Florida Department of Education
CURRICULUM FRAMEWORK

Program Title: Electronic Technology
Occupational Area: Industrial Education

	PSAV	Secondary
Program Numbers	**I150303**	**8730000**
CIP Number	0615.030300	0615.030300
Grade Level	30, 31	9-12, 30, 31
Length	1400 Hours	10 credits
Certification	ELECTRONIC @7G	ELECTRONIC @7G
	TEC ELEC @7G	TEC ELEC @7G
	AVIONICS @7G	AVIONICS @7G
	RADIO TV @7G	RADIO TV @7G

I. **MAJOR CONCEPTS/CONTENT:** The program is designed to prepare individuals for employment as electrical and electronics technicians (22505231), (003.161-014) or in related occupations in electronics.

Course content includes the following: Direct current (DC) circuits, alternating current (AC) circuits and analog circuits; solid state and digital devices; microprocessors; use of circuit diagrams and schematics; soldering and chassis assembly techniques; laboratory practices; and technical recording and reporting.

The course content also includes training in communication, leadership, human relations, 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. **LABORATORY ACTIVITIES:** Electronic laboratory activities are an integral part of this program. The tools, test equipment, materials and processes used in this laboratory are similar to those used in industry. Students should be able to use the various types of precision test equipment found in general use throughout the electronics industry for the purpose of analyzing, troubleshooting and repairing electronic circuitry.

III. **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.

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 is: 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.

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.

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).

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.

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 1400 hours.
Listed below are the courses that comprise this program when offered at the secondary level:

8730010 - Electronic 1 (150)
8730020 - Electronic 2 (150) - **OCP A**
8730030 - Electronic 3 (150)
8730040 - Electronic 4 (150)
8730050 - Electronic 5 (150) - **OCP B**
8730060 - Electronic 6 (150)
8730070 - Electronic 7 (150) **- OCP C**
8730080 - Electronic 8 (150)
8730090 - Electronic 9 (150)
8730091 – Electronic 10 (150) **- OCP D**

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

OCCUPATIONAL COMPLETION POINT - DATA CODE - A (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 726.381-014

09.0 Demonstrate proficiency in digital circuits.
10.0 Demonstrate proficiency in fundamental micro-processors.

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 - A
ELECTRONICS ASSEMBLER 726.261-010

01.0 DEMONSTRATE PROFICIENCY IN SOLDERING 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 INDUSTRY TITLE

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

05.01 Demonstrate the use of a micro-computer 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.
06.03 Relate electricity to the nature of matter.
06.16 Apply Ohm's law to series-parallel and parallel-series circuits.
06.17 Construct and verify the operation of series-parallel and parallel-series and bridge circuits.
06.18 Troubleshoot series-parallel and parallel-series and bridge circuits.
06.19 Identify and define voltage divider circuits (loaded and unloaded).
06.20 Construct and verify the operation of voltage divider circuits (loaded and unloaded).

06.21 Analyze and troubleshoot voltage divider circuits (loaded and unloaded).
06.22 Apply maximum power transfer theorem.
06.23 Construct and verify the operation of DC circuits that demonstrate the maximum power transfer theory.
06.24 Describe magnetic properties of circuits and devices.
06.25 Determine the physical and electrical characteristics of capacitors and inductors.
06.26 Define resistor-capacitor (R-C) and resistor-inductor (R-L) time constants and classify the output of differentiators and integrators.
06.27 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.
07.05 Define the characteristics of AC capacitive circuits.
07.06 Construct and verify the operation of AC capacitive circuits.
07.07 Analyze and troubleshoot AC capacitive circuits.
07.08 Define the characteristics of AC inductive circuits.
07.09 Construct and verify the operation of AC inductive circuits.
07.10 Analyze and troubleshoot AC inductive circuits.
07.11 Define and apply the principles of transformers to AC circuits.
07.12 Construct and verify the operation of AC circuits utilizing transformers.
07.13 Analyze and troubleshoot AC circuits utilizing transformers.
07.14 Construct and verify the operation of differentiators and integrators to determine R-C and R-L time constraints.
07.15 Analyze and troubleshoot differentiator and integrator circuits.
07.16 Define the characteristics of resistive, Inductive, and Capacitive (RLC) circuits (series, parallel and complex).
07.17 Construct and verify the operation of series and parallel resonant circuits.
07.18 Define the characteristics of series and parallel resonant circuits.
07.19 Construct and verify the operation of series and parallel resonant circuits.
07.20 Analyze and troubleshoot R-C, R-L, and RLC circuits.
07.21 Define the characteristics of frequency selective filter circuits.
07.22 Construct and verify the operation of frequency selective filter circuits.
07.23 Analyze and troubleshoot frequency selective filter circuits.
07.24 Define the characteristics of polyphase circuits.
07.25 Define basic motor theory and operation.
07.26 Define basic generator theory and operation.
07.27 Set up and operate power supplies for AC circuits.
07.28 Analyze and measure power in AC circuits.
07.29 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.

