Florida Department of Education
CURRICULUM FRAMEWORK

Program Title: Consumer Electronic Product Servicing
Occupational Area: Industrial Education

	PSAV	Secondary
Program Numbers	**I470113**	**8730100**
CIP Number	0647.019900	0647.019900
Grade Level	30, 31	9-12, 30, 31
Length	1800 hours	12 credits
Certification	RADIO TV @7G	RADIO TV @7G
	ELECTRONIC @7G	ELECTRONIC @7G
	TEC ELEC @7G	TEC ELEC @7G

I.   **MAJOR CONCEPTS/CONTENT:** The purpose of this program is to prepare students for employment as home entertainment equipment repairers (85708616) or audio video repairers (729.281-010).

The course content includes, but is not limited to, AM/FM tuners; television; antenna, transmission line systems and studio systems; and television. The course content should also include training in communication, leadership, human relations and employability skills; and safe, efficient work practices.

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

II.   **STRUCTURE: This** program is a planned sequence of instruction consisting of one common core and eight occupational completion points. The recommended sequence allows students to complete specified portions of the program for employment or to remain for additional training. A student who completes the applicable competencies at any occupational completion point may either continue with the training program or terminate as an occupational completer.

It is recommended that students complete the core or demonstrate a mastery of the student performance standards contained in the core before advancing to the course(s) in the next level of the program.

After completing the core OCP A, Consumer Electronic Product Servicing students may opt to complete OCPs (occupational completion points) C, D as appropriate to the specialty area they choose OCP E, F, G, H, I.

III. **LABORATORY ACTIVITIES:** Shop or laboratory activities are an integral part of this program. These activities provide instruction in the use of tools, equipment, materials and processes found in the industry. Students will use various types of precision test equipment for analyzing, troubleshooting and repairing computer circuitry found in audio systems, tape recorders, tuners, televisions, video disc players, master antenna systems and electronic security systems

VI.   **SPECIAL NOTE: SkillsUSA**-VICA, Inc. is the appropriate Career and Technical Student Organization (CTSO) for providing leadership training

and for reinforcing specific career and technical skills. Career and Technical Student Organizations, when provided, shall be an integral part of the career and technical 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.

Algebra is recommended as a prerequisite for entry into this program.

In accordance with Rule 6A-10.040, FAC, the minimum basic-skills grade levels required for adult vocational students to complete this program are: Mathematics 10.0, Language 9.0, Reading 9.0. These grade-level numbers correspond to grade-equivalent scores obtained on one of the state-designated basic-skills examinations. If a student does not meet the basic-skills level required for completion of the program, remediation should be provided concurrently through Vocational Preparatory Instruction (VPI). Please refer to the Rule for exemptions.

When a secondary student with a disability is enrolled in a vocational class with modifications to the curriculum framework, the particular outcomes and student performance standards which, the student must master to earn credit must be specified on an individual basis. The job or jobs for which the student is being trained should be reflected in the student's desired postschool outcome statement on the Transition Individual Educational Plan (Transition IEP).

To be transferable statewide between institutions, this program/course 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.

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 for this program is 1800 hours.

Listed below are the courses that make up this program when offered at the secondary level.

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8730110 – Consumer Electronic Product Service 1 –(150
8730120 – Consumer Electronic Product Service 2 –(150)[250] OCP A
8730130 – Consumer Electronic Product Service 3 –(150)
8730140 – Consumer Electronic Product Service 4 –(150)
8730150 – Consumer Electronic Product Service 5 –(150)[400] OCP B
8730160 – Consumer Electronic Product Service 6 –(150)
8730170 – Consumer Electronic Product Service 7 –(150)[375] OCP C
8730180 – Consumer Electronic Product Service 8 –(150)
8730190 – Consumer Electronic Product Service 9 –(150)
8730191 – Consumer Electronic Product Service 10–(150)[375] OCP D
                                                    [100] OCP E
8730192 – Consumer Electronic Product Service 11–(150)[100] OCP F
                                                     [50] OCP G

8730193 – Consumer Electronic Product Service 12–(150) [50] OCP H
                                                      [100] OCP I
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THE FOLLOWING REPRESENTS THE RECOMMENDED STRUCTURE OF THE PROGRAM

. THE CORE SHOULD BE COMPLETED PRIOR TO OTHER OCPs.

OCP A
CORE
ELECTRONICS ASSEMBLER
(726.261-010)
250 HOURS

OCP B
ELECTRONICS TESTER
(INDUSTRY TITLE)
400 HOURS

OCP C
ELECTRONICS EQUIPMENT
REPAIRER (726.381-018)
375 HOURS

OCP E
RAIDO/TV SPECIALIST
(INDUSTRY TITLE)
100 HOURS

OCP D
ELECTRONICS TECHNICIAN
(726.261-018)
375 HOURS

OCP F
COMPUTER SPECIALIST
(INDUSTRY TITLE)
100 HOURS

OCP G
AUDIO SPECIALIST
(INDUSTRY TITLE)
50 HOURS

SELECTION OF ONE OR MORE

Speciality areas (E, F, G, H, I) after
OCP C orD

OCP H
TV SATALITE SPECIALIST
(INDUSTRY TITLE)
50 HOURS

OCP I
SECURITY SYSTEM SPECIALIST
(INDUSTRY TITLE)
100 HOURS

IV.   **INTENDED OUTCOMES:** After successfully completing the program, the student will be able to:

OCCUPATIONAL COMPLETION POINT - DATA CODE - A <u>CORE</u> (250 Hours)
ELECTRONICS ASSEMBLER 726.261-010

01.0   Demonstrate proficiency in soldering and basic laboratory practices.
02.0   Demonstrate proficiency in basic D.C. circuits.
03.0   Demonstrate employability skills.
04.0   Demonstrate an understanding of entrepreneurship.

OCCUPATIONAL COMPLETION POINT - DATA CODE - B (400 Hours)
ELECTRONICS TESTER - INDUSTRY TITLE

05.0   Demonstrate proficiency in knowledge of basic computer usage.
06.0   Demonstrate proficiency in advanced D.C. circuits.
07.0   Demonstrate proficiency in A.C. circuits.
08.0   Demonstrate proficiency in solid state devices.

OCCUPATIONAL COMPLETION POINT - DATA CODE - C (375 Hours)
ELECTRONICS EQUIPMENT REPAIRER 726.381-018

09.0   Demonstrate proficiency in digital circuits.
10.0   Demonstrate proficiency in fundamental microprocessors.

OCCUPATIONAL COMPLETION POINT - DATA CODE - D (375 Hours)
ELECTRONICS TECHNICIAN 726.261-018

11.0   Demonstrate proficiency in analog circuits.
12.0   Demonstrate skills in technical recording.
13.0   Demonstrate appropriate communications skills.
14.0   Demonstrate appropriate understanding of basic math skills.
15.0   Demonstrate an understanding of basic science skills.

