounding function in calculations within programs.
- 28.0 PERFORM PROGRAM MAINTENANCE—The student will be able to:
  - 28.01 Review requested modification of programs and establish a plan of action.
  - 28.02 Design needed modifications in conformance with established standards.
  - 28.03 Code, test, and debug modifications prior to updating production code.
  - 28.04 Update production programs and documentation with changes.
  - 28.05 Analyze output to identify and annotate errors or enhancements.
- 29.0 CREATE AND MAINTAIN DOCUMENTATION—The student will be able to:
  - 29.01 Write documentation to assist operators and end-users.
  - 29.02 Follow established documentation standards.
  - 29.03 Update existing documentation to reflect program changes.

- 30.0 EVALUATE ASSIGNED BUSINESS COMPUTER PROGRAMMING TASKS—The student will be able to:
- 30.01 Estimate the time necessary to write a program.
- 31.0 DEVELOP AN UNDERSTANDING OF BASIC FINANCIAL BUSINESS CONCEPTS—The student will be able to:
- 31.01 Identify generic accounting terminology as it relates to information systems.
  - 31.02 Identify ways in which transactions interact with various business systems.
- 32.0 UNDERSTAND THE INTEGRATED NATURE OF CORPORATE SYSTEMS—The student will be able to:
- 32.01 Analyze the flow of information throughout the various departments in a business.
  - 32.02 Explain how programs written for one department affect other departments in the business.
- 33.0 DEMONSTRATE AN UNDERSTANDING OF OPERATING SYSTEMS, ENVIRONMENTS, AND PLATFORMS—The student will be able to:
- 33.01 Identify various types of operating systems/environments for different computer hardware platforms.
  - 33.02 Assess and analyze the functions of different operating systems.
  - 33.03 Distinguish between different types of computer hardware platforms.
- 34.0 DEVELOP AN AWARENESS OF SOFTWARE QUALITY ASSURANCE—The student will be able to:
- 34.01 Identify the legal and social consequences of errors in software.
  - 34.03 Describe copyright and other laws that relate to software theft and misuse.
  - 34.04 Describe software security measures to protect computer systems and data from unauthorized use and tampering (e.g., physical security, passwords, virus protection/prevention).
- 35.0 IMPLEMENT ENHANCED PROGRAM STRUCTURES—The student will be able to:
- 35.01 Write programs that incorporate multi-level subtotals and page breaks.
  - 35.02 Write programs that include tables or arrays and routines for data entry and lookup.
  - 35.03 Write routines to sort arrays.
  - 35.04 Write programs that sort records in files.
  - 35.05 Write programs to create and maintain a master file.
  - 35.06 Write programs to process transactions.
  - 35.08 Write programs that use iteration.
  - 35.10 Write programs that read and write sequential files.
  - 35.11 Write programs that read and write indexed-sequential files.
  - 35.12 Write programs that read and write random files.
- 36.0 DEVELOP AN UNDERSTANDING OF PROGRAMMING TECHNIQUES AND CONCEPTS—The student will be able to:
- 36.01 Identify the basic constructs used in structured programming.
  - 36.02 Distinguish between top-down and bottom-up design.
  - 36.04 Distinguish between iteration and recursion.



- 36.06 Evaluate Boolean expressions.
- 36.07 Distinguish between interpreters and compilers.

**OCCUPATIONAL COMPLETION POINT - DATA CODE D  
JUNIOR PROGRAMMER - DOT 030.162-010**

Intended outcomes of OCP A, OCP B, and OCP C must be completed previously. The following competencies are to be mastered in a single language, as appropriate.

**WORK-BASED LEARNING**

- 20.0 PARTICIPATE IN WORK-BASED LEARNING EXPERIENCES—The student will be able to:
  - 20.25 Participate in work-based learning experiences in a computer programming environment.
  - 20.27 Compare and contrast programming languages used in a computer programming environment.
  - 20.28 Discuss the management/supervisory skills needed in a computer programming environment.

**BUSINESS COMPUTER PROGRAMMING**

- 23.0 IDENTIFY FUNCTIONS OF INFORMATION PROCESSING—The student will be able to:
  - 23.11 Identify the advantages and disadvantages of blocking and buffering when accessing data on tape and disk storage.
  - 23.12 Choose appropriate storage of numeric values to insure precision needed for calculations (e.g., integer, fixed-point, floating-point).
- 24.0 IDENTIFY FUNCTIONS OF COMPUTERS—The student will be able to:
  - 24.07 Identify the advantages and disadvantages of virtual memory.
- 25.0 TEST PROGRAMS—The student will be able to:
  - 25.02 Develop a plan for system integration testing.
- 26.0 PLAN PROGRAM DESIGN—The student will be able to:
  - 26.06 Plan interfaces for systems integration.
- 27.0 CODE PROGRAMS—The student will be able to:
  - 27.06 Access external files in a client/server environment.
- 28.0 PERFORM PROGRAM MAINTENANCE—The student will be able to:
  - 28.06 Modify or create new programs for vendor supplied applications.
  - 28.07 Use a computer system with current commercial-end application software to solve problems within an organizational environment.
- 30.0 EVALUATE ASSIGNED BUSINESS COMPUTER PROGRAMMING TASKS—The student will be able to:
  - 30.02 Utilize and apply project and time management tools to control systems development.
  - 30.03 Analyze computer resources necessary to run a program.

- 34.0 DEVELOP AN AWARENESS OF SOFTWARE QUALITY ASSURANCE—The student will be able to:
- 34.02 Evaluate performance, functionality, and validity of various software packages.
- 35.0 IMPLEMENT ENHANCED PROGRAM STRUCTURES—The student will be able to:
- 35.07 Write programs to import/export data from external sources.  
 35.09 Write routines that incorporate "help" text.  
 35.14 Write interactive programs.  
 35.15 Design screen layouts for use in interactive programs.
- 36.0 DEVELOP AN UNDERSTANDING OF PROGRAMMING TECHNIQUES AND CONCEPTS—The student will be able to:
- 36.03 Identify object-oriented concepts and provide examples of objects in an object-oriented language.  
 36.05 Describe development methodologies, programming and system languages, database technologies, and data communication.

**OCCUPATIONAL COMPLETION POINT - DATA CODE E  
 COMPUTER PROGRAMMING SPECIALIST - Industry Title**

Intended outcomes of OCP A, OCP B, OCP C, and OCP D must be completed previously. The following competencies are to be mastered in two or more additional languages, as appropriate.