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 726.381-014

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 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.

OCCUPATIONAL COMPLETION POINT - D
ELECTRONICS TECHNICIAN 726.261-018

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

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.

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.

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Course Number: 8730010
Course Title: Electronic 1
Course Credit: 1

COURSE DESCRIPTION:

This course is designed to provide instruction in the different procedures for developing proficiency in laboratory practices and employability skills.

OCCUPATIONAL COMPLETION POINT - A

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

01.01 Apply proper Occupational Safety Health Administration (OSHA) safety standards. (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6)
01.02 Make electrical connections. (SC.B.1.4), SC.A.1.4), (SC.B.2.4), (S C.C.1.4), (SC.C.2.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)
01.03 Identify and use hand tools properly. (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)
01.04 Identify and use power tools properly. (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)
01.05 Demonstrate acceptable soldering techniques. (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)
01.06 Demonstrate acceptable desoldering techniques. (LA.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)
01.07 Demonstrate electrostatic discharge (ESD) safety procedures. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.1.4), (SC.C.2.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA…B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)
01.08 Describe the construction of printed circuit boards (PCB's). (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)
01.09 Explain the theoretical concepts of soldering. (SC.H.3.4), (SC.A.1.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)
01.10 Demonstrate rework and repair techniques. (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

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

03.01 Conduct a job search. (LA.A.1.4.3), (LA.B.1.4.3), (LA.B.2.4.1), (LA.B.2.4.2), (LA.B.2.4.4), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.3.4.2), (LA.C.3.4.4), (LA.D.1.4.3)
03.02 Secure information about a job. (LA.A.1.4.3), (LA.B.1.4.3), (LA.B.2.4.1), (LA.B.2.4.2), (LA.B.2.4.4), (LA.C.1.4.1),

(LA.C.1.4.3), (LA.C.3.4.2), (LA.C.3.4.4), (LA.D.1.4.2), (LA.D.1.4.3)

03.03 Identify documents that may be required when applying for a job. (LA.A.1.4.3), (LA.B.1.4.3), (LA.B.2.4.1), (LA.B.2.4.2), (LA.B.2.4.4), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.3.4.2), (LA.C.3.4.4), (LA.D.1.4.2), (LA.D.1.4.3)

03.04 Complete a job application form correctly. (LA.A.1.4.3), (LA.B.1.4.3), (LA.B.2.4.1), (LA.B.2.4.2), (LA.B.2.4.4), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.3.4.2), (LA.C.3.4.4), (LA.D.1.4.2), (LA.D.1.4.3)

03.05 Demonstrate competence in job interview techniques. (LA.A.1.4.3), (LA.B.1.4.3), (LA.B.2.4.1), (LA.B.2.4.2), (LA.B.2.4.4), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.3.4.2), (LA.C.3.4.4), (LA.D.1.4.2), (LA.D.1.4.3)

03.06 Identify or demonstrate appropriate responses to criticism from employer, supervisor or other persons. (LA.A.1.4.3), (LA.B.1.4.3), (LA.B.2.4.1), (LA.B.2.4.2), (LA.B.2.4.4), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.3.4.2), (LA.C.3.4.4), (LA.D.1.4.2), (LA.D.1.4.3)

03.07 Identify acceptable work habits. (LA.A.1.4.3), (LA.B.1.4.3), (LA.B.2.4.1), (LA.B.2.4.2), (LA.B.2.4.4), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.3.4.2), (LA.C.3.4.4), (LA.D.1.4.2), (LA.D.1.4.3)