OCCUPATIONAL COMPLETION POINT - DATA CODE - E (100 Hours)
RADIO/TV/VIDEO SPECIALIST

16.0   Demonstrate proficiency in surface mounted devices.
17.0   Demonstrate proficiency repairing radio and television receiving systems.
18.0   Demonstrate proficiency in video recording and playback systems.
19.0   Demonstrate proficiency in video-disc player systems.
20.0   Demonstrate appropriate math skills.
21.0   Demonstrate employability skills.

OCCUPATIONAL COMPLETION POINT - DATA CODE - F (100 Hours)
COMPUTER SPECIALIST

22.0   Demonstrate proficiency in personal computer systems and video games.
23.0   Demonstrate appropriate communication skills.
24.0   Demonstrate appropriate understanding of basic science.

OCCUPATIONAL COMPLETION POINT - DATA CODE - G (50 Hours)
AUDIO SPECIALIST

25.0   Demonstrate proficiency in advanced audio systems (analog and digital).

OCCUPATIONAL COMPLETION POINT - DATA CODE - H (50 Hours)
      TV SAT SPECIALIST

      26.0 Demonstrate proficiency in master antenna television systems
            (CATV/CCTV/MATV/SATV).

OCCUPATIONAL COMPLETION POINT - DATA CODE - I (100 Hours)
      SECURITY SYSTEM SPECIALIST

      27.0 Demonstrate proficiency in electronic security systems.

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Program Title: Consumer Electronic Product Servicing
Secondary Number:
Postsecondary Number: I470113

OCCUPATIONAL COMPLETION POINT - A
    ELECTRONICS ASSEMBLER 726.261-010

01.0 DEMONSTRATE PROFICIENCY IN SOLDERING AND BASIC LABORATORY PRACTICES--The
      student will be able to:

      01.01 Apply proper Occupational Safety Health Administration (OSHA)
            safety standards.
      01.02 Make electrical connections.
      01.03 Identify and use hand tools properly.
      01.04 Identify and use power tools properly.
      01.05 Demonstrate acceptable soldering techniques.
      01.06 Demonstrate acceptable desoldering techniques.
      01.07 Demonstrate electrostatic discharge (ESD) safety procedures.
      01.08 Describe the construction of printed circuit boards (PCB's).
      01.09 Explain the theoretical concepts of soldering.
      01.10 Demonstrate rework and repair techniques.

02.0 DEMONSTRATE PROFICIENCY IN BASIC DIRECT CURRENT (DC) CIRCUITS--The
      student will be able to:

      02.01 Demonstrate proficiency in basic D.C. circuits.
      02.02 Solve problems in electronic units utilizing metric prefixes.
      02.03 Identify sources of electricity.
      02.04 Define voltage, current, resistance, power and energy.
      02.05 Apply Ohm's law and power formulas.
      02.06 Read and interpret color codes and symbols to identify electrical
            components and values.
      02.07 Measure properties of a circuit using volt-ohm meter (VOM) and
            digital volt-ohm meter (DVM) and oscilloscopes.
      02.08 Compute conductance and compute and measure resistance of
            conductors and insulators.
      02.09 Apply Ohm's law to series circuits.
      02.10 Construct and verify operation of series circuits.
      02.11 Analyze and troubleshoot series circuits.
      02.12 Apply Ohm's law to parallel circuits.
      02.13 Construct and verify the operation of parallel circuits.
      02.14 Analyze and troubleshoot parallel circuits.

03.0 DEMONSTRATE EMPLOYABILITY SKILLS--The student will be able to:

      03.01 Conduct a job search.
      03.02 Secure information about a job.
      03.03 Identify documents that may be required when applying for a job.
      03.04 Complete a job application form correctly.
      03.05 Demonstrate competence in job interview techniques.
      03.06 Identify or demonstrate appropriate responses to criticism from
            employer, supervisor or other persons.
      03.07 Identify acceptable work habits.
      03.08 Demonstrate knowledge of how to make appropriate job changes.
      03.09 Demonstrate acceptable employee health habits.

03.10 Demonstrate knowledge of the "Florida Right-to-Know Law" as recorded in Florida Statutes Chapter 442.

04.0 DEMONSTRATE AN UNDERSTANDING OF ENTREPRENEURSHIP--The student will be able to:

04.01 Define entrepreneurship.
04.02 Describe the importance of entrepreneurship to the American economy.
04.03 List the advantages and disadvantages of business ownership.
04.04 Identify the risks involved in ownership of a business.
04.05 Identify the necessary personal characteristics of a successful entrepreneur.
04.06 Identify the business skills needed to operate a small business efficiently and effectively.

OCCUPATIONAL COMPLETION POINT - B
ELECTRONICS TESTER 726.266-018

05.0 DEMONSTRATE PROFICIENCY IN KNOWLEDGE OF BASIC COMPUTER USAGE--The student will be able to:

05.01 Demonstrate the use of a microcomputer operating system.
05.02 Demonstrate the use of a high-level computer language.
05.03 Demonstrate the use of microcomputer application programs (i.e., word processing, database and spreadsheet).

06.0 DEMONSTRATE PROFICIENCY IN ADVANCED D.C. CIRCUITS--The student will be able to:

06.01 Solve algebraic problems to include exponentials to DC.
06.02 Relate electricity to the nature of matter.
06.03 Apply Ohm's law to series-parallel and parallel-series circuits.
06.04 Construct and verify the operation of series-parallel and parallel-series and bridge circuits.
06.05 Troubleshoot series-parallel and parallel-series and bridge circuits.
06.06 Identify and define voltage divider circuits (loaded and unloaded).
06.07 Construct and verify the operation of voltage divider circuits (loaded and unloaded).
06.08 Analyze and troubleshoot voltage divider circuits (loaded and unloaded).
06.09 Apply maximum power transfer theorem.
06.10 Construct and verify the operation of DC circuits that demonstrate the maximum power transfer theory.
06.11 Describe magnetic properties of circuits and devices.
06.12 Determine the physical and electrical characteristics of capacitors and inductors.
06.13 Define resistor-capacitor (R-C) and resistor-inductor (R-L) time constants and classify the output of differentiators and integrators.
06.14 Set up and operate power supplies for DC circuits.

07.0 DEMONSTRATE PROFICIENCY IN A.C. CIRCUITS--The student will be able to:

07.01 Solve basic trigonometric problem as applicable to electronics.
07.02 Define the characteristics of AC capacitive circuits.
07.03 Construct and verify the operation of AC capacitive circuits.