**BUSINESS COMPUTER PROGRAMMING**

- 25.0 TEST PROGRAMS—The student will be able to:
- 25.01 Develop a plan for testing programs.  
 25.02 Develop a plan for system integration testing.  
 25.03 Develop data for use in program testing.  
 25.04 Perform debugging activities.  
 25.05 Distinguish among the different types of program and design errors.  
 25.06 Evaluate program test results.  
 25.07 Execute programs and subroutines as they relate to the total application.  
 25.08 Use trace routines of compilers to assist in program debugging.  
 25.09 Compile and run programs.
- 26.0 PLAN PROGRAM DESIGN—The student will be able to:
- 26.01 Formulate a plan to determine program specifications individually or in groups.  
 26.02 Use a graphical representation or pseudocode to represent the structure in a program or subroutine.  
 26.03 Design programs to solve problems using problem-solving strategies.  
 26.04 Prepare proper input/output layout specifications.  
 26.05 Examine existing utility programs and subroutines for use with other programs.  
 26.07 Manually trace the execution of programs and verify that programs follow the logic of their design as documented.
- 27.0 CODE PROGRAMS—The student will be able to:
- 27.01 Utilize reference manuals.

- 27.02 Write programs according to recognized programming standards.
  - 27.03 Write internal documentation statements as needed in the program source code.
  - 27.04 Code programs in high-level languages for business applications.
  - 27.05 Write code that accesses sequential, indexed sequential, random, and direct files.
  - 27.07 Code programs using logical statements (e.g., If-Then-Else, Do...While).
  - 27.08 Enter and modify source code using a program language editor.
  - 27.09 Code routines within programs that validate input data.
  - 27.10 Use the rounding function in calculations within programs.
- 28.0 PERFORM PROGRAM MAINTENANCE—The student will be able to:
- 28.01 Review requested modification of programs and establish a plan of action.
  - 28.02 Design needed modifications in conformance with established standards.
  - 28.03 Code, test, and debug modifications prior to updating production code.
  - 28.04 Update production programs and documentation with changes.
  - 28.05 Analyze output to identify and annotate errors or enhancements.
  - 28.06 Modify or create new programs for vendor supplied applications.
  - 28.07 Use a computer system with current commercial-end application software to solve problems within an organizational environment.
- 29.0 CREATE AND MAINTAIN DOCUMENTATION—The student will be able to:
- 29.01 Write documentation to assist operators and end-users.
  - 29.02 Follow established documentation standards.
  - 29.03 Update existing documentation to reflect program changes.
- 30.0 EVALUATE ASSIGNED BUSINESS COMPUTER PROGRAMMING TASKS—The student will be able to:
- 30.02 Utilize and apply project and time management tools to control systems development.
  - 30.03 Analyze computer resources necessary to run a program.
- 33.0 DEMONSTRATE AN UNDERSTANDING OF OPERATING SYSTEMS, ENVIRONMENTS, AND PLATFORMS—The student will be able to:
- 33.02 Assess and analyze the functions of different operating systems.
  - 33.04 Assess and analyze the program development and execution utilities of relevant operating systems.
- 34.0 DEVELOP AN AWARENESS OF SOFTWARE QUALITY ASSURANCE—The student will be able to:
- 34.02 Evaluate performance, functionality, and validity of various software packages.
- 35.0 IMPLEMENT ENHANCED PROGRAM STRUCTURES—The student will be able to:
- 35.01 Write programs that incorporate multi-level subtotals and page breaks.
  - 35.02 Write programs that include tables or arrays and routines for data entry and lookup.
  - 35.03 Write routines to sort arrays.

- 35.04 Write programs that sort records in files.
  - 35.05 Write programs to create and maintain a master file.
  - 35.06 Write programs to process transactions.
  - 35.07 Write programs to import/export/convert data from external sources.
  - 35.08 Write programs that use iteration.
  - 35.09 Write routines that incorporate "help" text.
  - 35.10 Write programs that read and write sequential files.
  - 35.11 Write programs that read and write indexed-sequential files.
  - 35.12 Write programs that read and write random files.
  - 35.14 Write interactive programs.
  - 35.15 Design screen layouts for use in interactive programs.
  - 35.16 Write programs using object-oriented languages.
- 36.0 DEVELOP AN UNDERSTANDING OF PROGRAMMING TECHNIQUES AND CONCEPTS—The student will be able to:
- 36.05 Describe development methodologies, programming and system languages, database technologies, and data communication.

Florida Department of Education  
**STUDENT PERFORMANCE STANDARDS**

Secondary Course Number: 8209020  
**Course Title:** Business Systems and Technology 1  
 (Business Systems and Technology)  
**Course Credit:** 1

**COURSE DESCRIPTION:**

This course is designed to provide a basic overview of current business and information systems and trends and to introduce students to the basic skills and foundations required for today's business environments. Emphasis is placed on developing proficiency with touch keyboarding and fundamental computer applications, so that they may be used as communication tools for enhancing personal and workplace proficiency in an information based society. After successful completion of this core course, students will have met Occupational Completion Point - Data Code A, General Office Clerk - OES 55321.

**INFORMATION SYSTEMS**

01.00 DEMONSTRATE KNOWLEDGE, SKILL, AND APPLICATION OF INFORMATION SYSTEMS TO ACCOMPLISH JOB OBJECTIVES AND ENHANCE WORKPLACE PERFORMANCE. APPLY ERGONOMIC PRINCIPLES APPLICABLE TO THE CONFIGURATION OF COMPUTER WORKSTATIONS.-The student will be able to:

- 01.01 Develop keyboarding skills to enter and manipulate text and data. LA.B.1.4.3
- 01.02 Describe and use current and emerging computer technology and software to perform personal and business related tasks. LA.B.2.4.4
- 01.03 Identify and describe communications and networking systems used in workplace environments.
- 01.04 Use reference materials such as on-line help, vendor bulletin boards, tutorials, and manuals available for application software. LA.B.2.4.4, LA.A.2.4.6
- 01.05 Demonstrate basic file management skills. LA.A.2.4.2, LA.B.2.4.4, LA.B.2.4.6
- 01.06 Troubleshoot problems with computer software, hardware, peripherals, and other office equipment. LA.D.2.4.4
- 01.07 Describe ethical issues and problems associated with computers and information systems.
- 01.08 Apply ergonomic principles applicable to the configuration of computer workstations.