03.08 Demonstrate knowledge of how to make appropriate job changes. (LA.A.1.4.3), (LA.B.1.4.3), (LA.B.2.4.1), (LA.B.2.4.2), (LA.B.2.4.4), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.3.4.2), (LA.C.3.4.4), (LA.D.1.4.2), (LA.D.1.4.3)

03.09 Demonstrate acceptable employee health habits. (LA.A.1.4.3), (LA.B.1.4.3), (LA.B.2.4.1), (LA.B.2.4.2), (LA.B.2.4.4), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.3.4.2), (LA.C.3.4.4), (LA.D.1.4.2), (LA.D.1.4.3)

03.10 Demonstrate knowledge of the “Florida Right-to-Know Law” as recorded in Florida Statutes Chapter 442. (LA.A.1.4.3), (LA.B.1.4.3), (LA.B.2.4.1), (LA.B.2.4.2), (LA.B.2.4.4), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.3.4.2), (LA.C.3.4.4), (LA.D.1.4.2), (LA.D.1.4.3)

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Course Number: 8730020
Course Title: Electronic 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. (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.A.1.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

02.02 Solve problems in electronic units utilizing metric prefixes. (SC.B.1.4), (SC.B.2.4), (MA.B.2.4), (MA.A.1.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

02.03 Identify sources of electricity. (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.A.1.4), LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

02.04 Define voltage, current, resistance, power and energy. (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.A.1.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.10

02.05 Apply Ohm's law and power formulas. (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.A.1.4), (MA.D.2.4), (MA.B.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4.), (LA.B.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

02.06 Read and interpret color codes and symbols to identify electrical components and values. (MA.A.2.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

02.07 Measure properties of a circuit using volt-ohm meter (VOM) and digital volt-ohm meter (DVM) and oscilloscopes. (SC.B.1.4), (SC.C.1.4), (SC.C.2.4), (MA.B.1.4), (MA.B.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

02.08 Compute conductance and compute and measure resistance of conductors and insulators. (SC.B.1.4), (SC.C.1.4), (SC.C.2.4), (SC.B.2.4), (MA.D.2.4), (MA.A.3.4), (MA.B.2.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

02.09 Apply Ohm's law to series circuits. (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.A.1.4), (MA.B.2.4), (MA.D.2.4), (MA.A.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

02.10 Construct and verify operation of series circuits. (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

02.11 Analyze and troubleshoot series circuits. (SC.C.2.4), (SC.H.3.4), (SC.B.1.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

02.12 Apply Ohm's law to parallel circuits. (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.A.1.4), (MA.B.2.4), (MA.D.2.4), (MA.A.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

02.13 Construct and verify the operation of parallel circuits. (SC.B.1.4), (SC.B.2.40, (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

02.14 Analyze and troubleshoot parallel circuits. (SC.C.2.4), (SC.H.3.4), (SC.B.1.4), (MA.E.1.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

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

04.01 Define entrepreneurship. (LA.A.1.4.3), (LA.B.1.4.3), (LA.B.2.4.1), (LA.B.2.4.2), (LA.B.2.4.4), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.3.4.2), (LA.C.3.4.4), (LA.D.1.4.2), (LA.D.1.4.3)

04.02 Describe the importance of entrepreneurship to the American economy. (LA.A.1.4.3), (LA.B.1.4.3), (LA.B.2.4.1), (LA.B.2.4.2), (LA.B.2.4.4), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.3.4.2), (LA.C.3.4.4), (LA.D.1.4.2), (LA.D.1.4.3)

04.03 List the advantages and disadvantages of business ownership. (LA.A.1.4.3), (LA.B.1.4.3), (LA.B.2.4.1), (LA.B.2.4.2), (LA.B.2.4.4), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.3.4.2), (LA.C.3.4.4), (LA.D.1.4.2), (LA.D.1.4.3)

04.04 Identify the risks involved in ownership of a business. (LA.A.1.4.3), (LA.B.1.4.3), (LA.B.2.4.1), (LA.B.2.4.2), (LA.B.2.4.4), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.3.4.2), (LA.C.3.4.4), (LA.D.1.4.2), (LA.D.1.4.3)

04.05 Identify the necessary personal characteristics of a successful entrepreneur. (LA.A.1.4.3), (LA.B.1.4.3), (LA.B.2.4.1), (LA.B.2.4.2), (LA.B.2.4.4), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.3.4.2), (LA.C.3.4.4), (LA.D.1.4.2), (LA.D.1.4.3)