07.04 Analyze and troubleshoot AC capacitive circuits.
07.05 Define the characteristics of AC inductive circuits.
07.06 Construct and verify the operation of AC inductive circuits.
07.07 Analyze and troubleshoot AC inductive circuits.
07.08 Define and apply the principles of transformers to AC circuits.
07.09 Construct and verify the operation of AC circuits utilizing transformers.
07.10 Analyze and troubleshoot AC circuits utilizing transformers.
07.11 Construct and verify the operation of differentiators and integrators to determine R-C and R-L time constraints.
07.12 Analyze and troubleshoot differentiator and integrator circuits.
07.13 Define the characteristics of resistive, Inductive, and Capacitive (RLC) circuits (series, parallel and complex).
07.14 Construct and verify the operation of series and parallel resonant circuits.
07.15 Define the characteristics of series and parallel resonant circuits.
07.16 Construct and verify the operation of series and parallel resonant circuits.
07.17 Analyze and troubleshoot R-C, R-L, and RLC circuits.
07.18 Define the characteristics of frequency selective filter circuits.
07.19 Construct and verify the operation of frequency selective filter circuits.
07.20 Analyze and troubleshoot frequency selective filter circuits.
07.21 Define the characteristics of polyphase circuits.
07.23 Define basic motor theory and operation.
07.24 Define basic generator theory and operation.
07.25 Set up and operate power supplies for AC circuits.
07.26 Analyze and measure power in AC circuits.
07.27 Set up and operate capacitor and inductor analyzers for AC circuits.

08.0 <u>DEMONSTRATE PROFICIENCY IN SOLID STATE DEVICES</u>--The student will be able to:

08.01 Identify and define properties of semiconductor materials.
08.02 Identify and define operating characteristics and applications of junction diodes.
08.03 Identify and define operating characteristics and applications of special diodes.
08.04 Construct diode circuits.
08.05 Analyze and troubleshoot diode circuits.
08.06 Identify and define operating characteristics and applications of bipolar transistors,
08.07 Identify and define operating characteristics and applications of field effect transistors.
08.08 Identify and define operating characteristics and applications of single-stage amplifiers.
08.09 Construct single-stage amplifiers.
08.10 Analyze and troubleshoot single-stage amplifiers.
08.11 Construct thyristor circuitry.
08.12 Analyze and troubleshoot thyristor circuitry.
08.13 Set up and operate VOM for solid-state devices.
08.14 Set up and operate DVM for solid-state devices.
08.15 Set up and operate power supplies for solid-state devices.
08.16 Set up and operate oscilloscopes for solid-state devices.
08.17 Set up and operate function generators for solid-state devices.
08.18 Set up and operate capacitor and inductor analyzers for solid-state devices.
08.19 Set up and operate curve tracers.

08.20 Set up and operate transistor testers.

OCCUPATIONAL COMPLETION POINT - C
       ELECTRONIC EQUIPMENT REPAIRER 726.381-018

09.0 DEMONSTRATE PROFICIENCY IN DIGITAL CIRCUITS--The student will be able
      to:

      09.01 Define and apply numbering systems to codes and arithmetic
            operations.
      09.02 Analyze and minimize logic circuits using Boolean operations.
      09.03 Set up and operate logic probes for digital circuits.
      09.04 Set up and operate power supplies for digital circuits and solve
            power distribution and noise problems.
      09.05 Set up and operate pulsers for digital circuits.
      09.06 Set up and operate oscilloscopes for digital circuits.
      09.07 Set up and operate logic analyzers for digital circuits.
      09.08 Set up and operate pulse generators for digital circuits.
      09.09 Identify types of logic gates and their truth tables.
      09.10 Construct combinational logic circuits using integrated circuits.
      09.11 Troubleshoot logic circuits.
      09.12 Analyze types of flip-flops and their truth tables.
      09.13 Construct flip-flops using integrated circuits.
      09.14 Troubleshoot flip-flops.
      09.15 Identify, define and measure characteristics of integrated circuit
            (IC) logic families.
      09.16 Identify types of registers and counters.
      09.17 Construct registers and counters using flip-flops and logic gates.
      09.18 Troubleshoot registers and counters.
      09.19 Analyze clock and timing circuits.
      09.20 Construct clock and timing circuits.
      09.21 Troubleshoot clock and timing circuits.
      09.22 Identify types of arithmetic-logic circuits.
      09.23 Construct arithmetic-logic circuits.
      09.24 Troubleshoot arithmetic-logic circuits.
      09.25 Identify types of encoding and decoding devices.
      09.26 Construct encoders and decoders.
      09.27 Troubleshoot encoders and decoders.
      09.28 Identify types of multiplexer and demultiplexer circuits.
      09.29 Construct multiplexer and demultiplexer circuits using integrated
            circuits.
      09.30 Troubleshoot multiplexer and demultiplexer circuits.
      09.31 Identify types of memory circuits.
      09.32 Relate the uses of digital-to-analog and analog-to-digital
            conversions.
      09.33 Construct digital-to-analog and analog-to-digital circuits.
      09.34 Troubleshoot digital-to-analog and analog-to-digital circuits.
      09.35 Identify types of digital displays.
      09.36 Construct digital display circuits.
      09.37 Troubleshoot digital display circuits.

10.0 DEMONSTRATE PROFICIENCY IN FUNDAMENTAL MICRO PROCESSORS--The student
      will be able to:

      10.01 Identify central processing unit (CPU) building blocks and their
            uses (architecture).
      10.02 Analyze bus concepts.
      10.03 Analyze various memory schemes.
      10.04 Use memory devices in circuits.
      10.05 Troubleshoot memory device circuits.
      10.06 Set up and operate oscilloscopes for microprocessor systems.

10.07 Set up and operate logic-data analyzers to troubleshoot
microprocessor systems.
10.08 Identify types of input and output devices and peripherals.
10.09 Interface input and output ports to peripherals.
10.10 Analyze and troubleshoot input and output ports.
10.11 Write a macro processor program in assembly language.
10.12 Write a macro processor program in machine language.
10.13 Execute microprocessor instruction sets.

OCCUPATIONAL COMPLETION POINT - D
ELECTRONICS TECHNICIAN

11.0 <u>DEMONSTRATE PROFICIENCY IN ANALOG CIRCUITS</u>--The student will be able to:

11.01 Identify and define operational characteristics and applications
of multistage amplifiers.
11.02 Construct multistage amplifiers.
11.03 Analyze and troubleshoot multistage amplifiers.
11.04 Identify and define operating characteristics and applications of
linear integrated circuits.
11.05 Identify and define operating characteristics and applications of
basic power supplies and filters.
11.06 Construct basic power supplies and filters.
11.07 Identify and define operating characteristics and applications of
differential and operational amplifiers.
11.08 Construct differential and operational amplifier circuits.
11.09 Analyze and troubleshoot differential and operational amplifier
circuits.
11.10 Identify and define operating characteristics of audio power
amplifiers.
11.11 Construct audio power amplifiers.
11.12 Construct audio power amplifiers.
11.13 Analyze and troubleshoot audio power amplifiers.
11.14 Identify and define operating characteristics and applications of
power supply regulator circuits.
11.15 Construct power supply regulator circuits.
11.16 Analyze and troubleshoot power supply regulator circuits.
11.17 Identify and define operating characteristics and applications of
active filters.
11.18 Construct active filter circuits.
11.19 Analyze and troubleshoot active filter circuits.
11.20 Identify and define operating characteristics and applications of
sinusoidal and nonsinusoidal oscillator circuits.
11.21 Construct oscillator circuits.
11.22 Analyze and troubleshoot oscillator circuits.
11.23 Identify and define operating characteristics and applications of
cathode ray tubes.
11.24 Identify and define operating characteristics and applications of
opto-electronic devices.
11.25 Set up and operate measuring instruments for analog circuits.