**WORKPLACE COMMUNICATIONS**

02.00 USE TECHNOLOGY TO APPLY AND ENHANCE COMMUNICATION SKILLS IN TECHNICAL READING, WRITING, SPEAKING, LISTENING, AND VIEWING-The student will be able to:

- 02.01 Select and use appropriate modes of communication for specific job and work situations. LA.B.2.4.4
- 02.02 Organize ideas and communicate oral and written messages appropriate to listeners and situations in workplace and business environments. LA.B.2.4.2

- 02.03 Use listening, speaking, and nonverbal skills and strategies to communicate effectively with supervisors, co-workers, and customers. LA.C.1.4.1, LA.C.3.4.1, HE.B.3.4.1
  - 02.04 Select and use standard written business communication formats. LA.B.1.4.1, LA.B.1.4.3
  - 02.05 Use professional business vocabulary appropriate for entry-level jobs in business environments. LA.A.1.4.3
- 03.0 USE TECHNOLOGY TO APPLY AND ENHANCE COMMUNICATION SKILLS IN TECHNICAL READING, WRITING –The student will be able to:
- 03.01 Select and use word processing software and accompanying features to enhance written business communications. LA.B.1.4.1
  - 03.02 Use the writing process to create/edit business documents appropriate to the subject matter, purpose, and audience. LA.B.1.4.1, LA.B.1.4.2, LA.B.1.4.3
  - 03.03 Use database, spreadsheet, presentation software, scheduling, and integrated software packages to enhance communications. LA.B.2.4.1, LA.B.2.4.2
  - 03.04 Explore and demonstrate effective and efficient use of telecommunications systems including telephone techniques for handling incoming and placing outgoing business calls. LA.B.1.4.3
  - 03.05 Use computer networks (e.g., Internet, on-line databases, e-mail) to facilitate collaborative or individual learning and communication.
  - 03.06 Respond to and utilize information derived from multiple sources (e.g., written documents, instructions, e-mail, voice mail) to solve business problems and complete business tasks.

#### **MANAGEMENT**

- 04.0 DEVELOP AN AWARENESS OF MANAGEMENT FUNCTIONS AND ORGANIZATIONAL STRUCTURES AS THEY RELATE TO TODAY'S WORKPLACE AND EMPLOYER/EMPLOYEE ROLES. DEMONSTRATE INITIATIVE, COURTESY, LOYALTY, HONESTY, COOPERATION AND PUNCTUALITY AS A TEAM MEMBER–The student will be able to:
- 04.01 Explore, design, implement, and evaluate organizational structures and cultures for managing project teams.
  - 04.02 Explore and demonstrate an awareness of current trends in business and the employee's role in maintaining productive business environments in today's global workplace.
  - 04.03 Collaborate with individuals and teams to complete tasks and solve business-related problems and demonstrate initiative, courtesy, loyalty, honesty, cooperation, and punctuality as a team member.

#### **CURRENT TRENDS/ISSUES IN THE WORKPLACE**

- 05.0 PRACTICE QUALITY PERFORMANCE IN THE LEARNING ENVIRONMENT AND THE WORKPLACE–The student will be able to:
- 05.01 Assess personal, peer, and group performance and identify and implement strategies for improvement (e.g., organizational skills, note taking/outlining, advance organizers, reasoning skills, problem-solving and decision-making skills).
  - 05.02 Develop criteria for assessing products and processes that incorporate effective business practices (e.g., time management, productivity, total quality management).

#### **MANAGEMENT**

06.0 INCORPORATE APPROPRIATE LEADERSHIP AND SUPERVISION TECHNIQUES, CUSTOMER SERVICE STRATEGIES, AND STANDARDS OF PERSONAL ETHICS TO ACCOMPLISH JOB OBJECTIVES AND ENHANCE WORKPLACE PERFORMANCE—The student will be able to:

- 06.01 Demonstrate an awareness of quality service and the personal and professional standards required to establish an effective service-based culture in the workplace, business, or learning environment.
- 06.02 Identify, analyze, and implement managerial skills necessary for maintaining a high quality work environment, goals, and strategic planning in business settings.
- 06.03 Follow accepted rules, regulations, policies, procedures, processes, and workplace safety.

#### **COMPUTATION AND FINANCE**

07.0 APPLY MATHEMATICAL OPERATIONS AND PROCESSES AS WELL AS FINANCIAL PLANNING STRATEGIES TO COMMONLY OCCURRING SITUATIONS IN THE WORKPLACE AND TO ACCOMPLISH JOB OBJECTIVES AND ENHANCE WORKPLACE PERFORMANCE—The student will be able to:

- 07.01 Analyze, interpret, compile and demonstrate the ability to present/communicate data in understandable and measurable terms using common statistical procedures. MA.E.1.4.1, MA.E.A.4.2
- 07.02 Use common standards of measurement including the metric system in solving work-related or business problems (e.g., length, weight, currency, time). MA.B.3.4.1
- 07.03 Select and use the correct mathematical processes and tools to solve complex problem settings that are typical of business settings and use formulas when appropriate. MA.A.3.4.3

#### **JOB READINESS AND CAREER DEVELOPMENT**

08.0 ASSESS PERSONAL STRENGTHS AND WEAKNESSES AS THEY RELATE TO JOB OBJECTIVES, CAREER EXPLORATION, PERSONAL DEVELOPMENT, AND LIFE GOALS—The student will be able to:

- 08.01 Assess, analyze and reassess individual talents, aptitudes, interests, and personal characteristics as they relate to potential future careers in business environments.
- 08.02 Use personal assessment tools to identify personal strengths and weaknesses related to learning and work environments.
- 08.03 Analyze job and career requirements and relate career interests to opportunities in the global economy.

10.0 INCORPORATE KNOWLEDGE GAINED FROM INDIVIDUAL ASSESSMENT AND JOB/CAREER EXPLORATION TO DESIGN AN INDIVIDUAL CAREER PLAN THAT REFLECTS THE TRANSITION FROM SCHOOL TO WORK, LIFELONG LEARNING, AND PERSONAL AND PROFESSIONAL GOALS. EXPERIENCE WORK-BASED LEARNING THROUGH JOB SHADOWING, MENTORING, E-COACHING, ETC. —The student will be able to:

- 09.01 Analyze personal skills and aptitudes in comparison with various business related job and career options.
- 09.02 Use career resources to develop an information base that reflects local and global business related occupations and opportunities for continuing education and workplace experience.
- 09.03 Demonstrate job-seeking skills required for entry-level employment (e.g., resume, application, interview, follow up). LA.C.3.4.4

- 09.04 Design, initiate, refine, and implement a plan to facilitate personal growth and skill development related to anticipated job requirements and career expectations.
- 09.06 Demonstrate an awareness of specific job requirements and career paths (e.g., requirements, characteristics needed) in business environments.
- 09.07 Demonstrate an awareness of the potential impact of local and global trends on career plans and life goals.
- 09.08 Experience work-based learning through volunteerism, job shadowing, mentoring, e-coaching, etc.