04.06 Identify the business skills needed to operate a small business efficiently and effectively. (LA.A.1.4.3), (LA.B.1.4.3), (LA.B.2.4.1), (LA.B.2.4.2), (LA.B.2.4.4), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.3.4.2), (LA.C.3.4.4), (LA.D.1.4.2), (LA.D.1.4.3)

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Course Number: 8730030
Course Title: Electronic 3
Course Credit: 1

COURSE DESCRIPTION:

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

OCCUPATIONAL COMPLETION POINT - B

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. (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)
05.02 Demonstrate the use of a high-level computer language. (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)
05.03 Demonstrate the use of microcomputer application programs (i.e., word processing, database and spreadsheet). (SC.H.3.4), (MA.E.1.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

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. (SC.B.1.4), (SC.A.1.4), (SC.B.2.4), (SC.C.1.4), (SC.C.2.4), (MA.D.1.4), (MA.D.2.4)
06.03 Relate electricity to the nature of matter. (SC.A.1.4), (SC.B.2.4), (SC.C.2.4), (SC.B.1.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)
06.16 Apply Ohm's law to series-parallel and parallel-series circuits. (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.A.1.4), (SC.H.3.4), (MA.D.2.4), (MA.B.2.4), (MA.A.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)
06.17 Construct and verify the operation of series-parallel and parallel-series and bridge circuits. (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)
06.18 Troubleshoot series-parallel and parallel-series and bridge circuits. (SC.B.1.4), (SC.B.2.4), (SC.C.2.4.), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)
06.19 Identify and define voltage divider circuits (loaded and unloaded). (SC.C.2.4), (SC.H.3.4), (SC.B.1.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

06.20 Construct and verify the operation of voltage divider circuits (loaded and unloaded). (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4.), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

06.21 Analyze and troubleshoot voltage divider circuits (loaded and unloaded). (SC.C.2.4), (SC.H.3.4), (SC.B.1.4), (MA.A.3.4), (MA.E.1.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4.), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Course Number: 8730040
Course Title: Electronic 4
Course Credit: 1

COURSE DESCRIPTION:

This course is designed to provide instruction in advanced D.C. circuits and A.C. circuits.

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

06.22 Apply maximum power transfer theorem. (SC.A.1.4), (SC.B.1.4), (SC.C.1.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

06.23 Construct and verify the operation of DC circuits that demonstrate the maximum power transfer theory. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

06.24 Describe magnetic properties of circuits and devices. (SC.B.1.4), (SC.C.2.4), (SC.B.2.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

06.25 Determine the physical and electrical characteristics of capacitors and inductors. (SC.A.2.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

06.26 Define resistor-capacitor (R-C) and resistor-inductor (R-L) time constants and classify the output of differentiators and integrators. (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (MA.A.4.4),(MA.B.1.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (AL.C.1.4.3), (LA.C.2.4.1)

06.27 Set up and operate power supplies for DC circuits. (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

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

07.01 Solve basic trigonometric problem as applicable to electronics. (MA.C.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4.), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

07.05 Define the characteristics of AC capacitive circuits. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6.), (LA.A.2.4.4.), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.3), (LA.C.2.4.1)

07.06 Construct and verify the operation of AC capacitive circuits. (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

07.07 Analyze and troubleshoot AC capacitive circuits. (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (MA.E.1.4), (MA.E.3.4)
07.08 Define the characteristics of AC inductive circuits. (SC.A.1.4), (SC.B.1.4), (SC.C.2.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)
07.09 Construct and verify the operation of AC inductive circuits. (SC.A.1.4), (SC.B.1.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)
07.10 Analyze and troubleshoot AC inductive circuits. (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (MA.E.1.4), (MA.E.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)
07.11 Define and apply the principles of transformers to AC circuits. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1), (
07.12 Construct and verify the operation of AC circuits utilizing transformers. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)
07.13 Analyze and troubleshoot AC circuits utilizing transformers. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (MA.E.1.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)
07.14 Construct and verify the operation of differentiators and integrators to determine R-C and R-L time constraints. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)
07.15 Analyze and troubleshoot differentiator and integrator circuits. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4.), (SC.C.2.4), (SC.H.3.4), (MA.E.1.4), (MA.E.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)
07.16 Define the characteristics of resistive, Inductive, and Capacitive (RLC) circuits (series, parallel and complex). (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)
07.17 Construct and verify the operation of series and parallel resonant circuits. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)
07.18 Define the characteristics of series and parallel resonant circuits. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)
07.19 Construct and verify the operation of series and parallel resonant circuits. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Course Number: 8730050
Course Title: Electronic 5
Course Credit: 1

COURSE DESCRIPTION:

This course is designed to provide instruction in advanced A.C. circuits and solid state devices.