12.0 <u>DEMONSTRATE SKILLS IN TECHNICAL RECORDING</u>--The student will be able to:

12.01 Draw and interpret electronic schematics.
12.02 Record data and design curves and graphs.
12.03 Write reports and make oral presentations.
12.04 Maintain test logs.
12.05 Make equipment failure reports.
12.06 Specify and requisition simple electronic components.

12.07 Compose technical letters and memoranda.
12.08 Write formal reports of laboratory experiences.
12.09 Draft preventive maintenance and calibration procedures.

13.0   DEMONSTRATE APPROPRIATE COMMUNICATION SKILLS--The student will be able to:

13.01 Write logical and understandable statements, or phrases, to accurately fill out forms/invoices commonly used in business and industry.
13.02 Read and understand graphs, charts, diagrams, and tables commonly used in this industry/occupation area.
13.03 Read and follow written instructions.
13.04 Answer and ask questions coherently and concisely.
13.05 Read critically by recognizing assumptions and implications and by evaluating ideas.
13.06 Demonstrate appropriate telephone/communication skills.

14.0   DEMONSTRATE APPROPRIATE UNDERSTANDING OF BASIC MATH SKILLS--The student will be able to:

14.01 Solve problems for volume, weight, area, circumference and perimeter measurements for rectangles, squares and cylinders.
14.02 Measure tolerance(s) on horizontal and vertical surfaces using millimeters, centimeters, feet, and inches.
14.03 Add, subtract, multiply and divide using fractions, decimals, and whole numbers.
14.04 Determine the correct purchase price, to include sales tax for a materials list containing a minimum of six items.
14.05 Demonstrate and understanding of federal, state, and local taxes and their computation.

15.0   DEMONSTRATE AN UNDERSTANDING OF BASIC SCIENCE SKILLS--The student will be able to:

15.01 Understand molecular action as a result of temperature extremes, chemical reaction, and moisture content.
15.02 Draw conclusions or make inferences from data.
15.03 Identify health-related problems, which may result from exposure to work related chemicals and hazardous materials, and know the proper precautions required for handling such materials.
15.04 Understand pressure measurement in terms of P.S.I., inches of mercury, and K.P.A.

OCCUPATIONAL COMPLETION POINT - DATA CODE - E (100 Hours)
    RADIO/TV/VIDEO SPECIALIST

16.0   DEMONSTRATE PROFICIENCY IN SURFACE MOUNTED DEVICES (SMD)--The student will be able to:

16.01 Identify types of surface mounted devices (SMD's) for DC, AC and solid-state circuits.
16.02 Identify defective SMD's using appropriate troubleshooting techniques.
16.03 Remove and replace SMD's using specialized soldering and desoldering techniques.
16.04 Properly handle static sensitive devices.

17.0 <u>DEMONSTRATE PROFICIENCY IN RADIO AND TELEVISION RECEIVING SYSTEMS</u>--The student will be able to:

17.01 Read and interpret radio and television receiving system block and circuit diagrams.

17.02 Determine the operational status of radio and television receiving systems.

17.03 Troubleshoot radio and television receiving systems.

17.04 Remove and replace radio and television receiving system components.

17.05 Perform operating systems check and make minor adjustments to radio and television receiving systems.

17.06 Set up and operate video analyzers.

17.07 Set up and operate National Television Signal Codes (NTSC) generators.

17.08 Set up and operate cathode ray tube (CRT) analyzers.

17.09 Set up and operate stereo generators.

18.0 <u>DEMONSTRATE PROFICIENCY IN VIDEO RECORDING AND PLAYBACK SYSTEMS (ANALOG AND DIGITAL)</u>--The student will be able to:

18.01 Read and interpret video recording system block and circuit diagrams.
18.02 Determine the operational status of video recording systems (mechanical and electronic).
18.03 Troubleshoot video recording systems.
18.04 Remove and replace video recording system components.
18.05 Perform operating systems check and make minor adjustments to video recording systems.
18.06 Set up and operate BETA test equipment.
18.07 Set up and operate VHS test equipment.
18.08 Set up and operate vectorscopes.

19.0 <u>DEMONSTRATE PROFICIENCY IN VIDEO DISC PLAYER SYSTEMS</u>--The student will be able to:

19.01 Read and interpret video disc player system block and circuit diagrams.
19.02 Determine the operational status of video disc player systems.
19.03 Troubleshoot video disc player systems.
19.04 Remove and replace video disc player system components.
19.05 Perform operating systems checks and make minor adjustments to video disc player systems.

20.0 <u>DEMONSTRATE APPROPRIATE MATH SKILLS</u>--The student will be able to:

20.01 Solve problems for volume, weight, area, circumference and perimeter measurements for rectangles, squares, and cylinders.
20.02 Measure tolerance(s) on horizontal and vertical surfaces using millimeters, centimeters, feet and inches.
20.03 Add, subtract, multiply and divide using fractions, decimals, and whole numbers.
20.04 Determine the correct purchase price, to include sales tax for a materials list containing a minimum of six items.
20.05 Demonstrate an understanding of federal, state and local taxes and their computation.

21.0 <u>DEMONSTRATE EMPLOYABILITY SKILLS</u>--The student will be able to:

21.01 Conduct a job search.
21.02 Secure information about a job.
21.03 Identify documents, which may be required when applying for a job interview.
21.04 Complete a job application for correctly.
21.05 Demonstrate competence in job interview techniques.
21.06 Identify or demonstrate appropriate responses to criticism from employer, supervisor or other employees.
21.07 Identify acceptable work habits.
21.08 Demonstrate knowledge or how to make appropriate job changes.
21.09 Demonstrate acceptable employee health habits.
21.10 Demonstrate knowledge of the "Florida Right-To-Know Law" as recorded in Florida Statutes Chapter 442.

OCCUPATIONAL COMPLETION POINT - DATA CODE - F (100 Hours)
        COMPUTER SPECIALIST

22.0   DEMONSTRATE PROFICIENCY IN PERSONAL COMPUTER SYSTEMS AND VIDEO GAMES--
       The student will be able to:

       22.01 Read and interpret computer system and video game block and
             circuit diagrams.
       22.02 Determine the operational status of personal computer systems and
             video games.
       22.03 Troubleshoot personal computer systems and video games.
       22.04 Remove and replace personal computer systems and video game
             components.
       22.05 Perform operating systems check and make minor adjustments to
             personal computer systems and video games.
       22.06 Set up and operate logic analyzers for personal computer systems.

23.0   DEMONSTRATE APPROPRIATE COMMUNICATION SKILLS--The student will be able
       to:

       23.01 Write logical and understandable statements, or phrases, to
             accurately fill out forms/invoices commonly used in business and
             industry.
       23.02 Read and understand graphs, charts, diagrams, and tables commonly
             used in this industry/occupation area.
       23.03 Read and follow written and oral instructions.
       23.04 Answer and ask questions coherently and concisely.
       23.05 Read critically by recognizing assumptions and implications and by
             evaluating ideas.
       23.06 Demonstrate appropriate telephone/communication skills.