**HUMAN RELATIONS/INTERPERSONAL SKILLS**

- 10.0 DEMONSTRATE PERSONAL AND INTERPERSONAL SKILLS APPROPRIATE FOR THE WORKPLACE—The student will be able to:
  - 10.01 Accept constructive criticism. SS.B.1.4.5
  - 10.02 Apply appropriate strategies to manage and resolve conflict in work situations. LA.D.1.4.2, SS.B.1.4.5, HE.B.3.4.5
  - 10.03 Demonstrate personal and interpersonal skills appropriate for the workplace (e.g., responsibility, dependability, punctuality, integrity, positive attitude, initiative, and respect for self and others, professional dress, etc.).

**ADMINISTRATIVE OFFICE PROCEDURES**

- 11.0 PERFORM OFFICE FUNCTIONS AND RESPONSIBILITIES TO ACCOMPLISH JOB OBJECTIVES AND ENHANCE WORKPLACE PERFORMANCE—The student will be able to:
  - 11.01 Perform business tasks (e.g., filing and records management, scheduling, reprographics, mail handling, etc.). LA.A.2.4.4, LA.A.2.4.7, LA.A.2.4.8, LA.B.2.4.2
  - 11.02 Demonstrate knowledge of ethical behavior in a business environment (e.g., confidentiality of information, employee right to know, hiring practices, plagiarism, copyright violations, sexual harassment, mission statement, code of ethics, etc.).



**Florida Department of Education  
STUDENT PERFORMANCE STANDARDS**

**Secondary Course Number:** 8209030  
**Course Title:** Business Systems and Technology 2  
**Course Credit:** 1

**COURSE DESCRIPTION:**

This course is designed to build upon the experiences and content of Business Systems and Technology 1 so that a fundamental core of knowledge, skills, and attitudes required for today's business environment is established. Emphasis is placed on developing proficiency with database, spreadsheet, presentation, and integrated software applications as tools for accomplishing business related job objectives and enhancing workplace performance. After successful completion of the Business Technology Education Core courses (Business Systems and Technology 1 and 2), students will have met Occupational Completion Point - Data Code B, General Office Clerk - OES 55347.

**INFORMATION SYSTEMS**

- 01.0 DEMONSTRATE KNOWLEDGE, SKILL, AND APPLICATION OF INFORMATION SYSTEMS TO ACCOMPLISH JOB OBJECTIVES AND ENHANCE WORKPLACE PERFORMANCE—The student will be able to:
- 01.07 Enhance proficiency with touch keyboarding skills (speed and accuracy) to enter and manipulate data.
  - 01.08 Use current and emerging computer technology and software to perform personal and business related tasks, solve problems, and organize and communicate information.
  - 01.09 Troubleshoot problems with computer hardware, peripherals, and other office equipment.
  - 01.10 Use communications and networking systems to perform tasks and solve problems in business environments.
  - 01.11 Describe ergonomic principles important to the configuration of computer workstations.
  - 01.12 Describe ethical issues and problems associated with computers and information systems.

**WORKPLACE COMMUNICATIONS**

- 02.0 APPLY COMMUNICATION SKILLS (READING, WRITING, SPEAKING, LISTENING, AND VIEWING) IN A COURTEOUS, CONCISE, AND CORRECT MANNER ON PERSONAL AND PROFESSIONAL LEVELS—The student will be able to:
- 02.07 Select and use modes of communications appropriate to specific job and workplace situations.
  - 02.08 Select and use standard written communication formats used for professional and business communication.
  - 02.09 Use professional business vocabulary appropriate for internal and external communications in business environments.
- 03.0 USE TECHNOLOGY TO ENHANCE THE EFFECTIVENESS OF COMMUNICATIONS IN ORDER TO ACCOMPLISH JOB OBJECTIVES AND ENHANCE WORKPLACE PERFORMANCE—The student will be able to:

- 03.03 Use the writing process to create business-related documents appropriate to the subject matter, purpose, and audience.
- 03.04 Revise and edit business-related documents to ensure correct grammar, spelling, punctuation, and format.
- 03.05 Use database, spreadsheet, and integrated software packages to enhance written business communications.
- 03.06 Use presentation software to enhance personal and professional communications.
- 03.08 Use computer networks (e.g., Internet, on-line databases, e-mail) to facilitate collaborative or individual learning and communication.
- 03.09 Explore current and emerging telecommunication systems.
- 03.10 Discuss communication systems—cultural, organizational, technological, and interpersonal.

04.0 USE INFORMATION TO ACCOMPLISH JOB OBJECTIVES AND ENHANCE WORKPLACE PERFORMANCE—The student will be able to:

- 04.03 Respond to and utilize information derived from multiple sources (e.g., written documents, instructions, e-mail) to solve business problems and complete business tasks.

**CURRENT TRENDS/ISSUES IN THE WORKPLACE**

05.0 ANALYZE CURRENT AND EMERGING WORKPLACE TRENDS AND ISSUES AND DETERMINE POTENTIAL IMPACT ON CAREER AND JOB OBJECTIVES AND WORKPLACE PERFORMANCE—The student will be able to:

- 05.03 Identify, define, and discuss current trends and issues that impact global and local business/workplace environments.
- 05.04 Communicate (individually and in groups) current and emerging business trends and recommend strategies for controlling the impact of these trends on personal and professional levels.

**MANAGEMENT**

06.0 DEVELOP AN AWARENESS OF MANAGEMENT FUNCTIONS AND ORGANIZATIONAL STRUCTURES AS THEY RELATE TO TODAY'S WORKPLACE AND EMPLOYER/EMPLOYEE ROLES—The student will be able to:

- 06.03 Design, implement, and evaluate organizational structures for managing project teams.
- 06.04 Demonstrate an awareness of the employee's role in maintaining productive business environments in today's workplace.

07.0 PRACTICE QUALITY PERFORMANCE IN THE LEARNING ENVIRONMENT AND THE WORKPLACE—The student will be able to:

- 07.03 Routinely assess personal performance and identify and implement strategies for improvement.
- 07.04 Assess peers and/or group members' performance in order to develop and implement strategies for improvement.

08.0 INCORPORATE APPROPRIATE LEADERSHIP AND SUPERVISION TECHNIQUES, CUSTOMER SERVICE STRATEGIES, AND STANDARDS OF PERSONAL ETHICS TO ACCOMPLISH JOB OBJECTIVES AND ENHANCE WORKPLACE PERFORMANCE—The student will be able to:

- 08.04 Develop and implement a plan for maintaining quality service and production in a workplace, business, or learning environment.
- 08.05 Facilitate focus group discussions regarding service, supervision, and ethical considerations that impact the workplace, business, or

learning environment.