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

07.20 Analyze and troubleshoot R-C, R-L, and RLC circuits. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)
07.21 Define the characteristics of frequency selective filter circuits.
07.22 Construct and verify the operation of frequency selective filter circuits.
07.23 Analyze and troubleshoot frequency selective filter circuits. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (MA.E.1.4), (MA.E.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.30, (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)
07.24 Define the characteristics of polyphase circuits. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.30, (LA.C.2.4.1)

07.25 Define basic motor theory and operation. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.2.4.1
07.26 Define basic generator theory and operation. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)
07.27 Set up and operate power supplies for AC circuits. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.H.3.4), LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)
07.28 Analyze and measure power in AC circuits. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (MA.E.1.4), (MA.E.3.4), (MA.B.1.4), (LA.B.4.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)
07.29 Set up and operate capacitor and inductor analyzers for AC circuits. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

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

08.01 Identify and define properties of semiconductor materials. (SC.A.1.4), (SC.A.2.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4),

(LA.B.1.4.30, (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

08.02 Identify and define operating characteristics and applications of junction diodes. (SC.A.1.4), (SC.A.2.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

08.03 Identify and define operating characteristics and applications of special diodes. (SC.A.1.4), (SC.A.2.4.), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

08.04 Construct diode circuits. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4.), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (AL.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

08.05 Analyze and troubleshoot diode circuits. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (MA.E.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

08.06 Identify and define operating characteristics and applications of bipolar transistors. (SC.A.1.4), (SC.A.2.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), LA.C.1.4.3), (LA.C.2.4.1)

08.07 Identify and define operating characteristics and applications of field effect transistors. (SC.A.1.4), (SC.A.2.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

08.08 Identify and define operating characteristics and applications of single-stage amplifiers. (SC.A.1.4), (SC.A.2.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

08.09 Construct single-stage amplifiers. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (AL.C.1.4.3), LA.C.2.4.1)

08.10 Analyze and troubleshoot single-stage amplifiers. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (MA.E.1.4), (MA.E.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

08.11 Construct thyristor circuitry. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (MA.E.1.4), (MA.E.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

08.12 Analyze and troubleshoot thyristor circuitry. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

08.13 Set up and operate VOM for solid-state devices. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

08.14 Set up and operate DVM for solid-state devices. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

08.15 Set up and operate power supplies for solid-state devices. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

08.16 Set up and operate oscilloscopes for solid-state devices. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

08.17 Set up and operate function generators for solid-state devices. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

08.18 Set up and operate capacitor and inductor analyzers for solid-state devices. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

08.19 Set up and operate curve tracers. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

08.20 Set up and operate transistor testers. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Course Number: 8730060
Course Title: Electronic 6
Course Credit: 1

COURSE DESCRIPTION:

This course is designed to provide instruction in developing proficiency in digital circuit skills.

OCCUPATIONAL COMPLETION POINT - C

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. (MA.A.1.4), (MA.A.2.4), (MA.A.3.4), (MA.D.1.4), (MA.D.2.4)
09.02 Analyze and minimize logic circuits using Boolean operations. (MA.E.1.4), (MA.E.3.4), (MA.D.1.4), (MA.D.2.4)
09.03 Set up and operate logic probes for digital circuits. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)
09.04 Set up and operate power supplies for digital circuits and solve power distribution and noise problems. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)
09.05 Set up and operate pulsers for digital circuits. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)
09.06 Set up and operate oscilloscopes for digital circuits. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)
09.07 Set up and operate logic analyzers for digital circuits. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)
09.08 Set up and operate pulse generators for digital circuits. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)
09.09 Identify types of logic gates and their truth tables. (MA.E.1.4), (MA.E.2.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)
09.10 Construct combinational logic circuits using integrated circuits. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)
09.11 Troubleshoot logic circuits. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6),

(LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

09.12 Analyze types of flip-flops and their truth tables. (MA.E.1.4), (MA.E.2.4), (MA.E.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1),