24.0   DEMONSTRATE APPROPRIATE UNDERSTANDING OF BASIC SCIENCE--The student will
       be able to:

       24.01 Understand molecular action as a result of temperature extremes,
             chemical reaction, and moisture content.
       24.02 Draw conclusions or make inferences from data.
       24.03 Identify health-related problems, which may result from exposure
             to work related chemicals and hazardous materials, and know the
             proper precautions required for handling such materials.
       24.04 Understand pressure measurement in terms of P.S.I., inches of
             mercury, and K.P.A.

OCCUPATIONAL COMPLETION POINT - DATA CODE - G (50 Hours)
        AUDIO SPECIALIST

25.0   DEMONSTRATE PROFICIENCY IN ADVANCED AUDIO SYSTEMS (ANALOG AND DIGITAL)--
       The student will be able to:

       25.01 Read and interpret advanced audio systems block and circuit
             diagrams.
       25.02 Determine the operational status of advanced audio systems.
       25.03 Troubleshoot advanced audio systems.
       25.04 Remove and replace advanced audio system components.
       25.05 Perform operating systems check and make minor adjustments to
             advanced audio systems.

OCCUPATIONAL COMPLETION POINT - DATA CODE - H (50 Hours)
        TV SAT SPECIALIST

26.0   DEMONSTRATE PROFICIENCY IN MASTER ANTENNA TELEVISION SYSTEMS
        (CATV/CCTV/MATV/SATV)--The student will be able to:

        26.01 Design master antenna television receiving systems.
        26.02 Determine material requirements for master antenna television
              receiving systems.
        26.03 Prepare bills of material for master antenna television receiving
              systems.
        26.04 Lay out and install master antenna television receiving systems.
        26.05 Set up and operate field strength meters.
        26.06 Determine the operational status of master antenna television
              receiving systems.
        26.07 Troubleshoot master antenna television receiving systems.
        26.08 Remove and replace master antenna television receiving system
              components.
        26.09 Perform operating systems check and make minor adjustments to
              master antenna television receiving systems.

OCCUPATIONAL COMPLETION POINT - DATA CODE - I (100 Hours)
        SECURITY SYSTEM SPECIALIST

27.0   DEMONSTRATE PROFICIENCY IN ELECTRONIC SECURITY SYSTEMS--The student will
        be able to:

        27.01 Lay out and install electronic security systems.
        27.02 Determine the operating status of electronic security systems.
        27.03 Troubleshoot electronic security systems.
        27.04 Remove and replace electronic security system components.
        27.05 Perform operating systems check and make minor adjustments to
              electronic security systems.

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Course Number: 8730110
Course Title: Consumer Electronic Product Service 1
Course Credit: 1

COURSE DESCRIPTION:

This course is designed to provide instruction in laboratory practices and employability skills.

OCCUPATIONAL COMPLETION POINT - A
      ELECTRONICS ASSEMBLER 726.261-010

01.0   DEMONSTRATE PROFICIENCY IN SOLDERING AND BASIC LABORATORY PRACTICES--The student will be able to:

      01.01 Apply proper Occupational Safety Health Administration (OSHA) safety standards.
      01.02 Make electrical connections.
      01.03 Identify and use hand tools properly.
      01.04 Identify and use power tools properly.
      01.05 Demonstrate acceptable soldering techniques.
      01.06 Demonstrate acceptable desoldering techniques.
      01.07 Demonstrate electrostatic discharge (ESD) safety procedures.
      01.08 Describe the construction of printed circuit boards (PCB's).
      01.09 Explain the theoretical concepts of soldering.
      01.10 Demonstrate rework and repair techniques.

03.0   DEMONSTRATE EMPLOYABILITY SKILLS--The student will be able to:

      03.01 Conduct a job search.
      03.02 Secure information about a job.
      03.03 Identify documents that may be required when applying for a job.
      03.04 Complete a job application form correctly.
      03.05 Demonstrate competence in job interview techniques.
      03.06 Identify or demonstrate appropriate responses to criticism from employer, supervisor or other persons.
      03.07 Identify acceptable work habits.
      03.08 Demonstrate knowledge of how to make appropriate job changes.
      03.09 Demonstrate acceptable employee health habits.
      03.10 Demonstrate knowledge of the "Florida Right-to-Know Law" as recorded in Florida Statutes Chapter 442.

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Course Number: 8730120
Course Title: Consumer Electronic Product Service 2
Course Credit: 1

COURSE DESCRIPTION:

This course is designed to provide instruction in DC circuits and entrepreneurship.

02.0   DEMONSTRATE PROFICIENCY IN BASIC DIRECT CURRENT (DC) CIRCUITS--The student will be able to:

02.01 Demonstrate proficiency in basic D.C. circuits.
02.02 Solve problems in electronic units utilizing metric prefixes.
02.03 Identify sources of electricity.
02.04 Define voltage, current, resistance, power and energy.
02.05 Apply Ohm's law and power formulas.
02.06 Read and interpret color codes and symbols to identify electrical components and values.
02.07 Measure properties of a circuit using volt-ohm meter (VOM) and digital volt-ohm meter (DVM) and oscilloscopes.
02.08 Compute conductance and compute and measure resistance of conductors and insulators.
02.09 Apply Ohm's law to series circuits.
02.10 Construct and verify operation of series circuits.
02.11 Analyze and troubleshoot series circuits.
02.12 Apply Ohm's law to parallel circuits.
02.13 Construct and verify the operation of parallel circuits.
02.14 Analyze and troubleshoot parallel circuits.

04.0   DEMONSTRATE AN UNDERSTANDING OF ENTREPRENEURSHIP--The student will be able to:

04.01 Define entrepreneurship.
04.02 Describe the importance of entrepreneurship to the American economy.
04.03 List the advantages and disadvantages of business ownership.
04.04 Identify the risks involved in ownership of a business.
04.05 Identify the necessary personal characteristics of a successful entrepreneur.
04.06 Identify the business skills needed to operate a small business efficiently and effectively

OCCUPATIONAL COMPLETION POINT - B
     ELECTRONICS TESTER 726.266-018

05.0   DEMONSTRATE PROFICIENCY IN KNOWLEDGE OF BASIC COMPUTER USAGE--The student will be able to:

05.01 Demonstrate the use of a microcomputer operating system.
05.02 Demonstrate the use of a high-level computer language.

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Course Number: 8730130
Course Title: Consumer Electronic Product Service 3
Course Credit: 1

COURSE DESCRIPTION:

This course is designed to provide instruction in basic computer usage and advanced DC circuits.