#### **COMPUTATION AND FINANCE**

09.0 APPLY MATHEMATICAL OPERATIONS AND PROCESSES AS WELL AS FINANCIAL PLANNING STRATEGIES TO COMMONLY OCCURRING SITUATIONS IN THE WORKPLACE TO ACCOMPLISH JOB OBJECTIVES AND ENHANCE WORKPLACE PERFORMANCE—The student will be able to:

09.05 Select and use the correct mathematical process to solve complex problem situations that are typical of business settings and use formulas when appropriate.

#### **JOB READINESS AND CAREER DEVELOPMENT**

10.0 ASSESS PERSONAL STRENGTHS AND WEAKNESSES AS THEY RELATE TO JOB OBJECTIVES, CAREER EXPLORATION, PERSONAL DEVELOPMENT, AND LIFE GOALS—The student will be able to:

10.03 Analyze job and career requirements and relate career interests to opportunities in the global economy.

10.04 Reassess and analyze individual talents, interests, and personal characteristics and relate to desired career options.

11.0 INCORPORATE KNOWLEDGE GAINED FROM INDIVIDUAL ASSESSMENT AND JOB/CAREER EXPLORATION TO DESIGN AN INDIVIDUAL CAREER PLAN THAT REFLECTS THE TRANSITION FROM SCHOOL TO WORK, LIFELONG LEARNING, AND PERSONAL AND PROFESSIONAL GOALS--The student will be able to:

11.05 Refine and implement a plan to facilitate personal growth and skill development related to anticipated job requirements and career expectations.

11.06 Demonstrate an awareness of specific job requirements and career paths (e.g., requirements, characteristics needed) in business environments.

11.07 Demonstrate an awareness of the potential impact of local and global trends on career plans and life goals.

#### **HUMAN RELATIONS/INTERPERSONAL SKILLS**

12.0 DEMONSTRATE HUMAN RELATIONS/INTERPERSONAL SKILLS APPROPRIATE FOR THE WORKPLACE—The student will be able to:

12.01 Accept constructive criticism.

12.02 Apply appropriate strategies to manage conflict in work situations.

#### **ADMINISTRATIVE OFFICE PROCEDURES**

13.0 PERFORM OFFICE FUNCTIONS AND RESPONSIBILITIES TO ACCOMPLISH JOB OBJECTIVES AND ENHANCE WORKPLACE PERFORMANCE—The student will be able to:

13.01 Perform office tasks (e.g., filing and records management, scheduling, reprographics, and mail handling).

Florida Department of Education  
STUDENT PERFORMANCE STANDARDS

Secondary Course Number: 8206010  
Course Title: Business Computer Programming 1  
Course Credit: 1

**COURSE DESCRIPTION:**

This course introduces computer programming concepts for business applications. The content includes basic information processing and computer functions; operating systems, environments, and hardware platforms; programming techniques and concepts; and basic financial business concepts. After successful completion of Business Computer Programming 1 and 2, students will have met Occupational Completion Point - Data Code C, Computer Programmer Aide - OES Code 25108.

**JOB READINESS AND CAREER DEVELOPMENT**

10.0 ASSESS PERSONAL STRENGTHS AND WEAKNESSES AS THEY RELATE TO JOB OBJECTIVES, CAREER EXPLORATION, PERSONAL DEVELOPMENT, AND LIFE GOALS—The student will be able to:

- 10.06 Investigate specific job opportunities in computer programming in the local job market.
- 10.07 Identify tasks performed by computer programming personnel.
- 10.08 Identify alternative career paths for computer programmers.
- 10.09 Investigate the need for additional training for computer programmers.

**WORK-BASED LEARNING**

20.0 PARTICIPATE IN WORK-BASED LEARNING EXPERIENCES—The student will be able to:

- 20.25 Participate in work-based learning experiences in a computer programming environment.
- 20.26 Discuss the use of technology in a computer programming environment.

**BUSINESS COMPUTER PROGRAMMING**

23.0 IDENTIFY FUNCTIONS OF INFORMATION PROCESSING—The student will be able to:

- 23.01 Identify characteristics of high-level languages.
- 23.02 Identify characteristics of operating systems.
- 23.03 Identify characteristics of sequential, indexed-sequential, random, and direct files.
- 23.04 Identify characteristics of a network.
- 23.05 Identify needs for software development in business.
- 23.13 Distinguish among integer, fixed-point, and floating-point calculations.

24.0 IDENTIFY FUNCTIONS OF COMPUTERS—The student will be able to:

- 24.01 Identify computer hardware and software.
  - 24.02 Identify generic data processing terminology.
  - 24.04 Sequence and define the steps in the input, processing, output, and storage cycle.
- 25.0 TEST PROGRAMS—The student will be able to:
- 25.01 Develop a plan for testing programs.
  - 25.03 Develop data for use in program testing.
  - 25.04 Perform debugging activities.
  - 25.05 Distinguish among the different types of program and design errors.
  - 25.06 Evaluate program test results.
  - 25.07 Execute programs and subroutines as they relate to the total application.
  - 25.09 Compile and run programs.
- 26.0 PLAN PROGRAM DESIGN—The student will be able to:
- 26.01 Formulate a plan to determine program specifications individually and in groups.
  - 26.02 Use a graphical representation or pseudocode to represent the structure in a program or subroutine.
  - 26.03 Design programs to solve problems using problem-solving strategies.
  - 26.04 Prepare proper input/output layout specifications.
  - 26.07 Manually trace the execution of programs and verify that programs follow the logic of their design as documented.
- 27.0 CODE PROGRAMS—The student will be able to:
- 27.01 Utilize reference manuals.
  - 27.02 Write programs according to the recognized programming standards.
  - 27.03 Write internal documentation statements as needed in the program source code.
  - 27.04 Code programs in high-level languages for business applications.
  - 27.07 Code programs using logical statement (e.g., If-Then-Else, Do...While).
  - 27.08 Enter and modify source code using a program language editor.
  - 27.09 Code routines within programs that validate input data.
  - 27.10 Use the rounding function in calculations within programs.
- 28.0 PERFORM PROGRAM MAINTENANCE—The student will be able to:
- 28.05 Analyze output to identify and annotate errors or enhancements.
- 29.0 CREATE AND MAINTAIN DOCUMENTATION—The student will be able to:
- 29.02 Follow established documentation standards.
- 31.0 DEVELOP AN UNDERSTANDING OF BASIC FINANCIAL BUSINESS CONCEPTS—The student will be able to:
- 31.01 Identify generic accounting terminology as it relates to information systems.
  - 31.02 Identify ways in which transactions interact with various business systems.
- 33.0 DEMONSTRATE AN UNDERSTANDING OF OPERATING SYSTEMS, ENVIRONMENTS, AND PLATFORMS—The student will be able to:

- 33.01 Identify various types of operating systems/environments for different computer hardware platforms.
- 33.03 Distinguish between different types of computer hardware platforms.
- 34.0 DEVELOP AN AWARENESS OF SOFTWARE QUALITY ASSURANCE—The student will be able to:
  - 34.01 Identify the legal and social consequences of errors in software.
  - 34.03 Describe copyright and other laws that relate to software theft and misuse.
  - 34.04 Describe software security measures to protect computer systems and data from unauthorized use and tampering (e.g., physical security, passwords, virus protection/prevention).
- 35.0 IMPLEMENT ENHANCED PROGRAM STRUCTURES—The student will be able to:
  - 35.01 Write programs that incorporate multi-level subtotals and page breaks.
  - 35.02 Write programs that include tables or arrays or routines for data entry and lookup.
  - 35.08 Write programs that use iteration.
- 36.0 DEVELOP AN UNDERSTANDING OF PROGRAMMING TECHNIQUES AND CONCEPTS—The student will be able to:
  - 36.01 Identify the basic constructs used in structured programming.
  - 36.02 Distinguish between top-down and bottom-up design.
  - 36.07 Distinguish between interpreters and compilers.

**Florida Department of Education  
STUDENT PERFORMANCE STANDARDS**

**Secondary Course Number:** 8206020  
**Course Title:** Business Computer Programming 2  
**Course Credit:** 1

**COURSE DESCRIPTION:**

This course continues the study of computer programming concepts for business applications. The content includes information processing and computer functions; operating systems; programming techniques and concepts for sequential, indexed sequential, random, and direct files; and the integrated nature of corporate systems. After successful completion of Business Computer Programming 1 and 2, students will have met Occupational Completion Point - Data Code C, Computer Programmer Aide - OES Code 25108.

**WORK-BASED LEARNING**

20.0 PARTICIPATE IN WORK-BASED LEARNING EXPERIENCES—The student will be able to:

- 20.25 Participate in work-based learning experiences in a computer programming environment.
- 20.26 Discuss the use of technology in a computer programming environment.
- 20.27 Compare and contrast programming languages used in a computer programming environment.

**BUSINESS COMPUTER PROGRAMMING**

23.0 IDENTIFY FUNCTIONS OF INFORMATION PROCESSING—The student will be able to:

- 23.06 Identify causes of software development problems in business.
- 23.07 Identify most appropriate languages for solving business problems.
- 23.08 Describe the difference between a database management system and a file management system.
- 23.09 Manipulate data between numbering systems.
- 23.10 Identify how numeric and non-numeric data are represented in memory.

24.0 IDENTIFY FUNCTIONS OF COMPUTERS—The student will be able to:

- 24.03 Identify advanced data processing terminology.
- 24.05 Identify examples of emerging hardware technology.
- 24.06 Illustrate various configurations of hardware components.

25.0 TEST PROGRAMS—The student will be able to:

- 25.08 Use trace routines of compilers to assist in program debugging.

26.0 PLAN PROGRAM DESIGN—The student will be able to:

- 26.05 Examine existing utility programs and subroutines for use with other programs.

- 27.0 CODE PROGRAMS—The student will be able to:
  - 27.05 Write code that accesses sequential, indexed sequential, random, and direct files.
- 28.0 PERFORM PROGRAM MAINTENANCE—The student will be able to:
  - 28.01 Review requested modification of programs and establish a plan of action.
  - 28.02 Design needed modifications in conformance with established standards.
  - 28.03 Code, test, and debug modifications prior to updating production code.
  - 28.04 Update production programs and documentation with changes.
- 29.0 CREATE AND MAINTAIN DOCUMENTATION—The student will be able to:
  - 29.01 Write documentation to assist operators and end-users.
  - 29.03 Update existing documentation to reflect program changes.
- 30.0 EVALUATE ASSIGNED BUSINESS COMPUTER PROGRAMMING TASKS—The student will be able to:
  - 30.01 Estimate the time necessary to write a program.
- 32.0 UNDERSTAND THE INTEGRATED NATURE OF CORPORATE SYSTEMS—The student will be able to:
  - 32.01 Analyze the flow of information throughout the various departments in a business.
  - 32.02 Explain how programs written for one department affect other departments in the business.
- 33.0 DEMONSTRATE AN UNDERSTANDING OF OPERATING SYSTEMS, ENVIRONMENTS, AND PLATFORMS—The student will be able to:
  - 33.02 Assess and analyze the functions of different operating systems.
- 35.0 IMPLEMENT ENHANCED PROGRAM STRUCTURES—The student will be able to:
  - 35.03 Write routines to sort arrays.
  - 35.04 Write programs that sort records in files.
  - 35.05 Write programs to create and maintain a master file.
  - 35.06 Write programs to process transactions.
  - 35.10 Write programs that read and write sequential files.
  - 35.11 Write programs that read and write indexed-sequential files.
  - 35.12 Write programs that read and write random files.
- 36.0 DEVELOP AN UNDERSTANDING OF PROGRAMMING TECHNIQUES AND CONCEPTS—The student will be able to:
  - 36.04 Distinguish between iteration and recursion.
  - 36.06 Evaluate Boolean expressions.



**Florida Department of Education  
STUDENT PERFORMANCE STANDARDS**

**Secondary Course Number:** 8206030  
**Course Title:** Business Computer Programming 3  
**Course Credit:** 1

**COURSE DESCRIPTION:**

This course continues the study of computer programming concepts for business applications. The content includes interfaces for systems integration, software quality assurance, and advanced programming techniques and concepts. After successful completion of Business Computer Programming 3 and 4, students will have met Occupational Completion Point - Data Code D, Junior Programmer - DOT Code 030.162-010.

**WORK-BASED LEARNING**

20.0 PARTICIPATE IN WORK-BASED LEARNING EXPERIENCES—The student will be able to:

20.25 Participate in work-based learning experiences in a computer programming environment.

20.27 Compare and contrast programming languages used in a computer programming environment.

**BUSINESS COMPUTER PROGRAMMING**

23.0 IDENTIFY FUNCTIONS OF INFORMATION PROCESSING—The student will be able to:

23.12 Choose appropriate storage of numeric values to insure precision needed for calculations (e.g., integer, fixed-point, floating-point).