09.13 Construct flip-flops using integrated circuits. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

09.14 Troubleshoot flip-flops. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

09.15 Identify, define and measure characteristics of integrated circuit (IC) logic families. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

09.16 Identify types of registers and counters. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

09.17 Construct registers and counters using flip-flops and logic gates. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

09.18 Troubleshoot registers and counters. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

09.19 Analyze clock and timing circuits. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (MA.E.1.4), (MA.E.2.4), (MA.E.3.4), (LA.A.1.4.2), LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (AL.C.1.4.3), (LA.C.2.4.1)

09.20 Construct clock and timing circuits. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

09.21 Troubleshoot clock and timing circuits. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

09.22 Identify types of arithmetic-logic circuits. (SC.A.1.4), (SC.A.2.40, (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (MA.E.1.4), (MA.E.2.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

09.23 Construct arithmetic-logic circuits. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

09.24 Troubleshoot arithmetic-logic circuits. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (MA.D.1.4), (MA.D.2.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C..1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

09.25 Identify types of encoding and decoding devices. (SC.A.1.4), (SC.A.2.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (MA.E.1.4),

(MA.E.2.4), (MA.E.3.4), (MA.A.2.4), (MA.B.2.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

09.26 Construct encoders and decoders. ((SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

09.27 Troubleshoot encoders and decoders. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (MA.A.2.4), (MA.E.1.4), (MA.E.2.4), (MA.E.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

09.28 Identify types of multiplexer and demultiplexer circuits. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

09.29 Construct multiplexer and demultiplexer circuits using integrated circuits. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

09.30 Troubleshoot multiplexer and demultiplexer circuits. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

09.31 Identify types of memory circuits. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

09.32 Relate the uses of digital-to-analog and analog-to-digital conversions. (SC.A.1.4), (SC.B.1.4), (SC.C.2.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

09.33 Construct digital-to-analog and analog-to-digital circuits. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

09.34 Troubleshoot digital-to-analog and analog-to-digital circuits. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

09.35 Identify types of digital displays. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

09.36 Construct digital display circuits. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

09.37 Troubleshoot digital display circuits. (SC.A.1.4), (SC.B.1.4), (SC.B.2.4), (SC.C.2.4), (SC.H.3.4), (LA.A.1.4.2), (LA.A.1.4.3), (LA.A.2.4.6), (LA.A.2.4.4), (LA.B.1.4.3), (LA.B.2.4.2), (LA.C.1.4.1), (LA.C.1.4.3), (LA.C.2.4.1)

July 2001

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Course Number: 8730070
Course Title: Electronic 7
Course Credit: 1

COURSE DESCRIPTION:

This course is designed to provide instruction in developing proficiency in fundamental microprocessors.

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: 8730080
Course Title: Electronic 8
Course Credit: 1

COURSE DESCRIPTION:

This course is designed to provide instruction in developing proficiency in analog circuits and technical recording.

OCCUPATIONAL COMPLETION POINT - D
ELECTRONICS TECHNICIAN 726.261-018

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.
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 Analyze and troubleshoot audio power amplifiers.

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.

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: 8730090
Course Title: Electronic 9
Course Credit: 1

COURSE DESCRIPTION: This course is designed to provide instruction in developing proficiency in analog circuits.

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

11.13 Identify and define operating characteristics and applications of power supply regulator circuits.
11.14 Construct power supply regulator circuits.
11.15 Analyze and troubleshoot power supply regulator circuits.
11.16 Identify and define operating characteristics and applications of active filters.
11.17 Construct active filter circuits.
11.18 Analyze and troubleshoot active filter circuits.
11.19 Identify and define operating characteristics and applications of sinusoidal and nonsinusoidal oscillator circuits.

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Course Number: 8730091
Course Title: Electronic 10
Course Credit: 1

COURSE DESCRIPTION: This course is designed to provide instruction in developing proficiency in electronics related mathematics and applied science as it relates to electronics.

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

- 11.20 Construct oscillator circuits.
- 11.21 Analyze and troubleshoot oscillator circuits.
- 11.22 Identify and define operating characteristics and applications of cathode ray tubes.
- 11.23 Identify and define operating characteristics and applications of optoelectronic devices.
- 11.24 Set up and operate measuring instruments for analog circuits.

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.