05.0 <u>DEMONSTRATE PROFICIENCY IN KNOWLEDGE OF BASIC COMPUTER USAGE</u>--The student will be able to:

06.03 Demonstrate the use of microcomputer application programs (i.e., word processing, database and spreadsheet).

06.0 <u>DEMONSTRATE PROFICIENCY IN ADVANCED D.C. CIRCUITS</u>--The student will be able to:

06.01 Solve algebraic problems to include exponentials to DC.
06.02 Relate electricity to the nature of matter.
06.03 Apply Ohm's law to series-parallel and parallel-series circuits.
06.04 Construct and verify the operation of series-parallel and parallel-series and bridge circuits.
06.05 Troubleshoot series-parallel and parallel-series and bridge circuits.
06.06 Identify and define voltage divider circuits (loaded and unloaded).
06.07 Construct and verify the operation of voltage divider circuits (loaded and unloaded).
06.08 Analyze and troubleshoot voltage divider circuits (loaded and unloaded).
06.09 Apply maximum power transfer theorem.
06.10 Construct and verify the operation of DC circuits that demonstrate the maximum power transfer theory.
06.11 Describe magnetic properties of circuits and devices.
06.12 Determine the physical and electrical characteristics of capacitors and inductors.
06.13 Define resistor-capacitor (R-C) and resistor-inductor (R-L) time constants and classify the output of differentiators and integrators.
06.14 Set up and operate power supplies for DC circuits.

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Course Number: 8730140
Course Title: Consumer Electronic Product Service 4
Course Credit: 1

COURSE DESCRIPTION:

This course is designed to provide instruction in AC circuits.

07.0   DEMONSTRATE PROFICIENCY IN A.C. CIRCUITS--The student will be able to:

  07.01 Solve basic trigonometric problem as applicable to electronics.
  07.02 Define the characteristics of AC capacitive circuits.
  07.03 Construct and verify the operation of AC capacitive circuits.
  07.04 Analyze and troubleshoot AC capacitive circuits.
  07.05 Define the characteristics of AC inductive circuits.
  07.06 Construct and verify the operation of AC inductive circuits.
  07.07 Analyze and troubleshoot AC inductive circuits.
  07.08 Define and apply the principles of transformers to AC circuits.
  07.09 Construct and verify the operation of AC circuits utilizing
          transformers.
  07.10 Analyze and troubleshoot AC circuits utilizing transformers.
  07.11 Construct and verify the operation of differentiators and
          integrators to determine R-C and R-L time constraints.
  07.12 Analyze and troubleshoot differentiator and integrator circuits.
  07.13 Define the characteristics of resistive, Inductive, and Capacitive
          (RLC) circuits (series, parallel and complex).
  07.14 Construct and verify the operation of series and parallel resonant
          circuits.
  07.15 Define the characteristics of series and parallel resonant
          circuits.
  07.16 Construct and verify the operation of series and parallel resonant
          circuits.
  07.17 Analyze and troubleshoot R-C, R-L, and RLC circuits.
  07.18 Define the characteristics of frequency selective filter circuits.
  07.19 Construct and verify the operation of frequency selective filter
          circuits.
  07.20 Analyze and troubleshoot frequency selective filter circuits.
  07.21 Define the characteristics of polyphase circuits.
  07.23 Define basic motor theory and operation.
  07.24 Define basic generator theory and operation.
  07.25 Set up and operate power supplies for AC circuits.
  07.26 Analyze and measure power in AC circuits.
  07.27 Set up and operate capacitor and inductor analyzers for AC
          circuits.

08.0   DEMONSTRATE PROFICIENCY IN SOLID STATE DEVICES--The student will be able
       to:

  08.01 Identify and define properties of semiconductor materials.
  08.02 Identify and define operating characteristics and applications of
          junction diodes.
  08.03 Identify and define operating characteristics and applications of
          special diodes.
  08.04 Construct diode circuits.
  08.05 Analyze and troubleshoot diode circuits.

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Course Number: 8730150
Course Title: Consumer Electronic Product Service 5
Course Credit: 1

COURSE DESCRIPTION:

This course is designed to provide instruction in solid state devices

08.0 <u>DEMONSTRATE PROFICIENCY IN SOLID STATE DEVICES</u>--The student will be able to:

08.06 Identify and define operating characteristics and applications of bipolar transistors,
08.07 Identify and define operating characteristics and applications of field effect transistors.
08.08 Identify and define operating characteristics and applications of single-stage amplifiers.
08.09 Construct single-stage amplifiers.
08.10 Analyze and troubleshoot single-stage amplifiers.
08.11 Construct thyristor circuitry.
08.12 Analyze and troubleshoot thyristor circuitry.
08.13 Set up and operate VOM for solid-state devices.
08.14 Set up and operate DVM for solid-state devices.
08.15 Set up and operate power supplies for solid-state devices.
08.16 Set up and operate oscilloscopes for solid-state devices.
08.17 Set up and operate function generators for solid-state devices.
08.18 Set up and operate capacitor and inductor analyzers for solid-state devices.
08.19 Set up and operate curve tracers.
08.20 Set up and operate transistor testers.

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Course Number: 8730160
Course Title: Consumer Electronic Product Service 6
Course Credit: 1

COURSE DESCRIPTION:

This course is designed to provide instruction in digital circuits.

OCCUPATIONAL COMPLETION POINT - C
     ELECTRONIC EQUIPMENT REPAIRER 726.381-018

09.0 <u>DEMONSTRATE PROFICIENCY IN DIGITAL CIRCUITS</u>--The student will be able to:

     09.01 Define and apply numbering systems to codes and arithmetic operations.
     09.02 Analyze and minimize logic circuits using Boolean operations.
     09.03 Set up and operate logic probes for digital circuits.
     09.04 Set up and operate power supplies for digital circuits and solve power distribution and noise problems.
     09.05 Set up and operate pulsers for digital circuits.
     09.06 Set up and operate oscilloscopes for digital circuits.
     09.07 Set up and operate logic analyzers for digital circuits.
     09.08 Set up and operate pulse generators for digital circuits.
     09.09 Identify types of logic gates and their truth tables.
     09.10 Construct combinational logic circuits using integrated circuits.
     09.11 Troubleshoot logic circuits.
     09.12 Analyze types of flip-flops and their truth tables.
     09.13 Construct flip-flops using integrated circuits.
     09.14 Troubleshoot flip-flops.
     09.15 Identify, define and measure characteristics of integrated circuit (IC) logic families.
     09.16 Identify types of registers and counters.
     09.17 Construct registers and counters using flip-flops and logic gates.
     09.18 Troubleshoot registers and counters.
     09.19 Analyze clock and timing circuits.
     09.20 Construct clock and timing circuits.
     09.21 Troubleshoot clock and timing circuits.
     09.22 Identify types of arithmetic-logic circuits.
     09.23 Construct arithmetic-logic circuits.
     09.24 Troubleshoot arithmetic-logic circuits.
     09.25 Identify types of encoding and decoding devices.
     09.26 Construct encoders and decoders.
     09.27 Troubleshoot encoders and decoders.
     09.28 Identify types of multiplexer and demultiplexer circuits.
     09.29 Construct multiplexer and demultiplexer circuits using integrated circuits.
     09.30 Troubleshoot multiplexer and demultiplexer circuits.
     09.31 Identify types of memory circuits.
     09.32 Relate the uses of digital-to-analog and analog-to-digital conversions.
     09.33 Construct digital-to-analog and analog-to-digital circuits.
     09.34 Troubleshoot digital-to-analog and analog-to-digital circuits.
     09.35 Identify types of digital displays.
     09.36 Construct digital display circuits.