24.0 IDENTIFY FUNCTIONS OF COMPUTERS—The student will be able to:

24.05 Identify the advantages and disadvantages of virtual memory.

25.0 TEST PROGRAMS—The student will be able to:

25.02 Develop a plan for system integration testing.

26.0 PLAN PROGRAM DESIGN—The student will be able to:

26.06 Plan interface for systems integration.

30.0 EVALUATE ASSIGNED BUSINESS COMPUTER PROGRAMMING TASKS—The student will be able to:

30.03 Analyze computer resources necessary to run a program.

34.0 DEVELOP AN AWARENESS OF SOFTWARE QUALITY ASSURANCE—The student will be able to:

34.02 Evaluate performance, functionality, and validity of various software packages.

35.0 IMPLEMENT ENHANCED PROGRAM STRUCTURES—The student will be able to:

35.07 Write programs to import/export data from external sources.

36.0 DEVELOP AN UNDERSTANDING OF PROGRAMMING TECHNIQUES AND CONCEPTS—The student will be able to:

36.03 Identify object-oriented concepts and provide examples of objects in an object-oriented language.

36.05 Describe development methodologies, programming and system languages, database technologies, and data communication.

Florida Department of Education  
STUDENT PERFORMANCE STANDARDS

**Secondary Course Number:** 8206040  
**Course Title:** Business Computer Programming 4  
**Course Credit:** 1

**COURSE DESCRIPTION:**

This course continues the study of computer programming concepts for business applications. The content includes client/server environments, interactive programming, and vendor application programming. After successful completion of Business Computer Programming 3 and 4, students will have met Occupational Completion Point - Data Code D, Junior Programmer - DOT Code 030.162-010.

**WORK-BASED LEARNING**

- 20.0 PARTICIPATE IN WORK-BASED LEARNING EXPERIENCES—The student will be able to:
- 20.25 Participate in work-based learning experiences in a computer programming environment.
  - 20.27 Compare and contrast programming languages used in a computer programming environment.
  - 20.28 Discuss the management/supervisory skills needed in a computer programming environment.

**BUSINESS COMPUTER PROGRAMMING**

- 23.0 IDENTIFY FUNCTIONS OF INFORMATION PROCESSING—The student will be able to:
- 23.11 Identify the advantages and disadvantages of blocking and buffering when accessing data on tape and disk storage.
- 27.0 CODE PROGRAMS—The student will be able to:
- 27.06 Access external files in a client/server environment.
- 28.0 PERFORM PROGRAM MAINTENANCE—The student will be able to:
- 28.06 Modify or create new programs for vendor supplied applications.
  - 28.07 Use a computer system with current commercial-end application software to solve problems within an organizational environment.
- 30.0 EVALUATE ASSIGNED BUSINESS COMPUTER PROGRAMMING TASKS—The student will be able to:
- 30.02 Utilize and apply project and time management tools to control systems development.
- 35.0 IMPLEMENT ENHANCED PROGRAM STRUCTURES—The student will be able to:
- 35.09 Write routines that incorporate "help" text.
  - 35.14 Write interactive programs.
  - 35.15 Design screen layouts for use in interactive programs.

**Florida Department of Education  
STUDENT PERFORMANCE STANDARDS**

**Secondary Course Number:** 8206050  
**Course Title:** Business Computer Programming 5  
**Course Credit:** 1

**COURSE DESCRIPTION:**

This course continues the study of computer programming concepts for business applications. The content includes client/server environments, interactive programming, and vendor application programming. After successful completion of Business Computer Programming 5 and 6, students will have met Occupational Completion Point - Data Code E, Computer Programming Specialist - Industry Title.

The competencies included in Business Programming 5 and 6 are designed to allow students to learn a second language. They build on the same tools as mastered in a previous language with increasing refinement of skill. Activities utilized must reflect increasingly greater complexity.

**BUSINESS COMPUTER PROGRAMMING**

25.0 TEST PROGRAMS—The student will be able to:

- 25.01 Develop a plan for testing programs.
- 25.02 Develop a plan for system integration testing.
- 25.03 Develop data for use in program testing.
- 25.04 Perform debugging activities.
- 25.05 Distinguish among the different types of program and design errors.
- 25.06 Evaluate program test results.
- 25.07 Execute programs and subroutines as they relate to the total application.
- 25.08 Use trace routines of compilers to assist in program debugging.
- 25.09 Compile and run programs.

26.0 PLAN PROGRAM DESIGN—The student will be able to:

- 26.01 Formulate a plan to determine program specifications individually or in groups.
- 26.02 Use a graphical representation or pseudocode to represent the structure in a program or subroutine.
- 26.03 Design programs to solve problems using problem-solving strategies.
- 26.04 Prepare proper input/output layout specifications.
- 26.05 Examine existing utility programs and subroutines for use with other programs.
- 26.07 Manually trace the execution of programs and verify that programs follow the logic of their design as documented.

27.0 CODE PROGRAMS—The student will be able to:

- 27.01 Utilize reference manuals.
- 27.02 Write programs according to recognized programming standards.
- 27.03 Write internal documentation statements as needed in the program source code.
- 27.04 Code programs in high-level languages for business applications.

- 27.05 Write code that accesses sequential, indexed sequential, random, and direct files.
  - 27.07 Code programs using logical statements (e.g., If-Then-Else, Do...While).
  - 27.08 Enter and modify source code using a program language editor.
  - 27.09 Code routines within programs that validate input data.
  - 27.10 Use the rounding function in calculations within programs.
- 28.0 PERFORM PROGRAM MAINTENANCE—The student will be able to:
- 28.01 Review requested modification of programs and establish a plan of action.
  - 28.02 Design needed modifications in conformance with established standards.
  - 28.03 Code, test, and debug modifications prior to updating production code.
  - 28.04 Update production programs and documentation with changes.
  - 28.05 Analyze output to identify and annotate errors or enhancements.
  - 28.06 Modify or create new programs for vendor supplied applications.
  - 28.07 Use a computer system with current commercial-end application software to solve problems within an organizational environment.
- 29.0 CREATE AND MAINTAIN DOCUMENTATION—The student will be able to:
- 29.01 Write documentation to assist operators and end-users.
  - 29.02 Follow established documentation standards.
  - 29.03 Update existing documentation to reflect program changes.
- 30.0 EVALUATE ASSIGNED BUSINESS COMPUTER PROGRAMMING TASKS—The student will be able to:
- 30.02 Utilize and apply project and time management tools to control systems development.
  - 30.03 Analyze computer resources necessary to run a program.
- 33.0 DEMONSTRATE AN UNDERSTANDING OF OPERATING SYSTEMS, ENVIRONMENTS, AND PLATFORMS—The student will be able to:
- 33.02 Assess and analyze the functions of different operating systems.
  - 33.04 Assess and analyze the program development and execution utilities of relevant operating systems.
- 34.0 DEVELOP AN AWARENESS OF SOFTWARE QUALITY ASSURANCE—The student will be able to:
- 34.02 Evaluate performance, functionality, and validity of various software packages.
- 35.0 IMPLEMENT ENHANCED PROGRAM STRUCTURES—The student will be able to:
- 35.01 Write programs that incorporate multi-level subtotals and page breaks.
  - 35.02 Write programs that include tables or arrays and routines for data entry and lookup.
  - 35.03 Write routines to sort arrays.
  - 35.04 Write programs that sort records in files.
  - 35.05 Write programs to create and maintain a master file.
  - 35.06 Write programs to process transactions.
  - 35.07 Write programs to import/export/convert data from external

sources.

- 35.08 Write programs that use iteration.
  - 35.09 Write routines that incorporate "help" text.
  - 35.10 Write programs that read and write sequential files.
  - 35.11 Write programs that read and write indexed-sequential files.
  - 35.12 Write programs that read and write random files.
  - 35.14 Write interactive programs.
  - 35.15 Design screen layouts for use in interactive programs.
  - 35.16 Write programs using object-oriented languages.
- 36.0 DEVELOP AN UNDERSTANDING OF PROGRAMMING TECHNIQUES AND CONCEPTS—The student will be able to:
- 36.05 Describe development methodologies, programming and system languages, database technologies, and data communication.

Florida Department of Education  
STUDENT PERFORMANCE STANDARDS

**Secondary Course Number:** 8206060  
**Course Title:** Business Computer Programming 6  
**Course Credit:** 1

**COURSE DESCRIPTION:**

This course continues the study of computer programming concepts for business applications. The content includes client/server environments, interactive programming, and vendor application programming. After successful completion of Business Computer Programming 5 and 6, students will have met Occupational Completion Point - Data Code E, Computer Programming Specialist - Industry Title.

The competencies included in Business Programming 5 and 6 are designed to allow students to learn a second language. They build on the same tools as mastered in a previous language with increasing refinement of skill. Activities utilized must reflect increasingly greater complexity.

**BUSINESS COMPUTER PROGRAMMING**

25.0 TEST PROGRAMS—The student will be able to:

- 25.01 Develop a plan for testing programs.
- 25.02 Develop a plan for system integration testing.
- 25.03 Develop data for use in program testing.
- 25.04 Perform debugging activities.
- 25.05 Distinguish among the different types of program and design errors.
- 25.06 Evaluate program test results.
- 25.07 Execute programs and subroutines as they relate to the total application.
- 25.08 Use trace routines of compilers to assist in program debugging.
- 25.09 Compile and run programs.

26.0 PLAN PROGRAM DESIGN—The student will be able to:

- 26.01 Formulate a plan to determine program specifications individually or in groups.
- 26.02 Use a graphical representation or pseudocode to represent the structure in a program or subroutine.
- 26.03 Design programs to solve problems using problem-solving strategies.
- 26.04 Prepare proper input/output layout specifications.
- 26.05 Examine existing utility programs and subroutines for use with other programs.
- 26.07 Manually trace the execution of programs and verify that programs follow the logic of their design as documented.

27.0 CODE PROGRAMS—The student will be able to:

- 27.01 Utilize reference manuals.
- 27.02 Write programs according to recognized programming standards.
- 27.03 Write internal documentation statements as needed in the program source code.

- 27.04 Code programs in high-level languages for business applications.
  - 27.05 Write code that accesses sequential, indexed sequential, random, and direct files.
  - 27.07 Code programs using logical statements (e.g., If-Then-Else, Do...While).
  - 27.08 Enter and modify source code using a program language editor.
  - 27.09 Code routines within programs that validate input data.
  - 27.10 Use the rounding function in calculations within programs.
- 28.0 PERFORM PROGRAM MAINTENANCE—The student will be able to:
- 28.01 Review requested modification of programs and establish a plan of action.
  - 28.02 Design needed modifications in conformance with established standards.
  - 28.03 Code, test, and debug modifications prior to updating production code.
  - 28.04 Update production programs and documentation with changes.
  - 28.05 Analyze output to identify and annotate errors or enhancements.
  - 28.06 Modify or create new programs for vendor supplied applications.
  - 28.07 Use a computer system with current commercial-end application software to solve problems within an organizational environment.
- 29.0 CREATE AND MAINTAIN DOCUMENTATION—The student will be able to:
- 29.01 Write documentation to assist operators and end-users.
  - 29.02 Follow established documentation standards.
  - 29.03 Update existing documentation to reflect program changes.
- 30.0 EVALUATE ASSIGNED BUSINESS COMPUTER PROGRAMMING TASKS—The student will be able to:
- 30.02 Utilize and apply project and time management tools to control systems development.
  - 30.03 Analyze computer resources necessary to run a program.
- 33.0 DEMONSTRATE AN UNDERSTANDING OF OPERATING SYSTEMS, ENVIRONMENTS, AND PLATFORMS—The student will be able to:
- 33.02 Assess and analyze the functions of different operating systems.
  - 33.04 Assess and analyze the program development and execution utilities of relevant operating systems.
- 34.0 DEVELOP AN AWARENESS OF SOFTWARE QUALITY ASSURANCE—The student will be able to:
- 34.02 Evaluate performance, functionality, and validity of various software packages.
- 35.0 IMPLEMENT ENHANCED PROGRAM STRUCTURES—The student will be able to:
- 35.01 Write programs that incorporate multi-level subtotals and page breaks.
  - 35.02 Write programs that include tables or arrays and routines for data entry and lookup.
  - 35.03 Write routines to sort arrays.
  - 35.04 Write programs that sort records in files.
  - 35.05 Write programs to create and maintain a master file.
  - 35.06 Write programs to process transactions.



- 35.07 Write programs to import/export/convert data from external sources.
- 35.08 Write programs that use iteration.
- 35.09 Write routines that incorporate "help" text.
- 35.10 Write programs that read and write sequential files.
- 35.11 Write programs that read and write indexed-sequential files.
- 35.12 Write programs that read and write random files.
- 35.14 Write interactive programs.
- 35.15 Design screen layouts for use in interactive programs.
- 35.16 Write programs using object-oriented languages.
- 36.0 DEVELOP AN UNDERSTANDING OF PROGRAMMING TECHNIQUES AND CONCEPTS—The student will be able to:
  - 36.05 Describe development methodologies, programming and system languages, database technologies, and data communication.