09.37 Troubleshoot digital display circuits.

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Course Number: 8730170
Course Title: Consumer Electronic Product Service 7
Course Credit: 1

COURSE DESCRIPTION:
This course is designed to provide instruction in fundamental micro processors.

10.0 DEMONSTRATE PROFICIENCY IN FUNDAMENTAL MICROPROCESSORS--The student will be able to:

   10.01 Identify central processing unit (CPU) building blocks and their uses (architecture).
   10.02 Analyze bus concepts.
   10.03 Analyze various memory schemes.
   10.04 Use memory devices in circuits.
   10.05 Troubleshoot memory device circuits.
   10.06 Set up and operate oscilloscopes for microprocessor systems.
   10.07 Set up and operate logic-data analyzers to troubleshoot microprocessor systems.
   10.08 Identify types of input and output devices and peripherals.
   10.09 Interface input and output ports to peripherals.
   10.10 Analyze and troubleshoot input and output ports.
   10.11 Write a macro processor program in assembly language.
   10.12 Write a macro processor program in machine language.
   10.13 Execute microprocessor instruction sets.

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Course Number: 8730180
Course Title: Consumer Electronic Product Service 8
Course Credit: 1

COURSE DESCRIPTION:

This course is designed to provide instruction in analog circuits.

11.0 DEMONSTRATE PROFICIENCY IN ANALOG CIRCUITS--The student will be able to:

11.01 Identify and define operational characteristics and applications of multistage amplifiers.
11.02 Construct multistage amplifiers.
11.03 Analyze and troubleshoot multistage amplifiers.
11.04 Identify and define operating characteristics and applications of linear integrated circuits.
11.05 Identify and define operating characteristics and applications of basic power supplies and filters.
11.06 Construct basic power supplies and filters.

12.0 DEMONSTRATE SKILLS IN TECHNICAL RECORDING--The student will be able to:

12.01 Draw and interpret electronic schematics.
12.02 Record data and design curves and graphs.
12.03 Write reports and make oral presentations.
12.04 Maintain test logs.
12.05 Make equipment failure reports.
12.06 Specify and requisition simple electronic components.
12.07 Compose technical letters and memoranda.
12.08 Write formal reports of laboratory experiences.
12.09 Draft preventive maintenance and calibration procedures.

14.0 DEMONSTRATE APPROPRIATE UNDERSTANDING OF BASIC MATH SKILLS--The student will be able to:

14.01 Solve problems for volume, weight, area, circumference and perimeter measurements for rectangles, squares and cylinders.
14.02 Measure tolerance(s) on horizontal and vertical surfaces using millimeters, centimeters, feet, and inches.
14.03 Add, subtract, multiply and divide using fractions, decimals, and whole numbers.
14.04 Determine the correct purchase price, to include sales tax for a materials list containing a minimum of six items.
14.05 Demonstrate and understanding of federal, state, and local taxes and their computation.

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Course Number: 8730190
Course Title: Consumer Electronic Product Service 9
Course Credit: 1

COURSE DESCRIPTION:

This course is designed to provide instruction in analog circuits.

11.0   DEMONSTRATE PROFICIENCY IN ANALOG CIRCUITS--The student will be able to:

        11.07 Identify and define operating characteristics and applications of
              differential and operational amplifiers.
        11.08 Construct differential and operational amplifier circuits.
        11.09 Analyze and troubleshoot differential and operational amplifier
              circuits.
        11.10 Identify and define operating characteristics of audio power
              amplifiers.
        11.11 Construct audio power amplifiers.
        11.12 Construct audio power amplifiers.
        11.13 Analyze and troubleshoot audio power amplifiers.

13.0   DEMONSTRATE APPROPRIATE COMMUNICATION SKILLS--The student will be able
        to:

        13.01 Write logical and understandable statements, or phrases, to
              accurately fill out forms/invoices commonly used in business and
              industry.
        13.02 Read and understand graphs, charts, diagrams, and tables commonly
              used in this industry/occupation area.
        13.03 Read and follow written instructions.
        13.04 Answer and ask questions coherently and concisely.
        13.05 Read critically by recognizing assumptions and implications and by
              evaluating ideas.
        13.06 Demonstrate appropriate telephone/communication skills.

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Course Number: 8730191
Course Title: Consumer Electronic Product Service 10
Course Credit: 1

COURSE DESCRIPTION:

This course is designed to provide instruction in analog circuits.

OCCUPATIONAL COMPLETION POINT - D
    ELECTRONICS TECHNICIAN

11.0   DEMONSTRATE PROFICIENCY IN ANALOG CIRCUITS--The student will be able to:

    11.14 Identify and define operating characteristics and applications of
          power supply regulator circuits.
    11.15 Construct power supply regulator circuits.
    11.16 Analyze and troubleshoot power supply regulator circuits.
    11.17 Identify and define operating characteristics and applications of
          active filters.
    11.18 Construct active filter circuits.
    11.19 Analyze and troubleshoot active filter circuits.
    11.20 Identify and define operating characteristics and applications of
          sinusoidal and nonsinusoidal oscillator circuits.
    11.21 Construct oscillator circuits.
    11.22 Analyze and troubleshoot oscillator circuits.
    11.23 Identify and define operating characteristics and applications of
          cathode ray tubes.
    11.24 Identify and define operating characteristics and applications of
          opto-electronic devices.
    11.25 Set up and operate measuring instruments for analog circuits.

15.0   DEMONSTRATE AN UNDERSTANDING OF BASIC SCIENCE SKILLS--The student will
       be able to:

    15.01 Understand molecular action as a result of temperature extremes,
          chemical reaction, and moisture content.
    15.02 Draw conclusions or make inferences from data.
    15.03 Identify health-related problems, which may result from exposure
          to work related chemicals and hazardous materials, and know the
          proper precautions required for handling such materials.
    15.04 Understand pressure measurement in terms of P.S.I., inches of
          mercury, and K.P.A.

OCCUPATIONAL COMPLETION POINT - DATA CODE - E (100 Hours)
       RADIO/TV/VIDEO SPECIALIST

16.0   DEMONSTRATE PROFICIENCY IN SURFACE MOUNTED DEVICES (SMD)--The student
       will be able to:

    16.01 Identify types of surface mounted devices (SMD's) for DC, AC and
          solid-state circuits.
    16.02 Identify defective SMD's using appropriate troubleshooting
          techniques.
    16.03 Remove and replace SMD's using specialized soldering and
          desoldering techniques.

16.04 Properly handle static sensitive devices.

17.0 DEMONSTRATE PROFICIENCY IN RADIO AND TELEVISION RECEIVING SYSTEMS--The student will be able to:

17.01 Read and interpret radio and television receiving system block and circuit diagrams.
17.02 Determine the operational status of radio and television receiving systems.
17.03 Troubleshoot radio and television receiving systems.
17.04 Remove and replace radio and television receiving system components.
17.05 Perform operating systems check and make minor adjustments to radio and television receiving systems.
17.06 Set up and operate video analyzers.
17.07 Set up and operate National Television Signal Codes (NTSC) generators.
17.08 Set up and operate cathode ray tube (CRT) analyzers.
17.09 Set up and operate stereo generators.

18.0 DEMONSTRATE PROFICIENCY IN VIDEO RECORDING AND PLAYBACK SYSTEMS (ANALOG AND DIGITAL)--The student will be able to:

18.01 Read and interpret video recording system block and circuit diagrams.
18.02 Determine the operational status of video recording systems (mechanical and electronic).
18.03 Troubleshoot video-recording systems.
18.04 Remove and replace video recording system components.
18.05 Perform operating systems check and make minor adjustments to video recording systems.
18.06 Set up and operate BETA test equipment.
18.07 Set up and operate VHS test equipment.
18.08 Set up and operate vectorscopes.

19.0 DEMONSTRATE PROFICIENCY IN VIDEO DISC PLAYER SYSTEMS--The student will be able to:

19.01 Read and interpret videodisc player system block and circuit diagrams.
19.02 Determine the operational status of videodisc player systems.
19.03 Troubleshoot videodisc player systems.
19.04 Remove and replace videodisc player system components.
19.05 Perform operating systems checks and make minor adjustments to videodisc player systems.

20.0 DEMONSTRATE APPROPRIATE MATH SKILLS--The student will be able to:

20.01 Solve problems for volume, weight, area, circumference and perimeter measurements for rectangles, squares, and cylinders.
20.02 Measure tolerance(s) on horizontal and vertical surfaces using millimeters, centimeters, feet and inches.
20.03 Add, subtract, multiply and divide using fractions, decimals, and whole numbers.
20.04 Determine the correct purchase price, to include sales tax for a materials list containing a minimum of six items.
20.05 Demonstrate an understanding of federal, state and local taxes and their computation.

21.0 DEMONSTRATE EMPLOYABILITY SKILLS--The student will be able to:

    21.01 Conduct a job search.
    21.02 Secure information about a job.
    21.03 Identify documents, which may be required when applying for a job interview.
    21.04 Complete a job application for correctly.
    21.05 Demonstrate competence in job interview techniques.
    21.06 Identify or demonstrate appropriate responses to criticism from employer, supervisor or other employees.
    21.07 Identify acceptable work habits.
    21.08 Demonstrate knowledge or how to make appropriate job changes.
    21.09 Demonstrate acceptable employee health habits.
    21.10 Demonstrate knowledge of the "Florida Right-To-Know Law" as recorded in Florida Statutes Chapter 442.

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Course Number: 8730192
Course Title: Consumer Electronic Product Service 11
Course Credit: 1

COURSE DESCRIPTION:

This course is designed to provide instruction in personal computers and video games.

OCCUPATIONAL COMPLETION POINT - DATA CODE - F (100 Hours)
       COMPUTER SPECIALIST

22.0   DEMONSTRATE PROFICIENCY IN PERSONAL COMPUTER SYSTEMS AND VIDEO GAMES--
       The student will be able to:

       22.01 Read and interpret computer system and video game block and
             circuit diagrams.
       22.02 Determine the operational status of personal computer systems and
             video games.
       22.03 Troubleshoot personal computer systems and video games.
       22.04 Remove and replace personal computer systems and video game
             components.
       22.05 Perform operating systems check and make minor adjustments to
             personal computer systems and video games.
       22.06 Set up and operate logic analyzers for personal computer systems.

23.0   DEMONSTRATE APPROPRIATE COMMUNICATION SKILLS--The student will be able
       to:

       23.01 Write logical and understandable statements, or phrases, to
             accurately fill out forms/invoices commonly used in business and
             industry.
       23.02 Read and understand graphs, charts, diagrams, and tables commonly
             used in this industry/occupation area.
       23.03 Read and follow written and oral instructions.
       23.04 Answer and ask questions coherently and concisely.
       23.05 Read critically by recognizing assumptions and implications and by
             evaluating ideas.
       23.06 Demonstrate appropriate telephone/communication skills.

24.0   DEMONSTRATE APPROPRIATE UNDERSTANDING OF BASIC SCIENCE--The student will
       be able to:

       24.01 Understand molecular action as a result of temperature extremes,
             chemical reaction, and moisture content.
       24.02 Draw conclusions or make inferences from data.
       24.03 Identify health-related problems, which may result from exposure
             to work related chemicals and hazardous materials, and know the
             proper precautions required for handling such materials.

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Course Number: 8730193
Course Title: Consumer Electronic Product Service 12
Course Credit: 1

COURSE DESCRIPTION:

This course is designed to provide instruction in one or more of the speciality areas listed.

OCCUPATIONAL COMPLETION POINT - DATA CODE - G (50 Hours)
  AUDIO SPECIALIST

25.0 DEMONSTRATE PROFICIENCY IN ADVANCED AUDIO SYSTEMS (ANALOG AND DIGITAL)--The student will be able to:

  25.01 Read and interpret advanced audio systems block and circuit diagrams.
  25.02 Determine the operational status of advanced audio systems.
  25.03 Troubleshoot advanced audio systems.
  25.04 Remove and replace advanced audio system components.
  25.05 Perform operating systems check and make minor adjustments to advanced audio systems.

OCCUPATIONAL COMPLETION POINT - DATA CODE - H (50 Hours)
  TV SAT SPECIALIST

26.0 DEMONSTRATE PROFICIENCY IN MASTER ANTENNA TELEVISION SYSTEMS (CATV/CCTV/MATV/SATV)--The student will be able to:

  26.01 Design master antenna television receiving systems.
  26.02 Determine material requirements for master antenna television receiving systems.
  26.03 Prepare bills of material for master antenna television receiving systems.
  26.04 Lay out and install master antenna television receiving systems.
  26.05 Set up and operate field strength meters.
  26.06 Determine the operational status of master antenna television receiving systems.
  26.07 Troubleshoot master antenna television receiving systems.
  26.08 Remove and replace master antenna television receiving system components.
  26.09 Perform operating systems check and make minor adjustments to master antenna television receiving systems.

OCCUPATIONAL COMPLETION POINT - DATA CODE - I (100 Hours)
  SECURITY SYSTEM SPECIALIST

27.0 DEMONSTRATE PROFICIENCY IN ELECTRONIC SECURITY SYSTEMS--The student will be able to:

  27.01 Lay out and install electronic security systems.
  27.02 Determine the operating status of electronic security systems.
  27.03 Troubleshoot electronic security systems.
  27.04 Remove and replace electronic security system components.

27.05 Perform operating systems check and make minor adjustments to
electronic security systems.